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California Air Resources Board
1001 "I" Street, Sacramento, CA, 95812

Re: NRDC Comments on the August 13 Workshop Regarding Allowance Allocation Benchmarks and Approaches to Refineries, Hydrogen and Coke Calcining in California's Cap-and-Trade Program

On behalf of the Natural Resources Defense Council (NRDC), and our more than 80,000 members in California, we appreciate the opportunity to comment on the benchmarks and approaches to refineries, hydrogen and coke calcining presented by Air Resources Board (ARB) staff at the August 13 workshop. NRDC strongly supports the cap-and-trade program as a key element of California's plan to reduce greenhouse gas emissions and achieve the broader goals of AB 32.

A well-designed determination of industry benchmarks is crucial to the success and effectiveness of the cap-and-trade program, as the benchmark determines where a facility falls in relation to the carbon intensity of its competitors, and the distribution of free allowances to each facility within the sector. A benchmarking approach for refineries that is consistent with the objective of benchmarks for other industries and the overall goals of the cap-and-trade program will maintain the appropriate incentives for GHG emissions reductions.

Staff presented three approaches under consideration for the refinery benchmark method: the adjusted Carbon Dioxide Weighted Tonne (CWT) approach, the ARB modified Carbon Dioxide Weighted Barrel (CWB) approach with grouping of similar process units, and the adjusted CWB approach (proposed by the Western States Petroleum Association) without any grouping. Among the three refinery benchmarking options presented by staff at the workshop, we support ARB's CWB-based approach. Relative to the adjusted CWT and the Western States Petroleum Association's CWB (WSPA-CWB) options, ARB's CWB-based proposal best comports to the above objectives and preserves incentives to improve the emissions performance of the refining process.

A. The Refinery Benchmarking Approach Should Exhibit the Same Criteria As Other Industrial Sectors' Benchmarks

Refineries contribute approximately 30% of the total emissions under the cap-and-trade regulation despite making up only 4% of covered entities.[1] Refineries are also major emitters of co-pollutants that are smog precursors and toxic pollutants.[2] Due to the importance of refinery performance in the program, and the role that benchmarking plays in rewarding and properly incentivizing future emission reductions at

covered facilities, the methodology for establishing refinery benchmarks is a critical element of the cap-and-trade program.

In the development of industrial benchmarks for allowance allocation, ARB relied upon the "one product, one benchmark" principle.[3] This approach ensures benchmarks create incentives for GHG emissions reductions by establishing performance standards for GHG emissions intensity and allocating allowances based on the relative performance of industrial facilities within a sector. To accomplish this, ARB avoided benchmarks that differentiate by technology, fuel mix, size and age of the facility, climatic circumstances, and raw material quality. Furthermore, ARB prioritized the objective to maintain the viability for all abatement options, including 'switches to different technologies, fuels, [and] inputs'.[4]

The refining industry is unique in that refineries range in size and configuration, and have continuously variable inputs and product arrays. However, the additional complexity of developing a product-based benchmark for this sector does not warrant deviating from ARB's benchmarking principles applied to other sectors. The refinery benchmarking methodology should create the correct incentives, including rewarding early action by facilities to adopt efficient technologies and encouraging long-term investments in reducing GHG emissions.

B. Among the Three Options Presented at the Workshop, ARB's Modified CWB Proposal Best Exhibits the Appropriate Criteria for Benchmarking in the Refinery Sector

Staff presented three approaches under consideration for the refinery benchmark method: the adjusted CWT, ARB modified CWB, and WSPA-CWB options. For the reasons outlined below, we support ARB's modified CWB proposal relative to the other two options presented at the workshop. WSPA's CWB proposal is highly disaggregated and correlates almost exactly with facility emissions. ARB's adjustments to the WSPA-CWB approach are necessary to ensure the benchmark is in line with the overall goals of the cap-and-trade program and provides the correct incentives for long-term, innovative, and system-wide abatement options.

