

August 11, 2011

Clerk of the Board Air Resources Board 1001 I Street, Sacramento California 95814

Subject:Rulemaking to Consider Amendments to the Regulation for Mandatory
Reporting of Greenhouse Gas Emissions, 15-Day Notice Posted July 25, 2011

Dear Clerk:

The Industrial Gases Panel of the American Chemistry Council appreciates the opportunity to submit comments on the "Proposed 15 Day Modifications" posted on July 25, 2011. We offer the enclosed comments to inform and enhance the Air Resource Board's efforts.

The industrial gas manufacturing industry employs 60,000 workers in the U.S. and 3,400 in California. The Industrial Gases Panel represents the six largest global manufacturers in the industry. The industrial gas industry supplies gases to hundreds of thousands of customers in numerous industries in California, including aerospace, agriculture, autos, chemical processing, electronics, energy, food and beverage, and healthcare, among others.

The industrial gases sector operates numerous production facilities and business operations in California and will be particularly impacted by the allowance allocation and benchmarking provisions in the proposed cap and trade regulations.

The Industrial Gases sector Panel the California Air Resources Board (ARB) to address the following key issues:

- 1. To avoid market distortions, ARB should apply the same benchmark to all gaseous hydrogen production facilities, including refinery-owned hydrogen plants. The benchmark for hydrogen production facilities should be based on an industry average that includes emissions data from all gaseous hydrogen production facilities, including refinery-owned hydrogen plants, and the allocation benchmarks for gaseous hydrogen should apply to all gaseous hydrogen production facilities.
- 2. Liquid hydrogen should receive an independent benchmark and should be categorized as a high leakage risk.
- 3. ARB should consider, on a case-by-case basis, the need for adjustment to adjust allowance allocations for firms operating under long-term contracts and provide a 100 percent allowance allocation for the duration of the contract.

- 4. ARB should fairly allocate allowances for Combined Heat & Power (CHP) electricity production not distributed through an electrical distribution utility (EDU).
- 5. ARB should adopt and incorporate by reference the provisions of EPA's GHG Mandatory Reporting Rule with respect to calculating and monitoring GHG emissions from hydrogen production facilities, particularly the provisions related to averaging methods for fuel/feedstock characterization and replacement of missing data.
- 6. The definition of CO₂ supplier should be clarified to be consistent with federal regulations and focus on upstream supply, so that downstream processors are not subject to redundant requirements for the same CO₂streams.

The Industrial Gases Panel believes that these recommendations would provide better equity in the implementation of the state's greenhouse gases reduction program and will help prevent market distortions during program implementation. These are essential to meet the California Global Warming Solutions Act (AB 32) directive that ARB design the cap-and-trade regulations to be "equitable."

The Panel supports responsible environmental policy and California's efforts to develop a fair, effective and economically efficient means for meeting the requirements of AB 32. We also recognize that California's actions will be a model for greenhouse gas programs in other states and internationally. It is therefore important that California adopt cap-and-trade and greenhouse gas reporting regulations that minimize market distortions and ensure the fair treatment of all regulated entities.

Should you have any questions or if we can provide any additional information, please contact Robert Simon at 202-249-6700 or at <u>robert_simon@americanchemistry.com</u>.

Sincerely,

cc: Tim Shestek, Senior Director – ACC Western Region Lindsay Stovall – ACC Western Region

Attachment 1: Comments on California Cap Rulemaking to Consider Amendments to the Regulation for Mandatory Reporting of Greenhouse Gas Emissions, 15-Day Notice Posted July 25, 2011

Attachment 2: Comments on California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Development of Product Benchmarks for Allowance Allocation, 15-Day Notice Posted July 25 and 27, 2011

American Chemistry Council Industrial Gases Panel

Comments on California Cap Rulemaking to Consider Amendments to the Regulation for Mandatory Reporting of Greenhouse Gas Emissions, 15-Day Notice Posted July 25, 2011

I. The benchmark for hydrogen production should be based on an industry average that includes emissions data from all hydrogen production facilities.

As noted in Appendix B: Development of Product Benchmarks for Allowance Allocation, greenhouse gas (GHG) benchmarks are metrics that enable the comparison of GHG performance across similar industrial facilities.

