



Tesoro Refining & Marketing Company LLC

A subsidiary of Marathon Petroleum Corporation

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December 22, 2020

**VIA Certified Mail and eMail (*pfine@aqmd.gov*)
Return Receipt Requested**

Philip M. Fine, Ph.D.
Deputy Executive Officer
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on SCAQMD First Draft of Proposed Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries (Release Date: October 23, 2020)

Dear Dr. Fine:

On behalf of Tesoro Refining & Marketing Company LLC, a wholly owned subsidiary of Marathon Petroleum Corporation (collectively, "MPC"), MPC appreciates this opportunity to provide South Coast Air Quality Management District (SCAQMD) with comments on the Initial Preliminary Draft Proposed Rule 1109.1 Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries (Proposed Rule 1109.1) that was issued on October 23, 2020.¹ A revised Proposed Rule 1109.1 was issued on November 20th. Throughout the rulemaking process, MPC staff have been active participants in Proposed Rule 1109.1 working group meetings and discussions with SCAQMD staff.

Proposed Rule 1109.1 is being developed as a result of SCAQMD's planned transition from the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure for achieving Best Available Retrofit Control Technology (BARCT). MPC's Los Angeles Refinery (LAR) has been complying with the RECLAIM market-based NO_x emission reduction program since 1993.

Proposed Rule 1109.1 will be the most wide-reaching, complex and costly refining industry rule ever developed by SCAQMD covering at least seventy-six (76) pieces of equipment at LAR alone. Contrary to the overall goal of Proposed Rule 1109.1, retrofitting numerous pieces of

¹ "Initial Preliminary Draft Proposed Rule 1109.1", <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1-rule-language-10-23-20.pdf?sfvrsn=12>

Non-CBI

equipment with additional NO_x controls will have very little impact on reducing the total NO_x emissions in the Los Angeles Basin and could incidentally increase particulate matter (PM₁₀ and PM_{2.5}) emissions by up to approximately 620 pounds per day (or 113 tons per year) from just implementing the proposed rule at LAR alone.

Provided below is an overview of MPC's most significant concerns with this proposed rulemaking as currently drafted. MPC's specific comments with additional details are outlined in enclosed Attachment A.

- **Technical Feasibility and Safety Concerns:** Proposed Rule 1109.1 applies a one-size-fits-all approach that calls for installation of ultra-low NO_x burners (ULNB) and selective catalytic reduction (SCR) on most refinery equipment. This approach fails to take into consideration important differences across the broad range of sources that will be subject to the rule. In many cases, the emission controls that would be required are not technically feasible. SCAQMD's own consultants Fossil Energy Research Corporation (FERCo) and Norton Engineering, have pointed out many technical issues that make the proposed emission limits infeasible or much more expensive than the SCAQMD has estimated. Further, some applications would introduce significant safety hazards that pose unacceptable risks. MPC estimates that a high percentage of equipment at LAR cannot be safely retrofitted with ULNBs due to flame impingement concerns without significant modifications to the combustion chamber itself, curtailment of existing process capacity, and/or full replacement of the heater or boiler. There are also concerns with installing SCR on various units due to lack of available space.
- **Cost Effectiveness:** SCAQMD's cost effectiveness analysis is flawed in several ways. The EPA cost model utilized by SCAQMD significantly underestimates project costs, and the total cost to comply has been significantly underestimated by SCAQMD. MPC and the Western States Petroleum Association (WSPA) have provided much more accurate cost projections which indicate that the costs of the proposed rule currently exceed \$71,800 per ton which is well-above the \$50,000 per ton cost effectiveness threshold established by the SCAQMD Governing Board in the 2016 AQMP. Further, installing SCR will also require the installation of Best Available Control Technology (BACT) for PM because of the associated PM emission increases. The costs to control PM have not been included in SCAQMD's cost analyses. The SCAQMD has also failed to conduct an *incremental* cost effectiveness analysis as required by California Health & Safety Code Section 40920.6.
- **Compliance Schedule:** The proposed timeline for implementation and operation of equipment is unrealistic and wholly unachievable. SCAQMD has not considered the uncertainty involved in implementing BARCT emission control projects. For example, if all refineries are required to complete their projects with the same timing, there will be a significant strain on availability of equipment, specialized contractors and other resources in the Los Angeles Basin. Further, SCAQMD has not considered additional restraints in the refining sector where modifications must be coordinated with turnaround schedules, capital projects have long planning and engineering schedules and facilities must always continue to operate safely.

