STATE OF CALIFORNIA EDMUND G. BROWN JR

PUBLIC UTILITIES COMMISSION
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FILED
7-02-15
02:19 PM

July 2, 2015

Agenda ID #14105
Ratesetting

TO PARTIES OF RECORD IN RULEMAKING 11-03-012

This is the proposed decision of Administrative Law Judges Semcer and Halligan. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's August 13, 2015 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

/s/ KAREN V. CLOPTON
Karen V. Clopton, Chief
Administrative Law Judge

KVC:ek4
Attachment

Decision: **PROPOSED DECISION OF ALJs SEMCER AND HALLIGAN**
(Mailed on 7/2/2015)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Address Utility Cost and Revenue Issues Associated with Greenhouse Gas Emissions.	Rulemaking 11-03-012 (Filed March 24, 2011)

DECISION MODIFYING DECISION 14-12-037 ON THE COMMISSION'S OWN MOTION AND DISMISSING THE MAY 18, 2015 PETITION FOR MODIFICATION OF THE ENERGY PRODUCERS AND USERS COALITION

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DECISION MODIFYING DECISION 14-12-037 ON THE COMMISSION'S OWN MOTION AND DISMISSING THE MAY 18, 2015 PETITION FOR MODIFICATION OF THE ENERGY PRODUCERS AND USERS COALITION

Summary

By this decision, the Commission modifies, on its own motion, Decision (D.) 14-12-037 (Decision Adopting Greenhouse Gas (GHG) Allowance Revenue Allocation Formulas and Distribution Methodologies for Emissions-Intensive and Trade-Exposed Customers). The modifications come in response to a California Public Utilities Commission Energy Division memo, dated May 8, 2015, and incorporated into the record on May 19, 2015, stating that certain changes are necessary to alleviate inconsistencies between the data inputs and methodologies described in D.14-12-037 to return GHG allowance proceeds to emissions-intensive and trade exposed industries and those used by the California Air Resources Board to calculate Industry Assistance pursuant to its Cap-and-Trade Regulation.

This decision also dismisses the May 18, 2015 Petition for Modification of D.14-12-037 of the Energy Producers and Users Coalition. The entirety of that petition is fully addressed by the modifications undertaken on the Commission's own motion herein. The Commission will defer consideration of Tesoro Refining & Marketing Company, LLC's May 26, 2015 Petition for Modification of D.14-12-037 to a subsequent decision.

This proceeding remains open.

1. Background

On May 8, 2015, the Commission's Energy Division sent the assigned Administrative Law Judges (ALJs) in this rulemaking a memo (the memo), requesting several modifications to Decision (D.) 14-12-037. In D.14-12-037, the

Commission adopted formulas and methodologies to distribute greenhouse gas (GHG) allowance proceeds to emissions-intensive and trade-exposed (EITE) customers, as those customers are defined in D.12-12-033 (Decision Adopting Cap-and-Trade Greenhouse Gas Allowance Revenue Allocation Methodology for the Investor-Owned Electric Utilities). In D.14-12-037, the Commission ordered Energy Division to "be responsible for collecting all information and performing calculations necessary to return allowance revenue to [EITE] entities."[1]

On May 19, 2015, assigned ALJ Semcer issued a ruling in this proceeding incorporating the Energy Division memo into the record and seeking party comment. The California Air Resources Board (ARB), Energy Producers and Users Coalition (EPUC), Tesoro Refining & Marketing Company (Tesoro), and USS-POSCO (UPI) filed and served opening comments on May 26, 2015. California Large Energy Consumers Association (CLECA), California Steel Industries (CSI), Tesoro and UPI filed and served reply comments on May 29, 2015. On May 18, 2015 and May 26, 2015 EPUC and Tesoro, respectively, filed Petitions for Modification (PFM) of D.14-12-037. EPUC's PFM is addressed and dismissed herein. The Commission will address Tesoro's PFM in a separate decision.

1.1. Energy Division Memo

In the memo, Energy Division stated that it had begun the process of collecting data necessary to calculate the level of CA Industry Assistance[2] for eligible EITE entities. In seeking the data necessary to undertake the calculations from the ARB, Energy Division "…realized that there are some inconsistencies

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[1] D.14-12-037 at Ordering Paragraph (OP) 3.

[2] Industry Assistance is the adopted nomenclature for GHG allowance distributions to EITE customers.

between the data inputs and the methodologies described in [D.14-12-037] and those that ARB used in its calculations of Industry Assistance."[3] Accordingly, Energy Division proposed the following modifications to D.14-12-037:

1) The Commission should use the same data years as ARB when calculating product-based, energy-based, and refinery benchmarks.
2) The Commission's methodologies for developing benchmarks should use the same facilities ARB used in calculating its benchmarks.
3) The Commission should clarify the requirements necessary to develop benchmarks for industries that produce multiple products. Required clarifications are as follows:
    a. Data years of voluntarily provided electricity data should be consistent with ARB's methodologies.
    b. The procedure an industry must use to inform Energy Division of the methodology it should use to estimate electricity purchases by product should be clarified.
4) The Commission should specify the process for establishing benchmarks if additional industries with subsector activities receive a product-based allocation in the future.

1.1.1. Benchmark Calculations – Data Years

Energy Division recommends that the Commission use the same years of data ARB used when calculating product-based, energy-based, and refinery benchmarks. In the memo, Energy Division asserts that "[D.14-12-037] correctly states that 'when calculating product-based benchmarks, ARB generally relied on a historical period of 2008-2010, with some variability in instances when different data were necessary to establish a baseline benchmark.'[4] [D.14-12-037], however,

[3] Energy Division May 8, 2015 memo.

[4] Finding of Fact 16.

requires that Commission approved formulas use 2008-2010 data in all cases, rather than mirroring the same historical periods ARB used."[5]

Energy Division states that ARB sought to set the historical periods based on a representative set of data years. Therefore, the memo notes that it is important that Energy Division use the same historical periods when establishing allocation benchmarks because both the Commission and ARB benchmarks provide industry assistance for the same purposes. Using different baseline data years could lead to unintended consequences not supported by policy goals and technical limitations.[6]

Energy Division continues: "[t]here are some instances when ARB supplemented [ARB's Regulation for the Mandatory Reporting of GHG Emissions] (MRR) data with data reported to the California Climate Action Registry (CCAR) when calculating benchmarks. For the energy-based methodology, ARB used data reported to CCAR for the 2000-2007 period if facility-level, third-party verified GHG emissions were reported and provided by the entity, in addition to data reported through ARB's MRR for the 2008-2010 period.[7] For the first compliance period refinery methodology, ARB used data reported to CCAR for the 2006-2007 period if facility-level, third-party verified GHG emissions were reported and provided by the entity, in addition to data reported through MRR for the 2008-2010 period."[8,9]

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[5] Energy Division May 8, 2015 memo at 2.

[6] *Id.*

[7] Cap-and-Trade Regulation section 95891(c)(1) and 2010 Cap-and-Trade Regulation Staff Report APPENDIX J ALLOWANCE ALLOCATION J-54.

[8] Cap-and-Trade Regulation section 95891(d)(1)(A).

[9] Energy Division May 8, 2015 memo at 2.

Energy Division recommends modifications to Finding of Fact 23 and Conclusions of Law 6 and 16 to bring into alignment the data years used by Energy Division to those used by ARB. Energy Division also recommends deletion of specific references to "2008-2010" data in Appendix A Equations 1, 2, 5, 6, 12, 15, 18, 19, and 20 to be replaced by "of the historical period ARB determined was appropriate for that industry/facility."

1.1.2. Benchmark Calculations - Facilities

Energy Division's second recommendation pertains to the facilities that are used by ARB to calculate benchmarks. Energy Division states: "[i]n developing product benchmarks, ARB staff only used data from facilities that were identified as covered entities in the Cap-and-Trade Program at the time of its benchmark development. This ensured that the emissions and energy data ARB used were verified as part of the [MRR], and that data from facilities that would receive an allocation were included in the benchmark."[10] However, Energy Division notes that it is possible that a facility that was a covered entity at the time ARB calculated its benchmark is no longer a covered entity, or vice versa. Despite the potential entrance and exit of facilities, ARB continues to use a benchmark that includes facilities that were covered entities at the time the benchmark was initially developed. To ensure consistency with ARB's methodology, Energy Division recommends that D.14-12-037 be modified to specify that the Commission should use the same set of facilities that ARB used in its original benchmark calculation.[11]

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[10] Energy Division May 8, 2015 Memo at 3.

[11] *Id.* at 4.

Energy Division recommends modifying Conclusion of Law 10 and Conclusion of Law 31 and updating Equation 1 in Appendix A to reflect Energy Division's proposal.[12]

1.1.3. Benchmark Requirements-Electricity Data and Approved Methodologies for Estimating Electricity Purchases

Decision 14-12-037 discusses the challenges of developing product benchmarks "when a single facility produces more than one type of related product, each of which has its own product-based benchmark in ARB's Cap-and-Trade Regulation…To calculate benchmarks of electricity purchases for these subsectors and others, the Commission either needs supplemental data from the affected industries, or it needs a method to estimate electricity purchases by subsector based on other available data."[13] D.14-12-037 concluded that Energy Division should use ARB data about a facility's relative natural gas usage by subsector activity to apportion electricity usage by subsector activity, unless an industry indicated to Energy Division that it prefers for Energy Division to use either relative product output data captured in ARB's MRR data or voluntarily provided auditable data that apportions electricity usage by subsector activity.[14] Energy Division recommends two changes: 1) Data years of voluntarily provided electricity data should be consistent with ARB's methodology; and 2) The procedure by which an industry informs Energy Division which methodology to use to estimate electricity purchases by product should be clarified.

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[12] Energy Division, in the May 8 2015 memo, provided proposed revisions to Findings of Fact , Conclusions of Law, and Appendix A equations. Final adopted revisions are set forth in the ordering paragraphs of the instant decision.

[13] D.14-12-037 at 37.

[14] *Id.* at 38 and COL 34.

1.1.3.1. The Data Years of Voluntarily Provided Electricity Data Should be Consistent with ARB's Methodologies

Energy Division recommends that if an industry elects to voluntarily provide data to show the allocation of electricity purchases by subsector activity, it should provide data from years consistent with ARB's benchmarking methodology. As with Energy Division's first recommendation, ARB developed benchmarks based on historical periods that were representative of industry operations. In addition, Energy Division recommends that D.14-12-037 be clarified to allow the use of engineering estimates as a form of auditable data.

The memo notes that ARB staff has extensive knowledge of subsector activities, including manufacturing processes and associated energy uses.[15] Therefore, ARB staff is best suited to determine which years of auditable data or engineering estimates a facility should voluntarily provide to show electricity use by subsector activity, and Energy Division, in consultation with ARB, should have authority to assess the accuracy and reasonableness of this voluntary data when calculating benchmarks for subsector activities.

To reflect this outcome, Energy Division recommends modifications to Findings of Fact 77 and 78.