To avoid market distortions, it is important that the allocation benchmarks assigned by the California Air Resources Board (ARB) for gaseous hydrogen are equitable and apply to all gaseous hydrogen production facilities. ARB has proposed a benchmark for gaseous hydrogen production based on the performance of just six of 26 hydrogen production facilities in the state (and two of those six have significant liquid hydrogen production activities, which ARB is considering a separate product). ARB should calculate the benchmark based on the performance of all 26 gaseous hydrogen plants in the state and expand the hydrogen production survey recently sent by ARB staff to the independent hydrogen producers to include all hydrogen production facilities. A benchmark based on the full dataset of production facilities will be a more representative product benchmark. This, in turn, will result in a more accurate and equitable benchmark.

Industrial gas manufacturers operate plants that supply hydrogen in gaseous and liquid form to petroleum refineries. In many cases, petroleum refiners operate their own hydrogen plants within their facilities, and thus many refiners have a choice whether to purchase hydrogen from an industrial gas manufacturer or to use their own in-house capacity to produce hydrogen.

ARB's goal in designing the Cap-and-Trade provisions for hydrogen production facilities should be to avoid creating market distortions. Market distortions are undesirable for two reasons. First, by creating market distortions, the State in effect picks winners and losers in the market, thus violating AB 32's directive that ARB design the cap-and-trade regulations to be "equitable." Second, market distortions may result in increased emissions, thus undercutting AB 32's objectives.

It is desirable that the allocation benchmark is equitable – the same benchmark should apply to all hydrogen production regardless of whether the hydrogen is produced within a refinery complex or produced by an independent producer and supplied across the refinery fence.

To this end, we urge ARB to clarify that the hydrogen production benchmark will be based on emissions data from <u>all</u> hydrogen production facilities. This should be reflected in

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Appendix B: Sector Details for Hydrogen Production¹. ARB has proposed to collect data from all facilities and exclude the Aggregation of Units of different source categories, as stated in § 95114 and § 95115 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions."² The Panel encourages ARB to collect this information and incorporate the data reported from all facilities into the product benchmark as soon as possible. ARB should also clarify references to hydrogen production and industrial gas production facilities throughout its various draft regulations and supporting documents (Example, Table 9.1. Page A-114³) so that it is clear that the allocation benchmarks apply to all gaseous hydrogen production facilities. Likewise, the definition of the Hydrogen Production Source Category in § 95114 should be expanded to include all gaseous hydrogen production facilities.

II. Liquid hydrogen should receive an independent benchmark and should be categorized as a high leakage risk.

ARB has recognized in the updated draft documents (Annex B and the Proposed 15 Day Modifications on Subchapter 10) that liquid hydrogen is a different product from gaseous hydrogen used in refining applications. Liquid hydrogen is produced using different equipment and processes, requires more energy to produce, and is readily transportable across California borders and it requires additional production methodology and equipment. Further, liquid hydrogen production has a material indirect GHG emission footprint due to the significant electricity consumed in the liquefaction process. For these reasons, liquid hydrogen should be treated as a distinct product with its own unique product benchmark. Since liquid hydrogen is very energy-intensive and highly trade-exposed, the Panel believes liquid hydrogen should be categorized as a HIGH leakage risk.

We urge ARB to maintain the distinction between gaseous and liquid hydrogen. Table 8-1 Industry Assistance⁴ should be changed to indicate that liquid hydrogen has a high leakage risk classification. We also urge ARB to recognize this distinction throughout the draft regulations and supporting documents particularly § 95114 of Attachment 1 of the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions"⁵. The Industrial Gases Panel is available to work with ARB staff to provide additional information on liquid hydrogen and the potential economic and environmental impacts of liquid hydrogen shipments into California.

¹ Appendix B: Development of Product Benchmarks for Allowance Allocation, page 14

² § 95114 of Attachment 1 of the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions", page 153-158 and 163-164.

³ Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, PageA-114

⁴ Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, Table 801, Page A-106.

⁵ § 95114 of Attachment 1 of the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions", page 153-158.

III. ARB should consider, on a case-by-case basis, the need for adjustment to allowance allocations to firms operating under long-term contracts.

ARB previously recognized that there may be a need to accommodate parties in the electric power generation industry subject to long-term contracts, noting in Appendix J to the proposed Cap-and-Trade Rule that it would further "evaluate…whether some specific contracts may require special treatment." [App. J, p. J-16, note 15 (Oct. 28, 2010 draft).] ARB should provide similar case-by-case adjustments for hydrogen producers. Both the Waxman-Markey and Kerry-Boxer federal bills allocated allowances to parties who would be unable to pass on compliance costs under long-term supply contracts. ARB should protect parties to long-term contracts by extending the 100 percent allocation provided for the first compliance period until the end of the contract term.