- **Feasibility of Permitting:** SCAQMD has not established a viable path to obtaining construction and operating permits for the required control technology installations or confirmed whether permitting can be achieved at all. Fundamental New Source Review (NSR) issues remain to be solved in the transition from RECLAIM Regulation XX NSR to Regulation XIII NSR under a command and control approach. SCAQMD recognizes the worst-case transition could result in a permit moratorium due to lack of Emission Reduction Credits. It is not appropriate to force companies to undertake projects of this magnitude with an uncertain permitting regime.
- **Disparate Impacts:** The process and timing for transitioning out of RECLAIM, including adopting the necessary rules and regulations and getting the required EPA approval, is not well defined. SCAQMD itself recognizes that solving NSR issues could lag almost three years behind adoption of Proposed Rule 1109.1. As a result, MPC will be required to simultaneously comply with Regulation XX and Proposed Rule 1109.1 which will create an undue compliance burden on MPC. Overlaying the landing rules onto RECLAIM requirements will result in disparate impacts to RECLAIM facilities relative to other facilities due to increased compliance costs (i.e., paying to construct and operate control equipment and for RECLAIM trading credits, and implementing duplicative monitoring, recordkeeping and reporting (MRR) requirements). This scenario violates California Health and Safety Code §39616(c)(7) which prohibits imposing “disproportionate impacts, measured on an aggregate basis, on those stationary sources included in the [market based] program compared to other permitted stationary sources in the district's plan for attainment.”
- **Alternative Emission Reduction Approaches:** To address the significant issues related to technical feasibility and cost effectiveness identified below, the SCAQMD should consider alternative emission reduction approaches such as mass-based facility caps when developing BARCT. Alternative reduction approaches are not prohibited by AB 617 as has been suggested by the SCAQMD. On the contrary, alternative approaches are plainly allowed under California Health & Safety Code §40920.6 and the 2016 Air Quality Management Plan (AQMP).
- **Consistency:** California Health and Safety Code §40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD shall make certain findings, including a finding of consistency, which means that the proposed rulemaking is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations. Proposed Rule 1109.1 is inconsistent with other air quality programs.
 - **Greenhouse Gas Emissions:** Proposed Rule 1109.1 does not align with California's goals for reducing greenhouse gas emissions and other decarbonization regulations such as low carbon fuel standards. Greenhouse gas (GHG) emissions will result from production of the additional electricity needed to operate the new control equipment, and the manufacturing and transporting of the materials needed to construct the new control equipment (e.g., manufacture of construction materials, ammonia reagents, catalysts, etc.). For example, the estimated increase in GHG emissions from installing new electric fan motors for the potentially required new SCRs at LAR is approximately 9,000 metric tons GHG per year.

- **AB 617:** Proposed Rule 1109.1 does not align with AB 617 goals to reduce local toxic air contaminants in disadvantaged communities. Forced SCR installations will increase localized air toxics (PM 2.5) in the Carson, Wilmington and West Long Beach AB 617 communities through ammonium sulfate formation.

Due to the significant impacts this rulemaking will have on our refinery, MPC requests that Proposed Rule 1109.1 rulemaking be paused to provide adequate time for meaningful review and comment during this rulemaking process. The complexity and far-reaching impacts of SCAQMD's Third-Party Engineering Reports² are significant and deserve time for meaningful review.