1.1.3.2. Clarify the Procedure for an Industry to Inform Energy Division Which Methodology Should Be Used to Estimate Electricity Purchases by Product

Decision 14-12-037 states that an industry can use an alternative approach to apportion electricity purchases by product if all covered entities in the

[15] *See also* Resolution E-4716 at 27.

industry agree and state their preference to the Director of the Energy Division.[16] However, Energy Division, in the memo, suggests that a complete consensus of facilities within an industry may not be possible or necessary. For example, providing auditable data might be the most appropriate method for an industry, but every covered entity in the industry might not have auditable data. Energy Division notes that ARB encountered similar issues when every facility did not voluntarily provide data for ARB's product benchmarks. In some cases ARB found that using the available data from a majority of facilities was sufficient to develop representative benchmarks.

Energy Division recommends that D.14-12-037 be modified to allow industry facilities or their representatives to provide a letter to specify their preferred methodology without requiring every facility to agree on the methodology or agree to provide the same level of data. After receiving a letter from the industry, Energy Division should then determine, in consultation with ARB, if the proposed methodology is most appropriate for the industry and if there is sufficient data available to use the proposed methodology.

As a result of this modification, Energy Division envisions that additional industries might have data that meets these revised requirements, and may want to inform Energy Division that one of the alternative methodologies is appropriate for their industry. Energy Division proposes that the date for industries to submit a letter to the Director of the Energy Division should be extended to 30 days after the effective date of the instant decision adopting modifications to D.14-12-037.

Energy Division provided proposed modifications to Conclusion of Law 34 to reflect these changes.

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[16] D.14-12-037 at 38.

1.1.4. Process for Establishing Benchmarks for New Industrial Sectors

In the final recommendation of the memo, Energy Division states that Table 9-1 of the Cap-and-Trade Regulation lists all industries that receive Industry Assistance from ARB using the product-based allocation methodology. If ARB amends Table 9-1 to modify or add benchmarks for new industrial sectors, Energy Division recommends that D.14-12-037 be changed to specify a deadline for new industries with subsector activities to indicate which methodology they request Energy Division to use to estimate electricity purchases for each industrial subsector activity. Energy Division recommends that new industries have 90 days from the date the Cap-and-Trade Regulation revisions are approved by the Office of Administrative Law to submit a letter to the Director of the Energy Division indicating the preferred methodology.

Energy Division recommends modification of Conclusion of Law 5 to allow for this 90-day request process.

2. Discussion

The Commission has found that the distribution of GHG allowance proceeds to EITE customers should closely mirror ARB's Industry Assistance allocation methodologies.[17] Exceptions were deemed appropriate only to:[18]

1. Reflect the fact that the Commission will allocate allowance proceeds, rather than allowances, and that benchmarks need to reflect indirect emissions from electricity purchases, rather than direct emissions;
2. ARB's methodology presents unworkable complications when applied to emissions from electricity purchases;
3. Necessary data are unavailable; and/or

[17] D.14-12-037 at 13-14, Finding of Fact 7, Conclusion of Law 1.

[18] *Id.* at 14.

4. Legal issues or policy questions exist that ARB did not address in the scope of its regulation.

In considering the merits of Energy Division's proposals, which require modification of D.14-12-037 on the Commission's own motion, we will evaluate whether the proposed modifications further our ability to mirror ARB's adopted methodologies, subject to the restrictions above. This decision will address the merits of each proposed modification below.

No party objected to Energy Division's first, second, and fourth proposed modifications; disagreement arose in regards to Energy Division's third proposed modification.

2.1. First Proposed Modification: Benchmark Calculations - Data Years

In its first proposed modification, Energy Division recommends that the Commission use the same years of data that ARB used when calculating product-based, energy-based, and refinery benchmarks for each sector rather than using only the 2008-2010 historical period. No party objected to this proposal. In an effort to mirror ARB's methodologies whenever possible, it is reasonable for the Commission to use the same historical data years as used by ARB to calculate benchmarks for the provision of Industry Assistance. As stated by Energy Division, ARB can confidentially provide Energy Division a list of which data years to use for each industry or facility[19]; therefore, there are no foreseeable barriers or exceptions required to the adoption of this revision. D.14-12-037 is modified as follows to provide for usage of the same historical data years as used by ARB when calculating benchmarks (text that is deleted is shown with a strike-through; additions are shown as underlined text):

[19] Energy Division May 8, 2015 memo at 2.

Finding of Fact 23:
ARB relies on a historical period of 2008-2010 MRR data when calculating energy-based historical benchmarks, with some variability in instances in which different data were necessary to establish a baseline representative of normal operations. In addition, if an entity reported facility-level, third-party verified greenhouse gas emissions data to the California Climate Action Registry for data years 2000-2007, and the entity requested it, ARB used those data when calculating the entity's energy-based allocation.

Conclusion of Law 6:
The Commission should use the same data years that ARB used for each sector and/or facility ~~2008-2010 MRR data~~ in its product-based, energy-based, and refinery allocation methodologies.

Conclusion of Law 16:
The Commission should use 2008 to 2010 MRR data when calculating fixed historical energy-based benchmarks for entities that have annual direct emissions equal to or greater than 10,000 $MTCO_2e$ and that report to ARB under its MRR, but are not covered or opt-in covered entities in the Cap-and-Trade Program. For covered or opt-in covered entities, the Commission should use the same historical period that ARB used for each facility.

Equations 1, 2, 5, 6, 12, 15, 18, 19, and 20 in Appendix A are modified as shown in Attachment 2.

2.2. Second Proposed Modification: Benchmark Calculations - Facilities

In its second proposed modification, Energy Division recommends modifying D.14-12-037 to specify that the Commission should use the same set of facilities that ARB used in its original product-based benchmark calculations

even if some facilities are no longer covered entities or new facilities become covered entities.

No party objected to this proposal. In an effort to mirror ARB's methodologies whenever possible, it is reasonable for the Commission to use the same set of facilities as used by ARB to calculate benchmarks for the provision of Industry Assistance. There are no foreseeable barriers required to adopt this revision.

Decision 14-12-037 is modified as follows to reflect usage of the same set of facilities as used by ARB in calculation of benchmarks for Industry Assistance (text that is deleted is shown with a strike-through; additions are shown as underlined text):

> *Conclusion of Law 10:*
> Product-based industry benchmarks should be calculated using data from the same ~~take into account all California~~ facilities in an industrial sector that ARB used to calculate product-based industry benchmarks in the Cap-and-Trade Regulation, not solely those in an investor-owned utility's territory.
>
> *Conclusion of Law 31:*
> The Commission's product-based benchmarks should be calculated using data from the same ~~take into account all California~~ facilities in an industrial sector that ARB used to calculate product-based industry benchmarks in the Cap-and-Trade Regulation, not solely those in an investor-owned utility's territory, even though the Commission will only allocate revenue to facilities that operate in an investor-owned utility's territory.
>
> *Equations 1 and 2 in Appendix A are modified as shown in Attachment 2.*

2.3. Third Proposed Modification: Benchmark Requirements-Electricity Data and Approved Methodologies for Estimating Electricity Purchases

In its third proposed modification, Energy Division recommends two changes to the methodologies used to develop benchmarks for industries that produce multiple products: 1) Data years of voluntarily provided electricity data should be consistent with ARB's methodology; and 2) The procedure by which an industry informs Energy Division which methodology to use to estimate electricity purchases by product should be clarified.

Specifically, Energy Division recommends that if an industry elects to voluntarily provide data to show the allocation of electricity purchases by subsector activity, it should provide data from years consistent with ARB's benchmarking methodology. In addition, Energy Division recommends that D.14-12-037 be modified to allow the use of engineering estimates as a form of auditable data. Finally, Energy Division recommends that, rather than requiring all covered entities to agree in order to apportion electricity purchases by product, individual industry facilities or their representatives should be granted the ability to provide a letter to specify their preference (to Energy Division) without requiring every facility to agree on the methodology or agree to provide the same level of data. After receiving a letter from the industry, Energy Division should then determine, in consultation with ARB, if the proposed methodology is most appropriate for the industry and if there is sufficient data available to use the proposed methodology.

As noted earlier in this decision, as a result of this proposed modification, Energy Division envisions that additional industries might have data that meets these revised requirements, and may want to inform Energy Division that one of the alternative methodologies is appropriate for their industry. To accommodate

this request, Energy Division proposes that the date for industries to submit a letter to the Director of the Energy Division should be extended to 30 days after the effective date of the instant decision adopting modifications to D.14-12-037.

2.3.1. Party Comments

Several parties provided comment on Energy Division's third proposed modification. ARB, while agreeing with all of Energy Division's modifications, offered that the benchmarking process can be further improved to "ensure that electricity purchase benchmarks are representative of electricity use by product when multiple products are produced at a facility."[20] ARB states that it believes that natural gas use by product is not an appropriate proxy for electricity purchases by product because there may not be a direct relationship between how natural gas and thermal energy are used and electricity is used for many production processes. Particularly in processes where natural gas usage is high, ARB states that purchased electricity may be disproportionally attributed to a particular product, which would result in an over allocation of Industry Assistance to one product or facility and an under allocation to other products or facilities.[21]

To remedy this potential for over or under allocation, ARB states that engineering estimates of electricity purchases developed with assistance from industrial sectors is the most appropriate methodology to use to develop benchmarks in industrial sectors with no purchased electricity sub-metering data. UPI also supports the inclusion of engineering estimates and suggests that with the inclusion of such estimates, the Commission may want to consider primarily relying upon voluntarily reported auditable data to calculate subsector

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[20] ARB Opening Comments, May 26, 2015, at 3.

[21] *Id.* at 3.

benchmarks for all subsectors within the Rolled Steel Shape Manufacturing Sector.

If an industry is unable to provide additional data to assist with benchmark development, ARB recommends that relative product output be the basis for attributing electricity purchases to different products, a methodology ARB uses in its own benchmarking process. Finally, ARB suggests that there may be instances where it is feasible and appropriate to use a combination of sub-metered electricity data and relative product output to attribute electricity purchases to production. In these cases, ARB recommends that the Energy Division and ARB staff work together to evaluate and assess the accuracy of data submitted and the reasonableness of methodologies.

In response to ARB and UPI's opening comments, CLECA and CSI opposed the elimination of natural gas usage as a proxy for electricity purchases arguing that neither ARB nor UPI has sufficiently demonstrated that natural gas usage intensity is not reasonably related to electricity usage. They state that, in CSI's case, reliable data by subsector may not be readily available, and until CSI has an opportunity to work with Energy Division staff to review what may be available, the Commission has no basis upon which to determine that voluntarily reported data are superior to usage of natural gas as a proxy.[22] UPI, in reply comments, continued to support its original position.

2.3.2. Discussion

In D.14-12-037, the Commission, recognizing the complexity of calculating benchmarks for facilities that produce products in multiple sectors covered under the Cap-and-Trade Regulation, adopted an interim approach whereby natural gas usage acts as a proxy to estimate electricity purchases. The

[22] CLECA Reply Comments, May 29, 2015 at 3.

Commission also adopted two alternative approaches: 1) apportion electricity usage by subsector according to auditable electricity usage by subsector, or 2) apportion electricity purchases by subsector according to the relative subsector product output if all entities agree and state their preference via submission of a letter to the Director of the Energy Division within 90 days of the effective date of D.14-12-037.

Energy Division recommends three changes to D.14-12-037: 1) Industries electing to voluntarily provide auditable data should provide data from years consistent with ARB's benchmarking methodology; 2) Engineering estimates should be specified as a suitable form of auditable data; and 3) Rather than requiring all covered entities to agree in order to apportion electricity purchases by product, instead, individual industry facilities or their representatives should be granted the ability to provide a letter up to 30 days after the effective date of this decision to specify their preferred methodology (to Energy Division) without requiring every facility to agree on the methodology or agree to provide the same level of data. Upon receipt of the letter, Energy Division should then determine, in consultation with ARB, if the proposed methodology is most appropriate for the industry and if there is sufficient data available to use the proposed methodology.