IV. ARB should fairly allocate allowances for Combined Heat & Power (CHP) electricity production not distributed through an electrical distribution utility (EDU).

Most electricity consumed in the state is distributed through Electric Distribution Utilities (EDUs). A small portion of the state's electricity consumption occurs by ratepayers who obtain their electricity directly from a producer without going through an EDU – this is often an industrial electricity consumer obtaining power from a co-located, but independent, industrial cogeneration facility. ARB proposes to allocate allowances to EDUs based on the electricity consumption through their respective service franchises, and then require these allowances to be auctioned, with the proceeds being used for the benefit of their ratepayers. Since no allocation will be made to the "industrial cogeneration/distribution" entities delivering electricity directly to their rate paying customers, there is an unequal (one-sided) opportunity to offer benefits to the ratepayer which favors the EDU. This will provide an incentive for current (and future) consumers of industrial cogenerated power to switch to grid-delivered power – a result contrary to the Air Resources Board policy objective of incentivizing cogeneration of power. To prevent this unequal treatment, ARB must allocate allowances to industrial cogeneration/distribution entities in a manner consistent with the proposed allocation to EDUs under \$95892.

Providing allowance allocations where industrial cogeneration providers directly serve their customers is consistent with the "*Criteria for Receiving Allowances as Part of the Electricity Sector Allocation*" described on Appendix A of the 15-Day Modification package. Such industrial cogeneration providers serve end-use customer's electricity load and receive payment for that load – representing the same transactional relationship existing between EDUs and retail ratepayers.

Allocation of allowances to qualifying industrial cogeneration providers could be accomplished by classifying such electricity providers as a separate type of "distribution utility", make allowance allocations to them consistent with the methodology described in Appendix A of the 15-Day Modification package, This includes employing the appropriate factors for the cost burden imposed upon ratepayers (footnote 10 of Appendix A) Allowances allocated in this manner would require comparable treatment to those allocated to EDUs - placement into a Limited Use Holding Account, sold at auction, and benefit returned to their retail ratepayers consistent with §95892(d)(2).

V. ARB should adopt and incorporate by reference the provisions of EPA's GHG Mandatory Reporting Rule with respect to calculating and monitoring GHG emissions from hydrogen production facilities.

Sections 95114(d) and (e) of the proposed MRR require daily sampling and analysis of all fuels and feedstocks except natural gas. The burden imposed by daily sampling and analysis would greatly exceed the benefits of such a program. Because manufacturers require consistency in their fuel and feedstocks in order to run a reliable plant, the carbon content of these inputs varies little from day to day. The sampling frequency required by EPA's MRR will provide a sufficient basis for calculating emissions and benchmarks. ARB's proposed additions to the monitoring requirements will impose unnecessary costs that will not provide any additional benefit to ARB or aid in implementing AB 32's objectives.

ARB should revise Section 95114 of the MRR by adopting and incorporating by reference the provisions of EPA's GHG Mandatory Reporting Rule with respect to calculating and monitoring GHG emissions from hydrogen production facilities (§ 98.163(b)(1) and § 98.164(b)(2) in the EPA MRR), and delete the proposed language in sections 95114(d) and (e).

VI. The Definition of CO₂ supplier should be clarified to be consistent with federal regulations and focus on upstream supply, so that downstream processors are not subject to redundant requirements in the same CO₂supply chain.

The industrial gas sector operates carbon dioxide plants that obtain certain refinery gas streams rich in CO_2 and purifies purify them into carbon dioxide from those streams for use which can be used in many products and processes like such as refrigeration, dry ice and carbonation. These plants typically do not produce the carbon dioxide that they process. If the industrial gases sector did not take and purify the refinery gas streams, they would be emitted at the refinery as a waste gas.

ARB has consistently held that CO_2 generators should bear the reporting and compliance obligations for CO_2 that they produce. It has not been ARB's intent, and it would not be efficient or equitable, to subject redundant entities in the supply chain to redundant obligations with respect to the same CO_2 . Therefore, ARB should ensure that the proposed rules do not impose compliance obligations for distribution-related activities that are unrelated to the production of CO_2 within the state.