Please note that in submitting this letter, MPC reserves the right to supplement its comments as it deems necessary, especially if additional or different information is made available to the public regarding the Proposed Rule 1109.1 rulemaking process. We incorporate by reference into this letter the relevant comments previously submitted by Western States Petroleum Association on August 21, 2015, October 11, 2017, May 1, 2018, July 3, 2018, November 6, 2018, January 30, 2019, March 28, 2019, August 14, 2019, and November 11, 2018; Latham & Watkins on August 15, 2018, September 7, 2018, November 1, 2018, February 25, 2020, and April 27, 2020; California Council for Environmental and Economic Balance on April 24, 2018 and February 14, 2020; Ultramar Inc. on September 7, 2018 and October 14, 2018; Chevron Products Company on March 25, 2020; Air Products and Chemicals, Inc. on June 14, 2019; and Torrance Refining Company LLC on November 20, 2020 pertaining to PR 1109.1, RECLAIM, RECLAIM sunseting, Regulation XIII, and NSR.

Thank you for the opportunity to provide comments. We are glad to discuss further and look forward to continued dialogue.

Sincerely,



Brad Levi
Vice President – Los Angeles Refinery

cc: **SCAQMD**
Wayne Nastri – Executive Officer
Susan Nakamura – Assistant Deputy Executive Officer
Michael Krause – Planning and Rules Manager

cc: **SCAQMD Governing Board Refinery Committee**
Dr. William Burke – Governing Board Chairman
Hon. Ben Benoit – Governing Board Vice-Chairman and Refinery Committee Member
Hon. Larry McCallon – Governing Board Member and Refinery Committee Chairman

² Review of BARCT Technology and Assessment and Cost Estimates for PR 1109.1 by Third-Engineering Firms Norton Engineering and Fossil Energy Research Corporation, per RFP P2019-7

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Hon. Judy Mitchell – Governing Board and Refinery Committee Member
Hon. Lisa Bartlett – Governing Board Member and Refinery Committee Member

cc: **SCAQMD Governing Board**

Hon. Kathryn Barger – Governing Board Member
Hon. Joe Buscaino – Governing Board Member
Hon. Michael Cacciotti – Governing Board Member
Hon. Vanessa Delgado – Governing Board Member
Hon. Gideon Kracov – Governing Board Member
Hon. V. Manuel Perez – Governing Board Member
Hon. Carlos Rodriguez – Governing Board Member
Hon. Janice Rutherford – Governing Board Member

ecc: 2020-12-11 MPC Comment Letter on First Draft of SCAQMD PR1109.1
Greg Busch, MPC RE
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ATTACHMENT A

MPC's Comments and Fundamental Issues with Rule Concept and Analysis

I. Technical Feasibility and Safety Concerns

- a. **SCAQMD's BARCT technology selection and proposed permit limits are not technically feasible for all required installations, and in many cases present unacceptable safety hazards.**

Petroleum refineries are unique facilities that have multiple process units with individual heating requirements. Process heaters and boilers, in particular, are complex, uniquely designed pieces of equipment that must operate safely under varying operating conditions. As a result, a one-size-fits-all solution for retrofitting process heaters and boilers with NO_x control technology is not always feasible, especially at the low NO_x levels being proposed. SCAQMD has proposed a 2 ppm (3 percent oxygen), 24-hr average NO_x standard for the majority of combustion equipment, process heaters and boilers greater than 40 MMBTU/hr, located within a refinery. Meeting this standard would require a combination of ultra-low NO_x burners (ULNB) and selective catalytic reduction (SCR) beds to be installed. Some individual pieces of equipment have design limitations that prevent the safe retrofitting with these kinds of controls. For these individual pieces of equipment, the application of this limit is not technically feasible.