No party objected to Energy Division's proposed modifications, and they are adopted herein. In the spirit of mirroring ARB's methodologies whenever possible, it is reasonable for the Commission to require the same data years for voluntarily provided auditable data as those used by ARB in its benchmarking methodology. There are no foreseeable barriers to the adoption of this revision. The use of engineering estimates to estimate electricity usage by subsector is reasonable and is adopted as a suitable form of auditable data.

Finally, it is reasonable to allow covered entities the opportunity to specify their preferred methodology to calculate their industry benchmark now that this decision has clarified or updated several methodologies specified in D.14-12-037; therefore, individual industry facilities or their representatives may provide a letter to the director of the Energy Division stating the facility's preferred methodology within 30 days of the effective date of this decision without the requirement that every facility agree on the methodology or agree to provide the same level of data. It is reasonable that Energy Division should then determine, in consultation with ARB, if the proposed methodology is most appropriate for the industry and if there is sufficient data available to use the proposed methodology.

The main source of disagreement is whether the Commission should continue to use the interim approach adopted in D.14-12-037, which provides for natural gas usage as a proxy of purchased electricity. Here, the Commission has received feedback from ARB for the first time[23] that provides new information indicating that natural gas usage may not best align with ARB's benchmarking methodologies. As stated by ARB, "ARB strongly believes that natural gas use by product is not an appropriate proxy for electricity purchases by product." ARB further suggests that when sub-metered electricity data or engineering estimates are not available, it is appropriate to use relative product output data as reported in MRR, rather than natural gas usage as reported in MRR. ARB has used relative product output in its own benchmarking methodology.

Given our stated preference to mirror ARB's methodologies whenever possible, and given new information from ARB stating that natural gas usage is

[23] ARB did not file comments on the proposed decision that was ultimately adopted as D.14-12-037.

not an appropriate proxy for electricity purchases and that ARB uses relative product output in its own benchmarking methodology, the Commission has sufficient reason to set aside its previously adopted interim methodology. Therefore, natural gas usage may no longer be used as a proxy for purchased electricity. Affected industries may use either: 1) voluntarily reported auditable data, which can include engineering estimates, of electricity purchases by subsector activity; or 2) relative product output as a basis for splitting electricity purchases by subsector activity. If auditable data or engineering estimates are not available, the Commission will use relative product output to apportion electricity purchases by product.

Decision 14-12-037 is modified as follows (text that is deleted is shown with a strike-through; additions are shown as underlined text):

> *Finding of Fact 77:*
> ~~Three~~ Two methods to estimate electricity purchases by subsector activity exist, each of which may be appropriate for different sectors: ~~1) use relative natural gas use by subsector activity as a proxy for electricity purchases by subsector; 2)~~ (1) use voluntarily reported auditable data, which can include engineering estimates, of electricity ~~use~~ purchases by subsector activity; or (2~~3~~) use relative product output as a basis for splitting electricity purchases by subsector activity. ~~ARB has developed percentage allocation factors that apportion total natural gas use by industrial subsector activity.~~ There may be cases when not all facilities in an industry can provide auditable data or engineering estimates.
>
> *Finding of Fact 78:*
> ~~Auditable internal records of a facility's electricity use by subsector activity may not be available for 2008 to 2010, in which case it is appropriate to use the three years of data~~

~~nearest to 2008 to 2010.~~ It is appropriate for Energy Division staff, in consultation with ARB, to determine which years of auditable data a facility should provide to Energy Division to show electricity purchases by subsector activities or products.

Conclusion of Law 34:
In cases where facilities produce more than one type of product, each of which has its own product-based benchmark in ARB's Cap-and-Trade Regulation, it is preferable if facilities in these industries voluntarily provide the Commission with auditable data of electricity purchases by industrial activity. The auditable data can include sub-metered electricity data or engineering estimates of electricity purchases by subsector activity. If auditable data or engineering estimates are not available, the Commission should use relative product output to apportion electricity purchases by product. Facilities that elect to provide auditable data or engineering estimates should send a letter to the Director of the Energy Division no later than 30 days after the effective date of this Decision stating their preference to voluntarily provide this data. Energy Division should have authority, in consultation with ARB, to determine whether a sufficient number of facilities in a subsector have stated their preference to use auditable data to use this data to develop benchmarks. In cases when not all facilities in an industry can provide auditable data or engineering estimates, it may be appropriate to develop industry product benchmarks based on a combination of auditable data or engineering estimates and relative product output. ~~It is reasonable to apportion a facility's electricity purchases to each subsector activity according to the same relative natural gas use factors that ARB used when allocating allowances to the facility for direct emissions. However, for the Rolled Steel Shape Manufacturing Sector (NAICS Code 331221) it is reasonable to apportion total electricity purchases to subsectors by using a combination of natural gas use~~

> ~~factors, auditable electricity meter data, and relative subsector product output: for hot rolled steel sheet production, in which only one company currently operates, it is appropriate to use natural gas use factors; for tin steel plate production, in which a different company operates, it is reasonable to use auditable electricity meter data; and for the remaining three rolled steel shape manufacturing subsectors in which two companies currently operate, it is reasonable to use relative subsector product output. For the Crude Petroleum and Natural Gas Extraction sector (NAICS Code 211111) it is reasonable to apportion a facility's electricity purchases to subsector based on the relative subsector product output.~~

In addition, the dicta of D.14-12-037 is modified as set forth in Attachment 1 to this decision.

2.4. Process for Establishing Benchmarks for New Industrial Sectors

In the fourth and final proposed modification, Energy Division recommends that, if ARB amends Table 9-1 of its Cap-and-Trade Regulation to modify or add benchmarks for new industrial sectors, D.14-12-037 should be changed to specify a deadline by which new industries with subsector activities receiving allocation according to the product-based allocation methodology must indicate which approved methodology Energy Division should use to estimate electricity purchase for each industrial subsector activity. Energy Division proposes that new industries should have 90 days from the date that the Cap-and-Trade revisions are approved by the Office of Administrative Law to submit a letter to the Director of the Energy Division.

No party objected to this proposal; however, ARB notes that new data may occasionally become available that show that benchmarks are inaccurate. ARB recommends that there be a process for the Commission to incorporate new data

into the affected benchmark(s). Accordingly, ARB recommends adding language to the end of Conclusion of Law 5 to allow Commission staff the authority to recalculate the benchmark in consultation with industrial facilities and ARB staff. No party objected to ARB's recommendation.

It is reasonable to allow new industries with subsector activities an appropriate amount of time to indicate the preferred methodology that Energy Division should use to estimate electricity purchases for the industrial subsector activity or activities. A 90-day timeframe allows sufficient time to submit a letter to the Director of Energy Division and is adopted. Furthermore, it is reasonable to allow Energy Division staff, in consultation with industrial facilities and ARB staff, to recalculate benchmarks if new data becomes available that either Energy Division or ARB staff believes shows a significant inaccuracy. Allowing such recalculations ensures accuracy of Industry Assistance distributions and comports with the objective of mirroring ARB's methodologies whenever possible.

Decision 14-12-037 is modified as follows (text that is deleted is shown with a strike-through; additions are shown as underlined text):

> *Conclusion of Law 5:*
> If ARB revises Table 9-1 of its Cap-and-Trade Regulation to include product benchmarks for additional industries <u>or activities</u>, the Commission should develop equivalent product benchmarks of electricity purchases per unit of product output for these new industries <u>or activities</u>. <u>If any of these industries has subsector activities, the industries should have 90 days from the date the Cap-and-Trade Regulation revisions are approved by the Office of Administrative Law to inform the Director of the Energy Division which methodology Energy Division should use to estimate electricity purchases for each industrial subsector activity. Energy Division should have authority to determine, in consultation with ARB, whether this methodology or the use of product output data is appropriate when estimating electricity purchases for each industrial subsector activity. Should new data become available that the</u>

Commission or ARB staff believes show that a calculated benchmark has a significant inaccuracy, Commission staff shall have the authority to recalculate the benchmark in consultation with industrial facilities and ARB staff.

2.5. Future Modifications to Industry Assistance Methodologies

In an effort to streamline future modifications to the Commission's Industry Assistance allocation process, it is reasonable to grant Energy Division staff the authority to make minor changes should they become necessary. If new data or processes become available that allow the adopted methodologies to more closely comport with the data or processes used by ARB in its calculation of Industry Assistance and/or ARB adopts new data or processes, Energy Division may propose changes to the Commission's adopted methodologies by issuance of a resolution with opportunity for party comment.

2.6. Petitions for Modification

On May 18, 2015, EPUC filed a PFM of D.14-12-037. In the PFM, EPUC requests a modification of a similar vein to Energy Division's first proposed modification; that is modification of Conclusion of Law 6 to reflect usage of the same data years used by ARB when calculating historical benchmarks. EPUC requests modification of Conclusion of Law 6 solely to reflect the data years used by ARB to calculate the historical benchmark for the Oil and Gas Sector and its subsectors; however, the broader changes proposed by Energy Division will include the Oil and Gas Sector as well as any other sectors for which ARB used a different baseline period than 2008-2010. In this decision, the Commission adopts Energy Division's proposal to mirror the data years used by ARB when calculating historical benchmarks for all sectors; therefore, EPUC's PFM is moot. EPUC's May 18, 2015 PFM is dismissed.

On May 6, 2016, Tesoro filed a PFM seeking modification of the adopted methodology in D.12-14-037 for distributing value to EITE customers that have operations in the service territories of both an investor-owned utility (IOU) and a publicly-owned utility (POU). Specifically, Tesoro seeks a requirement that Energy Division calculate the product output between IOU and POU service territories based on the actual location-specific output data, when actual data are available, rather than relying on electricity purchases as a proxy for location. Tesoro proposes changes to page 32, Appendix A, and Conclusion of Law 30 to reflect its proposal. Tesoro also filed opening and reply comments on the May 19, 2015 ALJ Ruling that is the subject of the instant decision proposing the same modifications, presumably to give the Commission flexibility on the procedural mechanism through which it would address Tesoro's proposed modifications. The Commission will address Tesoro's May 26, 2015 PFM in a separate decision; therefore, Tesoro's comments on the ALJ Ruling will not be considered in this decision.

3. Comments on Proposed Decision

The proposed decision of ALJs Semcer and Halligan in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on _____, and reply comments were filed on _____.

4. Assignment of Proceeding

Carla J. Peterman is the assigned Commissioner and Melissa K. Semcer and Julie M. Halligan are the assigned ALJs in this proceeding.

Findings of Fact

1. The Commission found in D.14-12-037 that distribution of GHG allowance proceeds to EITE customers should closely mirror ARB's Industry Assistance allocation methodologies whenever possible.

2. Energy Division's proposed modifications comport with the Commission's direction to mirror ARB's Industry Assistance allocation methodologies whenever possible.

3. When calculating product-based benchmarks, ARB generally relied on a historical period of 2008-2010, with some variability in instances when different data were necessary to establish a baseline benchmark. Using different baseline data years than ARB to calculate the Commission's benchmarks could lead to unintended consequences not supported by policy goals and technical limitations.