It is apparent that ARB intended to track the language of the federal definition. However, by omitting the clarifying language in subsection (b), ARB's draft may unintentionally create ambiguity. ARB should include the following clarifying language, based on 40 C.F.R. § 98.420(b), in the definition of "CO₂ supplier" in both the Cap-and-Trade Rule and the MRR:

A person or facility is not a Carbon Dioxide Supplier by virtue of performing any of the following activities:

- (1) <u>Storage of CO₂ aboveground or in geologic formations;</u>
- (2) <u>Use of CO₂ in enhanced oil and gas recovery;</u>
- (3) <u>Transportation or distribution of CO2</u>, unless such transport or distribution <u>involves the import or export of bulk CO2</u>;⁶
- (4) Purification, compression, or processing of CO2;
- (5) Capture of CO₂ from a production process unit at an upstream facility under <u>separate ownership and control;⁷ and</u>

(6) On-site use of CO2 captured on site.

This clarifying language should be included in the definitions and relevant sections of the Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, PageA-114 (A-10 and A-50) and the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions" (§ 95101 page 4, definitions page 16).

 $^{^{6}}$ Federal text modified to harmonize the proposed language with section 95802(45)(c).

⁷ Text added to clarify status of downstream receiver or purchaser of CO2 generated by Carbon Dioxide Supplier.

American Chemistry Council Industrial Gases Panel

Comments on California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Development of Product Benchmarks for Allowance Allocation, 15-Day Notice Posted July 25 and 27, 2011

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ARB's goal in designing the Cap-and-Trade provisions for hydrogen production facilities should be to avoid creating market distortions. Market distortions are undesirable for two reasons. First, by creating market distortions, the State in effect picks winners and losers in the market, thus violating AB 32's directive that ARB design the cap-and-trade regulations to be "equitable." Second, market distortions may result in increased emissions, thus undercutting AB 32's objectives.

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II. The hydrogen production allocation benchmark should be based on the Carbon Weighted Barrel (CWB) method.

The allocation methodology that will provide the most accurate and most equitable benchmark is the Carbon Weighted Barrel (CWB) approach outlined in Appendix J of the Staff Report for the December 2010 rulemaking. As the European Union concluded in its Emissions Trading Scheme (EU ETS) Phase 3 rulemaking, a consistent hydrogen production benchmark can be applied to hydrogen production facilities in the refining sector in combination with the overall refining benchmark, which results in a consistent performance target for all hydrogen producers.

We recognize that the ARB staff needs time to conduct more comprehensive data collection and analysis to implement the CWB method, and therefore, an interim method will be required for the first compliance period of the cap-and-trade program while this data analysis is undertaken. In order to ensure a long-term, equitable benchmark, ARB should make a regulatory commitment to implement the CWB method by the beginning of the second compliance period. This will help provide certainty, promote investments in California within our industry and prevent inequity.

ARB should indicate its intent to implement the CWB method by the beginning of the second compliance period in Appendix B: Sector Details for Hydrogen Production.¹¹

III. The benchmark for hydrogen production should not be reduced to account for heat or steam sold by a hydrogen production facility.

ARB staff comments on previous discussion drafts have made reference to adjusting benchmarks to account for heat purchased and sold by facilities. Hydrogen plants typically produce heat in the form of steam for their refinery customers. Petroleum refiners will

⁸ Appendix B: Development of Product Benchmarks for Allowance Allocation, page 14

⁹ § 95114 of Attachment 1 of the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions", page 153-158 and 163-164.

¹⁰ Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, PageA-114

¹¹ Appendix B: Development of Product Benchmarks for Allowance Allocation, page 14

receive allowances either in proportion to their output or their historical emissions, and thus will receive allowances for steam production that is used in the production of petroleum. If industrial gas manufacturers do not receive allowances for the production of all inputs to the petroleum refining process, including steam, market distortions may result, and refiners may have an incentive to use less efficient sources of steam production.

IV. Liquid hydrogen should receive an independent benchmark and should be categorized as a high leakage risk.

ARB has recognized in the updated draft documents (Annex B and the Proposed 15 Day Modifications on Subchapter 10) that liquid hydrogen is a different product from gaseous hydrogen used in refining applications. Liquid hydrogen is produced using different equipment and processes, requires more energy to produce, and is readily transportable across California borders and it requires additional production methodology and equipment. Further, liquid hydrogen production has a material indirect GHG emission footprint due to the significant electricity consumed in the liquefaction process. For these reasons, liquid hydrogen should be treated as a distinct product with its own unique product benchmark. Since liquid hydrogen is very energy-intensive and highly trade-exposed, the Panel believes liquid hydrogen should be categorized as a HIGH leakage risk.