In particular, an ULNB NO_x technology retrofit is not as simple as removing the existing burners and bolting in new burners. Norton Engineering, SCAQMD's third party engineering consultant, prepared a report (hereafter referred to as the Norton Engineering Report) confirming that ULNB technology requires additional spacing within a firebox due to longer flame lengths than traditional burners.³ Fossil Energy Research Corporation (FERCo), SCAQMD's other third part engineering consultant, developed a report (hereafter referred to as, the FERCo Report) recognizing that any ULNB retrofit must comply with the refinery heater burner spacing standards incorporated into American Petroleum Institute (API) Standard 560.⁴ Without adequate spacing, burner flames will impinge upon radiant tubes containing flammable materials. Over time, flame impingement causes metal fatigue and will result in failure, potentially causing a catastrophic explosion. This is a significant safety concern that has not been considered by the SCAQMD, Norton Engineering, or FERCo in their determinations of what is technologically achievable.

Determining technical feasibility requires more in-depth engineering analysis than has been contemplated by burner vendors and SCR manufacturers. Technical feasibility must also include an analysis of whether ULNB's can be safely retrofitted within existing design constraints and operating ranges of individual process heaters or boilers in order to achieve continuous compliance with the proposed BARCT standard. MPC currently estimates that more than 56% of our process heaters and boilers cannot be safely retrofitted with ULNBs without significant modifications to the combustion chamber itself, curtailment of existing process capacity, and/or full replacement of the heater or boiler. By not collecting specific process heater design information, MPC is concerned that the

³ Norton Engineering, NO_x BARCT Analysis Review, December 4, 2020. Accessed at <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/norton-report.pdf?sfvrsn=6> in December 2020.

⁴ FERCo, South Coast Air Quality Management District Rule 1109.1 Study Final Report, November 2020. Accessed at <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/ferco-report.pdf?sfvrsn=6> in December 2020.

SCAQMD's third-party engineering study has not incorporated these safety constraints into its determination of technical feasibility and has not adequately incorporated equipment modification or replacement costs into the cost-effectiveness determination.

During SCAQMD staff's September 4, 2019 site visit to LAR, MPC provided an example of its engineering evaluation for the ULNB retrofit of the #1 Crude Heater (550 MMBtu/hr heat input) which found through computational fluid dynamic (CFD) modeling performed by the ULNB burner vendor that retrofitting the heater with ULNB would result in flame impingement on heater tubes. MPC concluded it was an ULNB was not technically feasible to retrofit into the existing heater configuration due to safety concerns and discontinued the project.

In determining appropriate BARCT limits, MPC contends that the technology must be able to be installed into existing equipment and not require heater replacement. Otherwise, the cost of heater replacement must be included in the cost effectiveness evaluation. A single process heater can cost between \$75 – 100 MM depending on its size and complexity.

b. The Norton Engineering and FERCo Reports conflict with or do not address key SCAQMD assumptions underlying Proposed Rule 1109.1.

There are several key issues with the Norton Engineering and FERCo Reports that need to be addressed. MPC is also preparing a more detailed review of the two reports and a comment letter for submittal at a later date. One of the primary concerns with the reports is related to the technical feasibility of retrofitting existing heaters with ULNBs. Both reports correctly point out flame impingement safety concerns with ULNB retrofits, but the reports do not recognize that certain heaters cannot be retrofitted without significant redesign or rebuild of the heaters. These engineering reports and the SCAQMD BARCT analysis need to evaluate if it is feasible to retrofit all refinery heaters subject to Proposed Rule 1109.1 with ULNBs. If certain heaters need to be rebuilt or replaced to achieve the proposed BARCT limits, then these additional costs need to be considered in the evaluation. As noted above, MPC estimates that 56% of our process heaters and boilers cannot be safely retrofitted with ULNBs without significant modifications to the combustion chamber itself, curtailment of existing process capacity, and/or full replacement of the heater or boiler.