1. A 99% Correlation between GHG Emissions and the Refinery Benchmark Factor, as proposed by WSPA, Negates the Purpose of Benchmarking

During the August 13 workshop, staff presented a 99% correlation between the WSPA-CWB factors and GHG emissions of CA refineries.[5] The implications of using the WSPA-CWB approach would therefore be to give away free allowances to facilities in nearly direct proportion to their GHG emissions, which creates a perverse incentive for refineries to increase their emissions intensities. This directly contradicts the stated purpose of an industry benchmark, which should result in an incentive for refineries to increase their product output at lower emissions levels. This contrast creates inequities among sectors and jeopardizes the potential for emissions abatement by refineries. The high correlation between CWB and emissions also indicates that CWB captures only the status quo for refineries' emissions. It is therefore crucially important that the stringency of refinery benchmarks 'reflect the emissions intensity of highly efficient, low-emitting facilities' to avoid rewarding inaction.[6] Among the options presented by staff at the workshop, the ARB modified CWB proposal best achieves this objective.

2. The Disaggregated Approach of CWB Removes the Incentive for Long-term, System-wide GHG Abatement Options

Benchmarks should reward efforts to implement large-scale efficiency improvements and innovations that maximize emissions reductions. Refineries should compete for the highest efficiency and lowest emission intensity, and allowance allocation should align with this goal. While additional complications arise due to the dependence of emissions intensity on crude input, the variability of configurations, product mix and quality, opportunities for efficiency improvements still exist for refineries at both the specific processing unit level and in system-wide operations.[7]

The highly disaggregated, unit-based approach under CWB deters investment in long-term or system-wide GHG abatement options. By allocating allowances based on specific configuration, refineries are not incentivized to alter or optimize their configuration to the lowest emitting design, which is the intent of the carbon price. There is still a motivation to optimize refinery performance, but not for overall, system-wide improvement. Under this approach, operational or investment decisions such as changes in refinery design and configuration, or fuel use and crude input will not be compared to the full price of carbon.[8] In contrast, grouping similar process units- one of ARB's suggested adjustments to the CWB approach- could help preserve incentives for investments in long-term and system-wide abatement strategies.

We appreciate ARB's efforts to develop an effective benchmarking methodology for the refinery sector and look forward to continuing to work with ARB staff and other stakeholders on this issue.

Sincerely,

Stefanie Tanenhaus
Sustainable Energy Fellow

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[1] Ecofys, *Development of GHG efficiency benchmarks for the distribution of free emissions allowances in the California Cap-and-Trade Program Refineries – Preliminary Work Product* (August 2012).
[2] ARB Scoping Plan Attachment C, Oil Refinery Sector Recommendations, p. 3, www.arb.ca.gov/cc/scopingplan/comments/5_23_08_attachc_oilrefinerysector.pdf.
[3] ARB Cap-and-trade Regulation, Appendix B: Development of Product Benchmarks for Allowance Allocation http://www.arb.ca.gov/cc/capandtrade/meetings/072011/product-benchmarks.pdf.
[4] In supra
[5] Cap-and-trade Workshop on Refineries and Related Industries, Slide 20 (August 13, 2013), www.arb.ca.gov/cc/capandtrade/meetings/081313/arbpresentation.pdf. Note: preliminary analysis.
[6] In supra at 3
[7] Abella et al. "*Model To Investigate Energy and Greenhouse Gas Emissions Implications of Refining Petroleum: Impacts of Crude Quality and Refinery Configuration*" (September 2012) Environmental Science and Technology.
[8] Öko Institut, "*Pilot on Benchmarking in the EU ETS*" Innovation Research Öko-Institut and Fraunhofer, prepared for the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Dutch Ministry of Economic Affairs (November 2008), www.dehst.de/SharedDocs/Downloads/Archiv/Benchmark/BM_Pilot_OekoInst_Ecofys_EN.pdf?__blob=publicationFile.