We urge ARB to maintain the distinction between gaseous and liquid hydrogen. Table 8-1 Industry Assistance¹² should be changed to indicate that liquid hydrogen has a high leakage risk classification. We also urge ARB to recognize this distinction throughout the draft regulations and supporting documents particularly § 95114 of Attachment 1 of the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions"¹³. The Industrial Gases Panel is available to work with ARB staff to provide additional information on liquid hydrogen and the potential economic and environmental impacts of liquid hydrogen shipments into California.

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ARB previously recognized that there may be a need to accommodate parties in the electric power generation industry subject to long-term contracts, noting in Appendix J to the proposed Cap-and-Trade Rule that it would further "evaluate…whether some specific contracts may require special treatment." [App. J, p. J-16, note 15 (Oct. 28, 2010 draft).] ARB should provide similar case-by-case adjustments for hydrogen producers. Both the Waxman-Markey and Kerry-Boxer federal bills allocated allowances to parties who would be unable to pass on compliance costs under long-term supply contracts. ARB should

¹² Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, Table 801, Page A-106.

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protect parties to long-term contracts by extending the 100 percent allocation provided for the first compliance period until the end of the contract term.

VI. ARB should fairly allocate allowances for Combined Heat & Power (CHP) electricity production not distributed through an electrical distribution utility (EDU).

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Providing allowance allocations where industrial cogeneration providers directly serve their customers is consistent with the "*Criteria for Receiving Allowances as Part of the Electricity Sector Allocation*" described on Appendix A of the 15-Day Modification package. Such industrial cogeneration providers serve end-use customer's electricity load and receive payment for that load – representing the same transactional relationship existing between EDUs and retail ratepayers.

Allocation of allowances to qualifying industrial cogeneration providers could be accomplished by classifying such electricity providers as a separate type of "distribution utility", make allowance allocations to them consistent with the methodology described in Appendix A of the 15-Day Modification package, This includes employing the appropriate factors for the cost burden imposed upon ratepayers (footnote 10 of Appendix A) Allowances allocated in this manner would require comparable treatment to those allocated to EDUs - placement into a Limited Use Holding Account, sold at auction, and benefit returned to their retail ratepayers consistent with §95892(d)(2).

VII. The Definition of CO₂ supplier should be clarified to be consistent with federal regulations and focus on upstream supply, so that downstream processors are not subject to redundant requirements in the same CO₂supply chain.

The industrial gas sector operates carbon dioxide plants that obtain certain refinery gas streams rich in CO_2 and purifies purify them into carbon dioxide from those streams for use which can be used in many products and processes like such as refrigeration, dry ice and carbonation. These plants typically do not produce the carbon dioxide that they process. If

ACC, Industrial Gases Panel, August 11, 2011 GHG Reporting Page 11 of 12 the industrial gases sector did not take and purify the refinery gas streams, they would be emitted at the refinery as a waste gas.

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It is apparent that ARB intended to track the language of the federal definition. However, by omitting the clarifying language in subsection (b), ARB's draft may unintentionally create ambiguity. ARB should include the following clarifying language, based on 40 C.F.R. § 98.420(b), in the definition of "CO₂ supplier" in both the Cap-and-Trade Rule and the MRR:

<u>A person or facility is not a Carbon Dioxide Supplier by virtue of performing any of the following activities:</u>

- (4) <u>Storage of CO₂ aboveground or in geologic formations;</u>
- (5) <u>Use of CO₂ in enhanced oil and gas recovery;</u>
- (6) <u>Transportation or distribution of CO2</u>, unless such transport or distribution involves the import or export of bulk CO2;¹⁴
- (4) Purification, compression, or processing of CO2;
- (5) Capture of CO₂ from a production process unit at an upstream facility under separate ownership and control;¹⁵ and
- (6) On-site use of CO2 captured on site.

This clarifying language should be included in the definitions and relevant sections of the Proposed 15 Day Modifications on Subchapter 10, Article 5, Sections 95800-96022, Title 17, PageA-114 (A-10 and A-50) and the Proposed 15 Day Modifications on Subchapter 10 of the "Proposed Amendments to the Regulations for the Mandatory Reporting of Greenhouse Gas Emissions" (§ 95101 page 4, definitions page 16).

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