MPC notes that the Norton Report also concludes the following:

“Historically, SCR units in refinery applications have demonstrated high reliability at NO_x emissions levels above 10 ppmv, limited information is available for SCR reliability at sub 10 ppmv NO_x emissions levels”⁵

The report recognizes the limited practical experience with achieving sub 10 ppmvd NO_x levels, but then later in the report notes an achievable emission limit of 2 ppmv without sufficient support. Furthermore, the report notes that not all heaters and boilers may be retrofittable with ULNBs and/or SCRs, both of which are needed to achieve the 2 ppmv limit. While achieving 2 ppmv across all process unit operating conditions may be possible in very limited circumstances (e.g., new unit installation), the report should reflect the limited experience and the various technical challenges and high costs of achieving these levels at existing process heaters and boilers.

⁵ Norton Engineering, NO_x BARCT Analysis Review, December 4, 2020. Accessed at <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/norton-report.pdf?sfvrsn=6> in December 2020, page 24 of 31

II. Cost Effectiveness

- a. **SCAQMD's BARCT Analysis significantly understates the total cost to comply with Proposed Rule 1109.1 NO_x emission limits. Cost effectiveness of ULNB and SCR retrofits should be analyzed on a unit-by-unit basis.**

The cost effectiveness of control options under BARCT is determined by the total cost to comply, as well as the expected NO_x reduction achievable by the installed control equipment. For refinery combustion units, however, SCAQMD is basing its SCR retrofit cost estimates on the EPA SCR Cost Model with some adjustments to the model defaults.⁶ The EPA SCR Cost Model, even with SCAQMD cost adjustments, still excludes a number of significant factors that need to be taken into account, and as a result, underestimates the total costs associated with retrofitting a combustion unit with SCR.⁷

By way of illustration, each existing combustion unit has unique design characteristics (i.e., space constraints, infrastructure requirements, etc.) that must be addressed individually to determine a realistic and representative SCR retrofit cost estimate. Process heaters are one of the most uniquely designed pieces of equipment at a refinery because each process heater is designed for a specific purpose associated with the process unit. As a result, not only will there not be any two process heaters at MPC's LAR that have the same exact design, but each heater will have a different number of burners. The FERCo Report indicates that space limitations will require creative engineering for retrofits, resulting in increased project costs; the report includes several examples of unique retrofit situations, including an example where a SCR retrofit project requires ducting the exhaust from two refinery heaters across a road to a location with enough space to fit the SCR reactors. The EPA SCR Cost Model with SCAQMD's adjustments does not address these highly variable retrofit costs.

Most recently, where MPC retrofitted the Hydrocracker Fractionator Reboiler Heater with an SCR at LAR, the actual costs for the SCR equipment and installation far exceeded EPA's Cost Modeling total cost estimate. As we presented to SCAQMD staff during the September 4, 2019 site visit to LAR, while the SCAQMD-adjusted EPA Cost Model provided a reasonable cost estimate for the SCR equipment alone, the SCAQMD-adjusted EPA Cost Model failed to account for the other required capital costs associated with the retrofit installation such as new ductwork, new fan, ammonia feed lines, power from substation, etc. As a result, MPC's total actual capital costs for the SCR retrofit were 49 percent higher than what the SCAQMD-adjusted EPA Cost Model calculated.

The actual costs associated with the Hydrocracker Fractionator Reboiler SCR retrofit project demonstrates that the SCAQMD consistently and significantly underestimates the costs for installing controls.

Cost effectiveness determinations must include the total cost to comply, not just the costs of the SCR itself. Additional scope items not included in the EPA SCR cost estimating model that need to be included are electrical infrastructure modifications, stack modifications, installation of new fans, installation of new convection sections required to operate the SCR at the required temperature, ammonia piping, regulatory costs (e.g. PM BACT), and other costs associated with operating the control equipment. Both the Norton Engineering and FERCo Reports indicate that multiple SCR catalyst beds, with multiple

⁶ SCAQMD, Presentation for the PR1109.1 Working Group Meeting, April 2019.