4. ARB can provide Energy Division a list of which data years to use for each industry or facility when calculating benchmarks.

5. When developing product benchmarks, ARB staff only used data from facilities that were identified as covered entities in the Cap-and-Trade Program at the time of its benchmark development. This ensured that the emissions and energy data ARB used were verified as part of the MRR and that data from facilities that would receive an allocation were included in the benchmark. Despite the potential entrance and exit of facilities, ARB continues to use benchmarks that include facilities that were covered entities at the time the benchmarks were initially developed.

6. In D.14-12-037, the Commission, recognizing the complexity of calculating benchmarks for facilities that produce products in multiple sectors covered under the Cap-and-Trade Regulation, adopted an interim approach whereby

natural gas usage acts as a proxy to estimate electricity purchases. The Commission also adopted two alternative approaches: 1) apportion electricity usage by subsector according to auditable electricity usage by subsector, or 2) apportion electricity purchases by subsector according to the relative subsector product output if all entities agree and state their preference via submission of a letter to the Director of the Energy Division no later than 90 days after the effective date of D.14-12-037.

7. D.14-12-037 does not require that the years of data provided by an industry selecting to provide auditable data that apportions electricity usage by subsector activity mirror those years used in ARB's benchmark methodologies.

8. Engineering estimates can be used to apportion electricity usage across subsector activities.

9. ARB staff is best suited to determine which years of auditable data or engineering estimates a facility should voluntarily provide to show electricity use by subsector activity.

10. A complete consensus of facilities within an industry may not be possible or necessary to allow usage of the alternative approaches to apportioning electricity purchases by product adopted in D.14-12-037.

11. This decision has clarified or updated several methodologies specified in D.14-12-037; additional industries may want to inform Energy Division that one of the alternative methodologies is appropriate for their industry.

12. Natural gas use by product may not be an appropriate proxy for electricity purchases by product because there may not be a direct relationship between how natural gas and thermal energy are used and electricity is used for many production processes.

13. ARB has used relative product output in its own benchmarking methodology.

14. ARB may amend Table 9-1 of its Cap-and-Trade Regulation to modify or add benchmarks for new industrial sectors.

15. New data may occasionally become available that show that benchmarks are inaccurate. Allowing recalculation of benchmarks in this case ensures accuracy of CA Industry Assistance distributions.

16. EPUC's May 18, 2015 PFM of D.14-12-037 is completely addressed by the modification adopted herein.

Conclusions of Law

1. It is reasonable, when considering the merits of Energy Division's proposals for modification of D.14-12-037, to evaluate whether the proposed changes further the Commission's ability to mirror ARB's adopted methodologies.

2. It is reasonable for the Commission to use the same historical data years as used by ARB to calculate benchmarks for the provision of Industry Assistance.

3. It is reasonable for the Commission to use the same set of facilities as used by ARB to calculate product-based benchmarks for the provision of CA Industry Assistance.

4. It is reasonable for the Commission to require the same data years for voluntarily provided auditable data as those used by ARB for that industry or facility in its benchmarking methodology.

5. Energy Division, in consultation with ARB, should have authority to assess the accuracy and reasonableness of the proposed methodology and voluntarily-submitted data used to allocate electricity purchases by subsector activity when calculating product-based benchmarks.

6. The use of engineering estimates to estimate electricity usage by subsector is reasonable.

7. It is reasonable to allow covered entities the opportunity to specify their preferred methodology to calculate their industry benchmark now that this decision has clarified or changed several methodologies specified in D.14-12-037. It is reasonable to provide individual industry facilities or their representatives sufficient time, that is 30 days from the effective date of this decision, to provide a letter to the director of the Energy Division stating the facility's preferred methodology without the requirement that every covered entity in an industry agree on the methodology or agree to provide the same level of data. It is reasonable that Energy Division should then determine, in consultation with ARB, if the proposed methodology is most appropriate for the industry and if there is sufficient data available to use the proposed methodology.

8. When sub-metered electricity data or engineering estimates are not available, it is appropriate to use relative product output data as reported in MRR, rather than natural gas usage as reported in MRR, to apportion electricity purchases by product.

9. It is reasonable to allow new industries with subsector activities included in Table 9-1 of ARB's Cap-and-Trade Regulation an appropriate amount of time to indicate the preferred methodology that Energy Division should use to estimate electricity purchases for the industrial subsector activity or activities. A 90-day deadline from the date such changes are approved by the Office of Administrative Law is sufficient to submit a letter to the Director of the Energy Division.

10. It is reasonable to allow Energy Division staff, in consultation with industrial facilities and ARB staff, to recalculate benchmarks if new data becomes

available that either Energy Division or ARB staff believes shows a significant inaccuracy in the previous benchmark calculation.

11. It is reasonable to grant Energy Division staff the authority to make minor changes to the Commission's CA Industry Assistance allocation methodologies should it become necessary. If new data or processes become available that allow the adopted benchmarking methodologies to more closely comport with the data or processes used by ARB in its calculation of Industry Assistance and/ or ARB adopts new data or benchmarking processes, Energy Division may proposed changes to the Commission's adopted methodologies by issuance of a resolution with opportunity for party comment.

12. EPUC's May 19, 2015 PFM of D. 14-12-037 should be dismissed.

13. It is appropriate to address Tesoro's May 26, 2015 PFM in a separate decision.

14. R.11-03-012 should remain open.

O R D E R

IT IS ORDERED that:

1. The following Findings of Fact in Decision 14-12-037 are modified as set forth below. Deletions of text are denoted by strikethroughs; insertions of new or changed text are underlined.

> 23. ARB relies on a historical period of 2008-2010 MRR data when calculating energy-based historical benchmarks, <u>with some variability in instances in which different data were necessary to establish a baseline representative of normal operations. In addition, if an entity reported facility-level, third-party verified greenhouse gas emissions data to the California Climate Action Registry for data years 2000-2007, and the entity requested it, ARB used those data when calculating the entity's energy-based allocation.</u>

77. ~~Three~~ Two methods to estimate electricity purchases by subsector activity exist, each of which may be appropriate for different sectors: ~~1) use relative natural gas use by subsector activity as a proxy for electricity purchases by subsector; 2)~~ (1) use voluntarily reported auditable data, which can include engineering estimates, of electricity ~~use~~ purchases by subsector activity; or (2~~3~~) use relative product output as a basis for splitting electricity purchases by subsector activity. ~~ARB has developed percentage allocation factors that apportion total natural gas use by industrial subsector activity.~~ There may be cases when not all facilities in an industry can provide auditable data or engineering estimates.

78. ~~Auditable internal records of a facility's electricity use by subsector activity may not be available for 2008 to 2010, in which case it is appropriate to use the three years of data nearest to 2008 to 2010.~~ It is appropriate for Energy Division staff, in consultation with ARB, to determine which years of auditable data a facility should provide to Energy Division to show electricity purchases by subsector activities or products.

2. The following Conclusions of Law in Decision 14-12-037 are modified as set forth below. Deletions of text are denoted by strikethroughs; insertions of new or changed text are underlined.

5. If ARB revises Table 9-1 of its Cap-and-Trade Regulation to include product benchmarks for additional industries or activities, the Commission should develop equivalent product benchmarks of electricity purchases per unit of product output for these new industries or activities. If any of these industries has subsector activities, the industries should have 90 days from the date the Cap-and-Trade Regulation revisions are approved by the Office of Administrative Law to inform the Director of the Energy Division which methodology Energy Division should use to estimate electricity purchases for each industrial subsector activity. Energy Division should have authority to determine, in consultation with

ARB, whether this methodology or the use of product output data is appropriate when estimating electricity purchases for each industrial subsector activity. Should new data become available that the Commission or ARB staff believes show that a calculated benchmark has a significant inaccuracy, Commission staff shall have the authority to recalculate the benchmark in consultation with industrial facilities and ARB staff.

6. The Commission should use the same data years that ARB used for each sector and/or facility ~~2008-2010 MRR data~~ in its product-based, energy-based, and refinery allocation methodologies.

10. Product-based industry benchmarks should be calculated using data from the same ~~take into account all California~~ facilities in an industrial sector that ARB used to calculate product-based industry benchmarks in the Cap-and-Trade Regulation, not solely those in an investor-owned utility's territory.

16. The Commission should use 2008 to 2010 MRR data when calculating fixed historical energy-based benchmarks for entities that have annual direct emissions equal to or greater than 10,000 $MTCO_2e$ and that report to ARB under its MRR, but are not covered or opt-in covered entities in the Cap-and-Trade Program. For covered or opt-in covered entities, the Commission should use the same historical period that ARB used for each facility.

31. The Commission's product-based benchmarks should be calculated using data from the same ~~take into account all California~~ facilities in an industrial sector that ARB used to calculate product-based industry benchmarks in the Cap-and-Trade Regulation, not solely those in an investor-owned utility's territory, even though the Commission will only allocate revenue to facilities that operate in an investor-owned utility's territory.

34. In cases where facilities produce more than one type of product, each of which has its own product-based benchmark in ARB's Cap-and-Trade Regulation, it is preferable if facilities in these industries voluntarily provide the Commission with

auditable data of electricity purchases by industrial activity. The auditable data can include sub-metered electricity data or engineering estimates of electricity purchases by subsector activity. If auditable data or engineering estimates are not available, the Commission should use relative product output to apportion electricity purchases by product. Facilities that elect to provide auditable data or engineering estimates should send a letter to the Director of the Energy Division no later than 30 days after the effective date of this Decision stating their preference to voluntarily provide this data. Energy Division should have authority, in consultation with ARB, to determine whether a sufficient number of facilities in a subsector have stated their preference to use auditable data to use this data to develop benchmarks. In cases when not all facilities in an industry can provide auditable data or engineering estimates, it may be appropriate to develop industry product benchmarks based on a combination of auditable data or engineering estimates and relative product output. ~~It is reasonable to apportion a facility's electricity purchases to each subsector activity according to the same relative natural gas use factors that ARB used when allocating allowances to the facility for direct emissions. However, for the Rolled Steel Shape Manufacturing Sector (NAICS Code 331221) it is reasonable to apportion total electricity purchases to subsectors by using a combination of natural gas use factors, auditable electricity meter data, and relative subsector product output: for hot rolled steel sheet production, in which only one company currently operates, it is appropriate to use natural gas use factors; for tin steel plate production, in which a different company operates, it is reasonable to use auditable electricity meter data; and for the remaining three rolled steel shape manufacturing subsectors in which two companies currently operate, it is reasonable to use relative subsector product output. For the Crude Petroleum and Natural Gas Extraction sector (NAICS Code 211111) it is reasonable to apportion a facility's electricity purchases to subsector based on the relative subsector product output.~~

3. The dicta of Decision 14-12-037 is modified as set forth in Attachment 1 to this decision. Deletions of text are denoted by strikethroughs; insertions of new or changed text are underlined.

4. Appendix A to Decision 14-12-037 is modified as set forth in Attachment 2 to this decision. Deletions of text are denoted by strikethroughs; insertions of new or changed text are underlined.

5. Energy Producers and Users Coalitions' May 19, 2015 Petition for Modification of Decision 14-12-037 is dismissed.

6. Rulemaking 11-03-012 remains open.

This order is effective today.

Dated _____, at San Francisco, California.