⁷ Western States Petroleum Association (WSPA) letter to SCAQMD, November 18, 2019.

ammonia injection grids, will be required to achieve the high NO_x reduction levels in Proposed Rule 1109.1. SCAQMD should not ignore the real costs associated with retrofitting combustion units with SCR. MPC requests that SCAQMD survey Los Angeles Basin area refiners to obtain real engineering cost estimates for its BARCT cost effectiveness calculations instead of relying on theoretical cost estimates from the EPA SCR Cost Model.

Therefore, cost-effectiveness determinations need to include the real expected costs for retrofitting heaters and boilers with ULNBs and SCRs and should be considered on a unit-by-unit basis due to the wide variability of heater & boiler design characteristics.

b. The SCAQMD BARCT analysis needs to evaluate the costs and air quality impacts of co-pollutants (i.e., particulate matter emission increases associated with SCR operation).

SCAQMD has acknowledged in past Proposed Rule 1109.1 Working Group Meetings and the FERCo Report confirms that PM emissions (both PM₁₀ and PM_{2.5}) are a byproduct of combusting refinery fuel gas that passes through SCR systems. SO_x emissions from combusting refinery fuel gas react with ammonia to form PM. Although SCAQMD has indicated that PM BACT could be 30 ppm sulfur in refinery fuel gas, SCAQMD has not shown that sulfur level has been achieved in practice for refinery-wide fuel gas systems. SCAQMD staff have stated in Working Group Meetings that the costs associated with sulfur removal in refinery fuel gas would be incorporated into NO_x BARCT cost effectiveness calculations.⁸ MPC agrees with SCAQMD that the additional sulfur removal costs resulting from Proposed Rule 1109.1 need to be incorporated into the NO_x BARCT cost effectiveness calculations.

However, while the draft rule language includes BARCT emission limits, SCAQMD does not appear to have revised the NO_x BARCT cost effectiveness calculations to include additional refinery fuel gas sulfur removal costs. The cost of fuel gas sulfur removal is significant. Including these costs—in addition to using actual cost data—will demonstrate that installing controls to meet many of the proposed NO_x limits is not cost effective.

As specified in HSC §40406, establishment of BARCT must also take into account the environmental impacts associated with the proposed standard. SCAQMD has failed to adequately consider the impacts of particulate emissions from SCR units.

c. SCAQMD has not provided the incremental cost effectiveness calculations for Proposed Rule 1109.1 as required under the California Health and Safety Code.

HSC 40920.6(a)(3) clearly requires SCAQMD to calculate the incremental cost effectiveness of the technically feasible BARCT options. This section of the regulation states the following:

(3) Calculate the incremental cost-effectiveness for the potential control options identified in paragraph (1). To determine the incremental cost-effectiveness under this paragraph, the district shall calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.

⁸ SCAQMD, Presentation for the PR1109.1 Working Group Meeting, August 2020.

The incremental cost effectiveness calculations use the costs and emission reductions associated with each progressively more stringent control option. Incremental cost analysis often results in substantially higher costs per ton of pollutant reduced and can demonstrate the diminishing returns when applying additional controls (and costs) with a limited NO_x reduction benefit. SCAQMD needs to perform that analysis and provide a summary of SCAQMD's incremental cost effectiveness analysis addressing the technical feasibility and associated costs for each NO_x control option being considered for Proposed Rule 1109.1. The incremental cost effectiveness analysis needs to be considered when determining BARCT per HSC 40920.6.

d. SCAQMD cost-effectiveness calculations overstate control equipment useful life.

The 2015 NO_x RECLAIM amendments assumed a 25-year control equipment useful life.⁹ Now, only five years later, SCAQMD is proposing that these same controls need to be retrofitted further and that the new controls will again have a 25-year useful life. Air quality rulemaking under SCAQMD and CARB require facilities to modify and/or retrofit existing NO_x control equipment more frequently than 25 years. Further, the Governor's recently issued Executive Order (EO) proposing to ban combustion engines in automobiles sold in California by 2035 could result in an even shorter useful life for equipment at petroleum refineries. SCAQMD's use of a 25-year useful life is inappropriate. To align with SCAQMD's more frequent rulemaking, SCAQMD should revise the assumed control equipment useful life assumption to 10-15 years to align with actual SCAQMD practice.

e. SCAQMD discounted cash flow (DCF) cost effectiveness calculations are not appropriate.

In addition to concerns with use of a 25-year useful life assumption making costs appear lower than they actually are, SCAQMD calculated cost effectiveness using a DCF methodology that resulted in making retrofit costs appear less expensive than the levelized cash flow (LCF) methodology used by CARB, most other California Air Districts, the U.S. EPA and other regulatory agencies across the United States. MPC requests the LCF method be used for cost-effectiveness calculations.

SCAQMD is comparing DCF cost effectiveness calculations to a BARCT threshold of \$50,000 per ton NO_x reduced. The BARCT cost effectiveness threshold is 68 percent higher than SCAQMD's current BACT cost effectiveness threshold of \$29,721 per ton NO_x reduced.¹⁰ MPC requests SCAQMD revise the BARCT cost effectiveness evaluation using the current \$29,721 per ton threshold.

III. Implementation Schedule

a. The Proposed Rule 1109.1 implementation schedule is not feasible and needs to represent the realities of refinery construction projects.

⁹ Final Socioeconomic Report for Proposed Amendments to Regulation XX. Accessed at http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/regxx/12_attach3-2015dec_reclaim_final_socioecon.pdf in November 2020.

¹⁰ SCAQMD, 2020 BACT Cost Effectiveness Values, <https://www.aqmd.gov/docs/default-source/bact/cost-effectiveness-values/here.pdf?sfvrsn=6>, accessed November 2020.

SCAQMD's phased Proposed Rule 1109.1 implementation approach significantly underestimates the time needed to install controls that would be required under the rule. Implementing the rule on this timeline is simply not possible.

There are several unique aspects to developing and implementing a project at a refinery that need to be addressed in the rule implementation schedule. Some of these factors include the following:

1. Process unit turnaround schedules are planned years in advance and are set in discrete patterns to ensure the continued operation of the refinery. These schedules are not likely to align to achieve a certain NO_x reduction target within a specified timeframe. Only specific process units are shut down during a given turnaround, and the shutdown of each process unit is staggered so that individual process units will have a turnaround once every five to six years. Accordingly, each project related to Proposed Rule 1109.1 will need to be staggered and scheduled into the turnaround schedule for the affected process unit.
2. A longer timeline is necessary to ensure successful execution of required projects. The typical timeline to design, engineer and install a single complex pollution control project at a refinery is at least four (4) years. Proposed Rule 1109.1 should assume new control equipment will be implemented within two turnarounds per process unit (giving a total rule implementation timeline of 15 to 20 years).
 - a. LAR's Hydrocracker Fractionator Reboiler Heater SCR is an example of the significant amount of time a project can take to complete, even with securing construction permits. This project took approximately four years to complete from conceptual design to full commission of the SCR for safe and reliable operation. Based on our experience with this SCR project and turnaround schedules, the earliest a new heater/boiler SCR retrofit could be installed at LAR is in 2025.
3. Projects will require specialized engineering, manufacturing, and vendor support which will drive up costs, and extend completion timelines. SCAQMD estimates for Los Angeles Basin 110 SCR retrofit and/or upgrade projects and 130 burner replacement projects (many process units with several burners per unit) as a result of Proposed Rule 1109.1. All affected facilities will be competing at the same time for specialized engineer/design staff to design hundreds of retrofit projects and to integrate control equipment design and skilled labor resources to install the retrofit projects. It is likely impossible for vendors to supply hundreds of SCRs and potentially thousands of burners within the three to four-year implementation period.¹¹ It is likely that costs associated with control equipment and skilled engineering, design, and labor will increase due to the significant demand and limited timeline associated with Proposed Rule 1109.1. These increased demand costs are not reflected in the SCAQMD's cost effectiveness analysis.
4. The timeline must accommodate the required ancillary projects for fuel gas treatment and/or other infrastructure necessary to install and operate SCRs. Before many of the new SCR projects can be completed, MPC first needs to implement new and upgraded refinery fuel gas treatment projects to limit PM emission increases associated with new SCR projects (see co-pollutant concerns discussed in Comment II b. above.) The Proposed Rule 1109.1 implementation schedule needs to accommodate facility