ATTACHMENT 1

Modifications to the Text of Decision 14-12-037

Attachment 1: Modifications to the Text of Decision 14-12-037

Page 36-39 of D.14-12-037 is modified as follows:

Subsector Benchmark

The development of benchmarks poses a particular challenge for industries that have subsector activities. Benchmarking is relatively straightforward in cases when a single facility operates in an industry that has only one benchmark. Cement manufacturing is one such industry. When a facility operates in only one industrial activity it is a trivial matter to input ARB's MRR data about a facility's total electricity purchases directly into the product-based benchmark formula. However, benchmarking is more complicated when a single facility produces more than one type of related product, each of which has its own product-based benchmark in ARB's Cap-and-Trade Regulation.

For example, the Rolled Steel Shape Manufacturing Sector (NAICS Code 331221) has five different subsector activities and associated benchmarks – hot rolled steel, pickled steel, cold rolled steel, galvanized steel and tin steel plate production. Two California companies operate in this sector: USS-POSCO and California Steel Industries (CSI). Both companies produce multiple types of products included within the Rolled Steel Shape Manufacturing Sector. In this case, ARB's MRR data about a single facility's total electricity purchases provides no clear insight into what percentage of USS-POSCO's or CSI's electricity purchases are associated with one subsector activity versus another.

To calculate benchmarks of electricity purchases for these subsectors and others, the Commission either needs supplemental data from the affected industries, or it needs a method to estimate electricity purchases by subsector based on other available data.

The Staff Proposal identified three options to address the issue of subsector benchmarks: 1) use MRR data about relative natural gas usage by subsector activity as a proxy for electricity purchases by subsector, 2) rely on voluntary reporting of auditable data of electricity use by subsector activity, or 3) use MRR data about relative product output as a basis for splitting electricity purchases by subsector.

In comments, USS-POSCO argues that there is no reason to expect any correlation between subsector natural gas use and electricity use by subsector production. If natural gas is used as a proxy, USS-POSCO argues that the resulting allocation of revenue should be verified to ensure consistency with actual electricity consumption.

~~Each of the three options for addressing subsector benchmarks may be appropriate in differing circumstances.~~ In the November 14, 2014 proposed decision, we recommended an interim solution that mirrors ARB's method of resolving this issue: when a single industrial facility operates in multiple EITE-eligible industrial activities, we will estimate electricity purchases by industrial subsector activity by relying on the same percentage allocation factors that ARB used to apportion total natural gas use by industrial subsector activity. ~~This approach is consistent with ARB's allocation methodology, and it will minimize administrative complexity and staff workload, since the necessary data are already available.~~ Alternatively, ~~we~~ the November 14, 2014 proposed decision suggested that covered entities in a sector with subsector activities may use one

of the following two alternative approaches: apportion electricity usage by subsector activity according to audited electricity usage by subsector, accompanied by an attestation and independent engineering audit verifying the electricity usage data; or apportion electricity purchases by subsector according to the relative subsector product output if all covered entities agreed and stated their preference to the Director of the Energy Division no later than 90 days after the effective date of this decision. The historical electricity usage by subsector would be calculated once and not updated.

In comments to the November 14, 2014 proposed decision, USS-POSCO suggests that if audited subsector electricity data is available for all California covered entities with subsector activities, and the entities provide the audited data, accompanied by an attestation and independent engineering audit verifying the electricity usage data, that data could be used to determine the allocation factors for that subsector. For subsectors for which auditable electricity usage is not available, electricity purchases by subsector will be allocated according to the relative subsector product output, excluding usage in subsectors for which audited data has been provided.[24]

In its comments on the November 14, 2014 proposed decision, CLECA, as a representative of CSI, offers a similar approach, suggesting that the Commission adopt the natural gas-based allocation factor for the "Hot Rolled" subsector (a subsector of which CSI is the only member), and use audited production data to establish the allocation factor for "tin steel" subsector (a subsector of which USS-POSCO is the only member).[25] USS-POSCO supports this approach. Under this approach the remaining overlapping subsectors

[24] December 8, 2014 Comments of USS-POSCO, at pp. 4-5.

[25] December 15, 2014, Reply Comments of USS-POSCO at p. 1.

would then receive a common allocation based on electricity use and production data reported to ARB through its MRR. [26] ~~We find this alternative approach reasonable.~~

In comments on the May 26, 2015 proposal to modify D.14-12-037 on the Commission's own motion, ARB stated that it "strongly believes that relative natural gas use by product is not an appropriate proxy for electricity purchases by product." ARB suggests that sub-metered purchased electricity data or engineering estimates are the most appropriate data to develop benchmarks for facilities with multiple subsectors; however relative product output should be used when these data are not available.[27] USS-POSCO supports ARB's recommendations, specifically: "eliminating the use of natural gas-based benchmarks for all sectors, including the Rolled Steel Shape Manufacturing Sector; using voluntarily reported auditable data, including engineering estimates, as the preferred method for establishing subsector energy intensity; and allowing recalculation of benchmarks if new data indicates that benchmarks are inaccurate."[28] California Steel Industries (CSI) and CLECA argue that neither ARB nor USS-POSCO has demonstrated that natural gas usage intensity is not reasonably related to electricity usage.[29]

Given our stated preference to mirror ARB's methodologies whenever possible, and given new information from ARB stating that natural gas usage is not an appropriate proxy for electricity purchases and that ARB uses relative product output in its own benchmarking methodology, we find it reasonable for

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[26] *Id*, at p. 2

[27] ARB Opening Comments at 3-4.

[28] USS-POSCO Reply Comments at 1-2.

[29] CLECA and CSI Reply Comments at 3.

the Commission to use product output data to determine electricity purchases by industrial subsector when facilities do not voluntarily provide auditable data, which could include engineering estimates.

(End of Attachment 1)

ATTACHMENT 2

Modifications to Appendix A of Decision 14-12-037

Attachment 2: Modifications to Appendix A of Decision 14-12-037

Appendix A

Formulas and Rules for Distribution of Greenhouse Gas Allowance Revenue to Emissions-Intensive and Trade-Exposed Customers

1. Product-Based Allocation Equation for an Advance Allocation

Equation 1. Product-Based Allocation Formula for an Advance Allocation

$$A_{b,t} = \left(\sum_{a=1}^{n}(O_{a,t-2} \times B_{EP,a} \times AF_{a,t} \times C_{a,t} \times D_{t-1} \times EF_b)\right) + Trueup_{b,t}$$

Where:

"a" is an eligible industrial activity defined in Table 9-1 of ARB's Cap and Trade regulation.

"b" is an individual industrial facility that operates in industrial activity "a."

"t" is the budget year for which the Commission is allocating revenue.

"$O_{a,\ t-2}$" is the total production output in year "t-2" associated with a given industrial activity at a given facility subject to the product-based benchmark. ARB's MRR data[30] is the source for product output, which must be discounted by the percentage of the facility's total electricity purchases in year "t-2" that are from publicly-owned utilities.

[30] Throughout this Appendix, all references to ARB's MRR data refer to the verified MRR data that entities are required to report to ARB in September of each year.

"$B_{EP,a}$" is the benchmark of electricity intensity of product output for industrial activity "a" in terms of megawatt-hours of electricity purchases per unit output for the applicable sector. The electricity intensity benchmark is calculated by summing the electricity purchases of all California entities in industrial sector "a," that ARB used to calculate product-based industry benchmarks in the Cap-and-Trade Regulation, and then dividing this amount by these entities' ~~sector's~~ total production output for the industrial activity. The exact formula used to calculate this benchmark for each industrial activity is discussed in Equation **2**, below.

"$AF_{a,t}$" is the "assistance factor" for budget year "t" assigned to a given industrial activity "a." Assistance factors for each industrial activity are specified in Table 8-1 of ARB's Cap-and-Trade regulation. The assistance factor is the percent of the emissions benchmark that will be provided in an allocation, ranging from 100% to 30%. The specific percentage is tied to ARB's determination of an industrial sector's leakage risk and the year for which the allocation is being sought.

"$C_{a,t}$" is the cap adjustment factor for budget year "t" assigned to each industrial activity "a." The cap adjustment factor represents the decline in the overall GHG cap. The schedule for the cap adjustment factor can be found in Table 9-2 of ARB's Cap-and-Trade Regulation as the Cap-and-Trade Adjustment Factor for All Other Direct Allocation.

"D_{t-1}" is the Dollar Conversion Factor calculated based on the average of CAISO's daily Greenhouse Gas Allocation Index Price for the year "t-1, and is in terms of dollars per $MTCO_2e$."

"EF_b" is the electricity emission factor in $MTCO_2e/MWh$ specific to industrial facility "b" based on the facility's mix of electricity purchases during the ~~2008 to 2010~~ historical period that ARB determined was appropriate for that industry and each electricity provider's emission factor as discussed in Section 4.5.The EITE facility-specific emission factor is calculated according to Equation **3** below.

"$Trueup_{b,t}$" is the true-up term defined by Equation **4** below, which adjusts for updated product output "O" and dollar conversion factor "D" data for year "t" once they are available. This value shall only be calculated if the entity was covered under the Cap-and-Trade Program in year "t-2."

1.1. Electricity Intensity Benchmark Equation for a Product-Based Allocation

Equation 2. Electricity Intensity Benchmark Equation for Product-Based Allocation

$$B_{EP,a} = 0.9 \times \frac{\sum_{b=1}^{n}\left[\sum_{IOU=1}^{u} EP_{b,IOU} + \sum_{3rd\ party=1}^{p} EP_{b,3rd\ party}\right]}{\sum_{b=1}^{n} Production_b}$$

Where:

"a" is an eligible industrial activity defined in Table 9-1 of ARB's Cap and Trade regulation.

"b" is an individual industrial facility that operates in industrial activity "a" outlined in Table 9-1 of ARB's Cap and Trade regulation.

0.9 is a benchmark stringency factor chosen to reflect the emissions intensity of highly efficient, low-emitting covered entities for each industrial activity. For sectors in which there is only one covered entity or in which no covered entity is at least as efficient as the benchmark, 0.9 is not used and instead the benchmark is set based on the "best-in-class" value (i.e. the electricity emissions intensity of the most GHG-efficient California facility).

"$EP_{b,\ IOU}$" is the total electricity purchased in MWh by industrial facility "b" from an investor-owned utility. Electricity purchases by a single facility "b" may occur from one or more IOUs, each with its own associated emission factor. Electricity purchases are summed over a historical period~~,~~ that ARB determined was appropriate for that industry, using ARB's MRR data.

"EF_{IOU}" is the GHG emissions factor specific to each IOU from which the industrial facility "b" purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{b,\ 3rd\ party}$" is the total electricity purchased in MWh by industrial facility "b" from a third party electricity provider. Electricity purchases by a single facility "b" may occur from one or more third party providers, each with its own associated emissions factor. Electricity purchases are summed over a historical period that ARB determined was appropriate for that industry~~, 2008-2010~~, using ARB's MRR data. Third party electricity providers include all non-investor-owned utility providers: publicly owned utilities (POUs), community choice aggregators (CCAs), direct access providers (DAs) and off-site CHP facilities. This factor is 0.379 $MTCO_2e/MWh$ for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-~~c~~site CHP facilities a factor of 0.431 $MTCO_2e/MWh$ applies.

"$Production_b$" is the total product output from industrial facility "b," for the industrial activity for which the benchmark is being calculated. Product output is summed over a historical period that ARB determined was appropriate for that industry~~2008-2010~~, using ARB's MRR data~~,~~ for all facilities that ARB used to calculate its product-based industry benchmarks in the Cap-and-Trade Regulation ~~all industries in California that operate~~ in industrial activity "a."

1.2. Industrial Facility-Specific Weighted Average Emission Factor

Equation 3. Industrial Facility-Specific Weighted Average Emission Factor

$$EF_b = \frac{\sum_{t=2008}^{2010} \sum_{provider=1}^{n} \left(EP_{b,provider,t} \times EF_{provider}\right)}{\sum_{t=2008}^{2010} \sum_{provider=1}^{n} EP_{b,provider,t}}$$

Where:

"b" is an individual industrial facility that operates in industrial activity "a" outlined in Table 9-1 of ARB's Cap and Trade regulation.

"$EP_{b,provider,t}$" is the total electricity purchased in MWh by industrial facility "b" from each electricity provider in year "t," as reported in ARB's MRR data.

"$EF_{provider}$" is the GHG emission factor specific to each electricity provider from which the industrial facility "b" purchase electricity.

1.3. True-Up Term for a Product-Based Allocation

True-ups correct the allocation from two years prior to reflect the actual product output and dollar conversion factor. The first true-up will be conducted in 2016 (to true-up the 2014 allocation).

Equation 4. True-Up Term for a Product-Based Allocation

$$\mathrm{Trueup}_{b,t} = \left(\sum_{a=1}^{n}\left(O_{a,t-2} \times B_{EP,a} \times AF_{a,t-2} \times C_{a,t-2} \times D_{t-2} \times EF_b\right)\right) - A_{b,t-2,\text{no trueup}}$$

Where:

"$A_{b,t\text{-}2,\text{no trueup}}$" is the amount of allowance revenue that industrial facility "b" received for all industrial activities for budget year "t-2," not including the true-up for that budget year.

The assistance factor, benchmark, cap adjustment factor, output variable, dollar conversion factor and emission factor are all as defined in **Equation 1**, **Equation 2** and **Equation 3** above.

1.4. Illustrative Equation for 2013 Allocation

The allocation to address 2013 costs will occur in 2014 or early 2015 due to the timing of this decision's issuance, and it will occur after ARB has verified data about each facility's 2013 product output. In this case, the 2013 allocation does not need a true up since both 2013 product output and the 2013 dollar conversion factor are known. The following equation will be used.

$$A_{b,2013} = \left(\sum_{a=1}^{n}(O_{a,2013} \times B_{EP,a} \times AF_{a,2013} \times C_{a,2013} \times D_{2013} \times EF_b)\right)$$

1.5. Illustrative Equation for 2014 Allocation

In 2014 the allocation formula will also not include a true-up term. The revenue that facilities receive for the 2014 budget year will be trued-up in the 2016 allocation after verified product output data for 2014 is available from ARB in September 2015. In 2014 the product-based allocation to individual industrial facility "b" will be calculated as follows, except that if the allocation occurs in early 2015 the dollar conversion factor for 2014 will be used:

$$A_{b,2014} = \sum_{a=1}^{n} (O_{a,2013} \times B_{EP,a} \times AF_{a,2014} \times C_{a,2014} \times D_{2013} \times EF_b)$$

1.6. Illustrative Equation for 2015 Allocation

A true-up term is also unnecessary in the 2015 allocation, since the 2013 allocation requires no true-up. In 2015 the product-based allocation to individual industrial facility "b" will be calculated as follows:

$$A_{b,2015} = \sum_{a=1}^{n} (O_{a,2013} \times B_{EP,a} \times AF_{a,2015} \times C_{a,2015} \times D_{2014} \times EF_b)$$

The

total amount of allowance revenue that a facility will receive in 2015 will be equal to the 2015, 2014, and 2013 allocations.

1.7. Illustrative Equation for 2016 and Subsequent Years

The allocation formula for 2016 and all subsequent years will exactly follow the default formulas and will require no modification. In 2016, for example, the allocation will true-up the 2014 allocation and will be calculated as follows:

$$A_{b,2016} = \left(\sum_{a=1}^{n}(O_{a,2014} \times B_{EP,a} \times AF_{a,2016} \times C_{a,2016} \times D_{2015} \times EF_b)\right) + Trueup_{b,2016}$$

$$Trueup_{b,2016} = \left(\sum_{a=1}^{n}\left(O_{a,2014} \times B_{EP,a} \times AF_{a,2014} \times C_{a,2014} \times D_{2014} \times EF_b\right)\right) - A_{b,2014,no\ trueup}$$

2. **Energy-Based Allocation Equation**

Equation **5**, Equation **6** and Equation **7** below illustrate how the energy-based allocation will be conducted in general and for facilities that are classified as having stable emissions data. Opt-in covered entities that have no historical MRR data and entities that have transitional emissions data are addressed as special cases.

For facilities that have direct emissions less than 10,000 $MTCO_2e$ per year and that do not report data under MRR, the Commission will rely on data from the investor owned electric utilities about each facility's bundled (i.e. IOU) and unbundled (i.e. third party) electricity purchases during 2008 through 2010.

Equation 5. Advance Energy-Based Allocation for an Individual Facility

$$A_t = B_{EP,e} \times AF_{a,t} \times C_t \times D_{t-1} + Trueup_t$$

Where:

"t" is the budget year for which revenue is provided to address emissions from electricity purchases and to which the true-up is added to address emissions that occurred during year t-1.

"A_t" is the amount of revenue allocated to the operator of the industrial facility with an energy-based allocation for budget year "t";

"$B_{EP,e}$" is the historical baseline annual arithmetic mean amount of emissions resulting from electricity purchased by the industrial facility from an IOU or other electricity provider, excluding electricity from publicly-owned utilities, measured in $MTCO_2e$, using the years that ARB determined was appropriate for that facility ~~2008-2010~~ as the historical baseline. The formula for this benchmark is defined in Equation **6** below.

"$AF_{a,t}$" is Assistance Factor for budget year "t" assigned to each industrial activity "a" in Table 8-1 of ARB's Cap-and-Trade Regulation. This factor represents the percent of the energy benchmark that will be provided in an allocation, ranging from 30% to 100% in a given budget year. The specific percentage is tied to ARB's determination of an industrial sector's leakage risk and the year for which the allocation is being sought.

"C_t" is the Cap Adjustment Factor for budget year "t." The cap adjustment factor represents the decline in the overall GHG cap. The schedule for the cap adjustment factor can be found in Table 9-2 of ARB's Cap-and-Trade regulation as the Cap Adjustment Factor for All Other Direct Allocation.

"D_{t-1}" is the Dollar Conversion Factor calculated based on the average of CAISO's daily Greenhouse Gas Allowance Index Price for the year "t-1."

"$Trueup_t$" is the true-up term defined by Equation **7** below, which adjusts for the dollar conversion factor "D" for year "t" once available.

2.1. Historical Electricity Emissions Benchmark for an Energy-Based Allocation

The historical electricity emissions benchmark is specific to each facility that qualifies for an energy-based allocation. It is calculated once and is never updated from year to year. The subscript "e" in the benchmark variable

distinguishes the benchmark used in the energy-based allocation methodology from that used in the product-based methodology.

For facilities that have direct emissions less than 10,000 $MTCO_2e$ per year and that do not report data under MRR, the Commission will rely on data from the investor owned electric utilities about each facility's bundled (i.e. IOU) and unbundled (i.e. third party) electricity purchases during 2008 through 2010.

Equation 6. Historical Electricity Emissions Benchmark for an Energy-Based Allocation

$$B_{EP,e} = \sum_{IOU=1}^{n} (EP_{IOU} \times EF_{IOU}) + \sum_{3rd\ party=1}^{n} \left(EP_{3rd\ party} \times EF_{3rd\ party}\right)$$

Where:

"EP_{IOU}" is the historical baseline annual arithmetic mean amount of electricity purchased by the industrial facility from an IOU, measured in MWh, using ~~2008-2010~~ MRR data ~~as~~ for the historical baseline that ARB determined was appropriate for that facility. Electricity purchases may occur from one or more IOUs, each with its own associated emissions factor.

"EF_{IOU}" is the GHG emissions factor specific to the IOU from which the industrial facility purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{3rd\ party}$" is the historical baseline annual arithmetic mean amount of electricity purchased by the industrial facility from a third party electricity provider, excluding electricity from publicly-owned utilities, measured in MWh, using ~~2008-2010~~ MRR data ~~as~~ for the historical baseline that ARB determined was appropriate. Electricity purchased by a single facility may occur from one or more third party providers, each with its own associated emissions factor.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider from which the industrial facility purchased electricity. This factor is 0.379 $MTCO_2e$/MWh for electricity purchases from all parties

that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e/MWh$ applies.

2.2. True-Up Term for an Advance Energy-Based Allocation

True-ups correct the previous year's allocation. The first true-up will likely be conducted in 2016 (to true-up the 2015 allocation), since the first revenue allocations in 2015, at which point the 2014 dollar conversion factor will be known.

Equation 7. True-Up Term for an Advance Energy-Based Allocation

$$Trueup_t = \left(B_{EP,e} \times AF_{a,t-1} \times C_{t-1} \times D_{t-1}\right) - A_{t-1,no\ trueup}$$

Where:

"$A_{t\text{-}1,no\ trueup}$"is the amount of allowance revenue that the industrial facility received for budget year "t-1," not including the true-up for that budget year.

The benchmark, assistance factor, cap adjustment factor and dollar conversion factor variables are as defined in **Equation 5**.

2.3. Illustrative Equation for 2015 Allocation and Subsequent Years

Like the 2013 and 2014 product-based allocations, the energy-based allocations conducted for 2013 and 2014 will not include a true-up term because the actual dollar conversion factor will be known. However, the 2015 allocation will need to be trued up to update the dollar conversion factor, and this true up will occur in the 2016 allocation in the following manner:

$$A_{2016} = B_{EP,e} \times AF_{a,2016} \times C_{2016} \times D_{2015} + \left(\left(B_{EP,e} \times AF_{a,2015} \times C_{2015} \times D_{2015}\right) - A_{2015,no\ trueup}\right)$$

2.4. Opt-In Covered Entities without Historical Baseline Emissions

When ARB allocates allowances pursuant to Section 95891(c)(3)(A) of its Cap-and-Trade Regulation, which only applies to opt-in covered entities that do not have historical baseline emissions data, the Commission will rely on information ARB provides about each facility's estimated electricity purchases. If ARB does not have these estimates, the facilities will not receive allowance revenue pursuant to the energy-based allocation methodology until ARB has verified MRR data from these facilities.

If ARB provides information about a facility's estimated electricity purchases, the Commission will calculate the facility's allowance revenue according to Equation **5**, Equation **6** and Equation **7**, except that the variable $B_{EP,e}$ in each of these equations shall be replaced with the following estimated emission benchmark variable $B_{EP,e,est}$, defined by the equation below:

Equation 8. Estimated Benchmark of Electricity Emissions

$$B_{EP,e,est} = \sum_{IOU=1}^{n} \left(EP_{IOU,est} \times EF_{IOU}\right) + \sum_{3rd\ party=1}^{n} \left(EP_{3rd\ party,est} \times EF_{3rd\ party}\right)$$

Where:

"$EP_{IOU,\ est}$" is the estimated annual amount of electricity purchased by the industrial facility from an IOU, measured in MWh, as determined by ARB. Electricity purchases may occur from one or more IOUs, each with its own associated emissions factor.

"EF_{IOU}" is the GHG emissions factor specific to the IOU from which the industrial facility purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{3rd\ party,\ est}$" is the estimated annual amount of electricity purchased by the industrial facility from a third party electricity provider, excluding

electricity purchased from publicly-owned utilities, measured in MWh, as determined by ARB. Electricity purchased by a single facility may occur from one or more third party providers, each with its own associated emissions factor.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider from which the industrial facility purchased electricity. This factor is 0.379 $MTCO_2e$/MWh for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e$/MWh applies.

This equation only applies until ARB has verified MRR data for these facilities.

2.5. New Entrants with Transitional Emissions Data

The stability formula in Section 95891(c)(3)(D) of ARB's Cap-and-Trade Regulation applies to covered entities or opt-in covered entities, and it identifies whether an entity's emissions should be classified as stable or transitional. For any entity eligible for an energy-based allocation that ARB classifies as stable, Equation **5**, Equation **6** and Equation **7** will apply, unmodified. However, for entities that ARB classifies as having transitional data, the following formulas will apply, which mirror those in Section 95891(c)(3)(B) of ARB's Cap-and-Trade Regulation. These equations rely on electricity purchases from year "t-2," rather than on the historical baseline annual arithmetic mean amount of electricity purchased. The stability test and Equation **9** also apply to facilities that have annual direct emissions less than 10,000 $MTCO_2e$ and that do not report to ARB under MRR, though in this case the Commission will rely on data from the investor-owned electricity utilities rather than MRR data.

Equation 9. Advance Energy-Based Allocation for an Individual Facility with Transitional Emissions Data

$$A_t = B_{EP,e,t-2} \times AF_{a,t} \times C_t \times D_{t-1} + Trueup_t$$

Where:

"t" is the budget year for which revenue is provided to address emissions from electricity purchases and to which the true-up is added to address emissions that occurred during year "t-2."

"A_t" is the amount of revenue allocated to the operator of the industrial facility with transitional emissions data for budget year "t."

"$B_{EP,e,t-2}$" is the annual amount of emissions resulting from electricity purchases by the industrial facility from an IOU or other electricity provider, excluding publicly-owned utilities, measured in $MTCO_2e$, using "t-2" MRR data. The formula for this benchmark is defined in Equation **10** below.

"$Trueup_t$" is the true-up term defined by Equation **11** below, which adjusts for actual electricity purchases from year "t-2" and the dollar conversion factor "D" for year "t" once they are available. The true-up term will only be calculated if the entity was covered under the Cap-and-Trade Program in year "t-2."

The assistance factor, cap adjustment factor and dollar conversion factor are exactly as defined in Equation **5**.

2.5.1. Electricity Emissions Benchmark for an Energy-Based Allocation to Facilities with Transitional Emissions Data

The following benchmark variable will be used for facilities that have transitional emissions data:

Equation 10. Benchmark of Electricity Emissions for a Facility with Transitional Emissions Data

$$B_{EP,e,t-2} = \sum_{IOU=1}^{n} \left(EP_{IOU,t-2} \times EF_{IOU}\right) + \sum_{3rd\ party=1}^{n} \left(EP_{3rd\ party,t-2} \times EF_{3rd\ party}\right)$$

Where:

"$EP_{IOU,\ t\text{-}2}$" is the annual amount of electricity purchased by the industrial facility from an IOU in year "t-2," measured in MWh, using ARB MRR data. Electricity purchases may occur from one or more IOUs, each with its own associated emissions factor.

"EF_{IOU}" is the GHG emissions factor specific to the IOU from which the industrial facility purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{3rd\ party,\ t\text{-}2}$" is the annual amount of electricity purchased by the industrial facility from a third party electricity provider in year "t-2," measured in MWh, using ARB MRR data. Electricity purchased by a single facility may occur from one or more third party providers, excluding publicly-owned utilities, each with its own associated emissions factor.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider from which the industrial facility purchased electricity. This factor is 0.379 $MTCO_2e$/MWh for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e$/MWh applies.

2.5.2. True-Up Term for an Advance Energy-Based Allocation to Facilities with Transitional Emissions Data

The following true-up term applies to facilities that have transitional emissions data. Like the true-up for the product-based allocation, this true-up term will correct the allocation from two years prior, once actual MRR data is available.

Equation 11. True-Up Term for Advanced Energy-Based Allocation for a Facility with Transitional Emissions Data

$$Trueup_t = \left(B_{EP,e,t-2} \times AF_{a,t-2} \times C_{t-2} \times D_{t-2}\right) - A_{t-2,no\ trueup}$$

The assistance factor, cap adjustment factor and dollar conversion factor variables are as defined in Equation **5**. The benchmark variable is as calculated in Equation **10**.

The 2015 allocation is the first that will certainly require a true-up, and this true-up will occur in 2016.

3. Refinery Allocation Equation for First Compliance Period

The following series of equations will be used to allocate allowance revenue to individual refineries during the first Cap-and-Trade compliance period. First, allowance revenue is allocated to the refinery sector as a whole, based on a product-based, "simple barrel," benchmark. This allows the total amount of allowance revenue allocated to the refinery sector to increase or decrease automatically in response to future production levels of refinery products. Second, allowance revenue is allocated to individual refineries based on the complexity of the refinery. For simple refineries (i.e. those without a Solomon Energy Intensity Index (EII) value) a simple barrel product benchmark applies; and for complex refineries (i.e. those with an EII value), a more complex formula applies that accounts for each refinery's historical emissions and its relative efficiency compared to other refineries.

3.1. Refinery Sector Allocation

Equation 12. Refinery Sector Allocation

$$SA_{EP,t} = AF_t \times B_{EP} \times C_t \times O_{t-2}$$

Where:

"$SA_{EP,t}$" is the annual allocation to the refining sector for emissions from purchased electricity for budget year t. This variable is in terms of allowances ($MTCO_2e$). (Allocations to individual refineries will be converted to dollars.)

"AF_t" is the assistance factor for budget year t assigned to petroleum refining sector (NAICS Code 324110) as specified in Table 8-1 of ARB's Cap-and-Trade regulation.

"B_{EP}" is the emissions benchmark for electricity purchased for primary products produced by the refining sector. It is determined by the following equation, which is identical to the product-based benchmark for electricity purchases defined in Equation **2**:

$$B_{EP} = 0.9 \times \frac{\sum_{r=1}^{n}\left[\sum_{IOU=1}^{u}\left(EP_{r,IOU} \times EF_{IOU}\right) + \sum_{3rd\ party=1}^{p}\left(EP_{r,3rd\ party} \times EF_{3rd\ party}\right)\right]}{\sum_{r=1}^{n} Production_r}$$

Where:

0.9 is the benchmark stringency chosen to reflect the emissions intensity of highly efficient, low-emitting covered entities within the sector.

"$EP_{r,IOU}$" is the total electricity purchased in MWh by industrial facility "r" within the refinery sector from an investor-owned utility. Electricity purchases by a single facility, "r," may occur from one or more utility. Electricity purchases are summed over a historical period that ARB determined was appropriate~~, 2008-2010~~, using ARB's MRR data.

"EF_{IOU}" is the GHG emissions factor specific to the investor-owned utility from which the industrial facility "r" purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{r,\ 3rd\ party}$" is the total electricity purchased in MWh by industrial facility "r" within the refinery sector from a third party electricity provider. Electricity purchases by a single facility "r" may occur from one or more third party providers. Electricity purchases are

summed over a historical period that ARB determined was appropriate, ~~2008-2010,~~ using ARB's MRR data.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider. This factor is 0.379 $MTCO_2e/MWh$ for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e/MWh$ applies.

"$Production_r$" is the total output of primary refinery products produced by industrial facility "r," in the refining sector. Product output is summed over a historical period that ARB determined was appropriate ~~2008-2010~~, using ARB's MRR data discounted by the percentage of the refinery sector's total electricity purchases in year "t-2" that are from publicly-owned utilities.

"C_t" is the cap adjustment factor for budget year "t." The schedule for the cap adjustment factor can be found in Table 9-2 of ARB's Cap-and-Trade regulation as the Cap Adjustment Factor for All Other Direct Allocation.

"O_{t-2}" is the output of primary refinery products, in barrels, from the refining sector in year t-2.

Like the product and energy-based allocations, the refinery allocation will be granted in advance of costs being incurred.

3.2. Allocation to Facilities Without EII Values (Simple Refineries)

Refineries without an EII value are granted allowance revenue based on the following simple barrel benchmark approach, which is equivalent to the product-based allocation methodology, limited to be no greater than a refinery's historical emissions.

Equation 13. Revenue Allocation to Individual Refineries without EII Values (Simple Refineries)

$$AR_{X,t} = A_{X,t} \times D_t$$

Where:

"$AR_{X,t}$" is the allocation of revenue in dollars to an individual refinery "X" for budget year "t."

"$A_{X,t}$" is the allocation of allowances to an individual refinery "X" for budget year "t" as calculated by either Equation **14** or Equation **15** below.

"D_t" is the dollar conversion factor calculated based on the average of CAISO's daily Greenhouse Gas Allowance Index Price for the year "t." It is possible to use year "t" rather than year "t-1" since these refinery equations will only be used during the first compliance period, and the revenue allocations for 2013 and 2014 will not be conducted until early 2015, at which point the dollar conversion factors for 2013 and 2014 will be known.

Equation 14. If Simple Barrel Method Is Less than Historical Emissions

$$If: O_{X,t-2} \times B_{EP} \times AF_t \times C_t \leq BE_{EP,X} \times AF_t \times C_t$$

$$Then: A_{X,t} = O_{X,t-2} \times B_{EP} \times AF_t \times C_t$$

(A product-based allocation)

Equation 15. If Simple Barrel Method Exceeds Historical Emissions

$$If: O_{X,t-2} \times B_{EP} \times AF_t \times C_t \geq BE_{EP,X} \times AF_t \times C_t$$

$$Then: A_{X,t} = BE_{EP,X} \times AF_t \times C_t$$

(An emissions-based allocation)

Where:

"$O_{X,t-2}$" is the output of primary refinery products, in barrels, from refinery "X" in year t-2, discounted by the percentage of the refinery's total electricity purchases in year "t-2" that are from publicly-owned utilities. (However, verified 2013 product output data is presently available, so primary refinery product data from year "t" will be used for the 2013

allocation; and product data from year "t-1" will be used for the 2014 allocation.)

"B_{EP}" is the emissions benchmark for electricity purchased for primary products produced by the refining sector. This benchmark applies to the refinery sector as a whole, and is not specific to an individual refinery. It is defined in
Equation **12** above.

"AF_t" is the assistance factor for budget year "t" assigned to petroleum refining sector (NAICS Code 324110) as specified in Table 8-1 of ARB's Cap-and-Trade regulation.

"C_t" is the cap adjustment factor for budget year "t." The schedule for the cap adjustment factor can be found in Table 9-2 of ARB's Cap-and-Trade regulation as the Cap Adjustment Factor for All Other Direct Allocation.

"$BE_{EP,X}$" is the baseline average annual greenhouse gas emissions for purchased electricity for refinery "X" over a historical period that ARB determined was appropriate~~, 2008-2010, or a period determined by the ARB Executive Officer for the refinery's direct allowance allocation~~. This is a facility specific benchmark-.

3.2.1. **True-Up for Refineries without EII Values**

The revenue allocation for 2014 will be trued-up to account for actual product output in the 2016 allocation. This true-up will occur according to the following equations, which will be added to the 2016 allocation to be conducted according to a complexity weighted barrel methodology.

Equation 16. True-Up if Entity Received Initial Revenue via a Product-Based Allocation

$$TrueUp_{X,t} = \left(O_{X,t-2} \times B_{EP} \times AF_{t-2} \times C_{t-2}\right) - AR_{X,t-2}$$

Where:

"$TrueUp_{X,t}$"is the amount of true-up allowance revenue allocated to account for changes in product output and the dollar conversion factor not properly accounted for in prior allocations for refinery "X."

"$AR_{X,t-2}$" is the amount of allowance revenue that refinery "X" without an EII value received for budget year "t-2."

Equation 17. True-Up if Entity Received Initial Revenue via an Emissions-Based Allocation

$$If: AE_{EP,X,t-2} < BE_{EP,X} \times 0.8$$

$$Then: TrueUp_{X,t} = \left(AE_{EP,X,t-2} \times AF_{t-2} \times C_{t-2}\right) - AR_{X,t-2}$$

Where:

"$AE_{EP,X,t-2}$" is the emissions from electricity purchased by refinery "X" without an EII Value for budget year "t-2," using the following equation:

$$AE_{EP,X,t-2} = \sum_{IOU=1}^{u} \left(EP_{IOU,t-2} \times EF_{IOU}\right) + \sum_{3rd\ party=1}^{p} \left(EP_{3rd\ party,t-2} \times EF_{3rd\ party}\right)$$

Where:

"$EP_{IOU,t-2}$" is the annual amount of electricity purchased by refinery "X" from an IOU in year "t-2," measured in MWh, using ARB MRR data. Electricity purchases may occur from one or more IOUs, each with its own associated emissions factor.

"EF_{IOU}" is the GHG emissions factor specific to the IOU from which the industrial facility purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e/MWh$ for all investor-owned utilities.

"$EP_{3rd\ party,t-2}$" is the annual amount of electricity purchased by refinery "X" from a third party electricity provider in year "t-2," measured in MWh, using ARB MRR data. Electricity purchased by a

single facility may occur from one or more third party providers, each with its own associated emissions factor.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider from which the industrial facility purchased electricity. This factor is 0.379 $MTCO_2e/MWh$ for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e/MWh$ applies.

3.3. Allocation to Facilities with EII Values (Complex Refineries)

The methodology below exactly mirrors ARB's methodology with the same two changes employed throughout this decision: it ensures that the benchmark reflects emissions from electricity purchases, rather than direct emissions, and it converts allowances into dollars.

Equation 18. Revenue Allocation to Individual Refineries with EII Values (Complex Refineries)

$$AR_{Y,t} = BE_{EP,Y} \times DF_{Y,t} \times F_t \times D_t$$

Where:

"$AR_{Y,t}$" is the allocation of revenue in dollars to an individual refinery "Y" that has an EII value for budget year "t".

"$BE_{EP,Y}$" is the baseline average annual greenhouse gas emissions from purchased electricity for refinery "Y" over a historical period that ARB determined was appropriate~~, 2008-2010, or a period determined by the ARB Executive Officer for the refinery's direct allowance allocation~~. This is a facility specific benchmark.

"$DF_{Y,t}$" is a distribution factor calculated as:

$$DF_{Y,t} = \left((Avg_{EP}/EII_Y) + Adj_{EP,t}\right)/\left(1 + Adj_{EP,t}\right)$$

Where:

"Avg_{EP}" is the weighted average EII for all facilities with EII values, and is calculated as:

$$Avg_{EP} = \frac{\sum_{Y=1}^{n} BE_{EP,Y}}{\sum_{Y}^{n}\left(BE_{EP,Y}/EII_{Y}\right)}$$

"EII_Y" is the Solomon Energy Intensity Index (EII) for facility "Y" for a historical period that ARB determined was appropriate ~~2008, 2009 or 2010 as determined to be representative by the ARB's Executive Officer~~. For the purposes of this calculation, EII values shall be rounded to one digit after the decimal. EII values are to remain confidential to ARB.

"$Adj_{EP,t}$" is an adjustment factor designed to provide the covered entity with the best EII the most allowances relative to its baseline level:

$$Adj_{EP,t} = \left((\mathrm{Avg_{EP}}/\mathrm{EII_{Best}}) \times \mathrm{F_t} - 1\right)/(1 - \mathrm{F_t})$$

"EII_{Best}" is the EII of the most efficient covered entity (lowest EII in the sector).

"F_t" is a fraction that adjusts the complex refinery allocation to account for the remaining refinery sector allowances after allocations are made for simple refineries, and is calculated as:

$$F_t = \frac{SA_{EP,t} - \sum_{X=1}^{n} A_{X,t}}{\sum_{Y=1}^{n} BE_{EP,Y}}$$

Where:
"$SA_{EP,t}$" is the annual allocation to the refining sector for emissions from purchased electricity for budget year t, as defined in **Equation 12**. This variable is in terms of allowances ($MTCO_2e$).

"$A_{X,t}$" is the allocation in terms of allowances ($MTCO_2e$) to simple refinery "X" without an EII value for year "t."

"D_t" is the dollar conversion factor calculated based on the average of CAISO's daily Greenhouse Gas Allowance Index Price for the year "t."

(The year "t" can be used since the allocations for 2013 and 2014 will not occur until early 2015, at which point the dollar conversion factor for both years will be known.)

The calculations necessary to execute **Equation 18** require the use of confidential and proprietary Solomon EII values that ARB cannot share with Energy Division. To implement this calculation in a manner that respects these confidentiality requirements, Energy Division will compute the refinery sector allocation, $SA_{EP,t}$, and the sum of the revenue allocation to simple refineries without EII values, $\Sigma A_{X,t}$, and it will then communicate these results to ARB, which will allow ARB to calculate the fixed fraction, F_t, and the distribution factor specific to each complex refinery, $DF_{Y,t}$, without communicating EII data to Energy Division.

3.3.1. **True-Up Process for Refineries with EII Values**

The following true-up formulas parallel ARB's true-up for complex refineries. If actual 2014 emissions from electricity purchases are less than the amount of revenue provided for those years, a true-up will be conducted after September 2015 (after verified MRR data is available about 2014 electricity purchase is available) and the excess revenue that the refinery received will be subtracted from the revenue allocation that occurs in 2016. This true-up equation differs from the equation included in the Staff Proposal because it is no longer necessary to true-up the 2013 allocation: as of this date, verified 2013 MRR data are available.

Equation 19. Complex Refinery True-Up If Actual Electricity Emissions Are Less than Revenue Provided

$$If: \left(AE_{EP,Y,2014} \times D_{2014}\right) < AR_{Y,2014}$$

$$Then: TrueUp_{Y,Debit,2016} = 0.8 \times \left(\left(AE_{EP,Y,2014} \times D_{2014}\right) - AR_{Y,2014}\right)$$

Where:

"$TrueUp_{Y,Debit,2016}$" is the revenue in dollars that will be deducted from the refinery "Y's" next revenue allocation in 2016 to account for changes in production or allocation not properly accounted for in prior allocations.

"$AR_{Y,t}$" is the allocation of revenue in dollars that individual refinery "Y" received for GHG emissions from electricity purchases experienced in year "t".

"$AE_{EP,Y,t}$" is refinery "Y's" actual GHG emissions for purchased electricity in year "t." Since actual GHG emission from electricity purchases are difficult to exactly measure in any given year, these emissions will be calculated based on the same fixed emissions factors approved in this decision. Actual emissions would therefore be estimated according to the following formula:

$$AE_{EP,Y,t} = \sum_{IOU=1}^{n} \left(EP_{IOU,t} \times EF_{IOU}\right) + \sum_{3rd\ party=1}^{n} \left(EP_{3rd\ party,t} \times EF_{3rd\ party}\right)$$

Where:

"$EP_{IOU,t}$" is the total electricity purchased in MWh by facility "Y" within the refinery sector from an investor-owned utility during year "t." Electricity purchases by a single facility, "Y", may occur from one or more IOU, each with its own associated emission factor.

"EF_{IOU}" is the GHG emissions factor specific to the investor-owned utility from which the industrial facility "Y" purchased electricity. This factor is 0.291 $MTCO_2e$ for PG&E and 0.379 $MTCO_2e$/MWh for all investor-owned utilities.

"$EP_{3rd\ party,t}$" is the total electricity purchased in MWh by facility "Y" within the refinery sector from a third party electricity provider

during year "t." Electricity purchases by a single facility "Y" may occur from one or more third party providers, each with its own associated emissions factor.

"$EF_{3rd\ party}$" is the GHG emissions factor specific to the third party electricity provider. This factor is 0.379 $MTCO_2e/MWh$ for electricity purchases from all parties that are not investor-owned utilities, except when electricity is purchased from off-cite CHP facilities a factor of 0.431 $MTCO_2e/MWh$ applies.

"D_t" is the dollar conversion factor applicable to budget year "t."

If actual 2014 emissions from electricity purchases are greater than the amount of revenue provided, a true-up allocation will be conducted after September 2015, and the facility will be credited with additional allowance revenue in the 2016 revenue allocation. This true-up equation differs from the equation included in the Staff Proposal because it is no longer necessary to true-up the 2013 allocation: as of this date, verified 2013 MRR data are available.

Equation 20. Complex Refinery True-Up If Actual Emissions Are Greater than Revenue Provided

$$If: BE_{EP,Y} < AE_{EP,Y,2014}$$

$$Then: TrueUp_{Y,Credit,2016} =$$

$$0.8 \times \left(\left(AE_{EP,Y,2014} \times DF_{Y,2014} \times AF_{2014} \times F_{2014} \times D_{2014}\right) - AR_{Y,2014}\right)$$

Where:

"$TrueUp_{Y,Credit,2016}$" is the revenue in dollars that will be added to refinery "Y's" next revenue allocation in 2016 to account for changes in production or allocation not properly accounted for in prior allocations.

"$BE_{EP,Y}$" is the average annual greenhouse gas emissions from purchased electricity for refinery "Y" over a historical period that ARB determined was appropriate~~, 2008-2010~~. This value is expressed in **Equation 18**, and is calculated once at the outset of the program.

"$AE_{EP,Y,t}$" is refinery "Y's" actual GHG emissions for purchased electricity in year "t." These emissions will be calculated based on the same fixed emissions factors used throughout this decision. Actual emissions would therefore be estimated according to the formula expressed in **Equation 19** above.

"$DF_{Y,t}$" is the distribution factor calculated as in **Equation 18**.

"AF_t" is the refinery assistance factor for year "t."

"F_t" is a fraction as calculated in **Equation 18**.

"D_t" is the dollar conversion factor used to convert metric tons of emissions into dollars.

"$AR_{Y,t}$" is the allocation of revenue in dollars that individual refinery "Y" received for GHG emissions from electricity purchases experienced in year "t".

(END OF ATTACHMENT 2)