¹¹ The availability of design/engineering, labor, and purchasing SCRs and LNBS will compress the proposed 7-year implementation period to a 3-4 year period based on required refinery turnaround planning requirements.

upgrades (i.e., refinery fuel gas treatment, electrical substation upgrades, ammonia reagent storage, etc.) required prior to implementing any new SCR projects. The facility upgrades will likely need to be completed during the first set of available refinery turnarounds; these projects will also require additional time to complete engineering design, procurement and construction. The required facility upgrades will likely be completed over multiple refinery turnarounds because of the magnitude of necessary project scope (i.e., a turnaround when the refinery fuel gas system will be shutdown.)

b. The Proposed Rule 1109.1 implementation schedule needs to account for required air permitting

The RECLAIM Permits to Construct (PTC) for these projects will likely have to be converted later into command and control Permits to Operate (P/O). Refineries will also need to obtain NSR permits before constructing any new controls required by Proposed Rule 1109.1. Facilities requiring permits for new control equipment will be subject to non-attainment NSR, prevention of significant deterioration (PSD) NSR, and minor NSR regulations. SCAQMD has yet to provide an explanation of how existing permits will be converted or any guarantees on timelines for issuing new permits for controls.

SCAQMD needs to provide assurance that required permits for retrofit projects will be issued in a reasonable amount of time, and that time needs to be included in the Rule 1109.1 compliance schedule. Modifying existing permits and obtaining new permits can take many months or years from application submittal to SCAQMD to permit issuance. Facilities cannot commence construction on a project until after the permits are issued.

c. SCAQMD needs to resolve the transition from RECLAIM NSR before finalizing Proposed Rule 1109.1.

Discussions during Regulation XIII (New Source Review) Working Group meetings confirm there remain a wide range of remaining NSR issues associated with transitioning facilities out of the RECLAIM program. As SCAQMD rushes to complete the remaining RECLAIM landing rules (including Proposed Rule 1109.1), there are still significant questions and concerns related to how NSR will be applied to the facilities transitioning from the RECLAIM program, such as the following:

- Amending Regulation XIII for a new NSR applicability test
- Post-RECLAIM offsets (Large Source Bank, Open Market, Internal Bank, Calculation Methodology for Emission Reduction Credit and Offsets)
- Ammonia and PM BACT issues resulting from RECLAIM landing rules

All of these NSR issues need to be addressed prior to promulgating the RECLAIM landing rules, specifically Proposed Rule 1109.1.

Lastly, one unintended consequence of Proposed Rule 1109.1 on the refining industry is that it disincentivizes refineries from replacing old combustion units with new modern equipment that has a more efficient design (i.e., combusting less fuel). Based on the outstanding issues with NSR permitting timelines and the requirement for emission offsets for replacing combustion units, SCAQMD is in effect encouraging refineries to keep older, less efficient equipment and retrofit NO_x controls on old equipment. What SCAQMD

should be encouraging refineries to do is switch to using modern and efficient equipment that is installed with the proper air pollution control equipment as a package, which would result in the reduction of more emissions.

IV. Scope of SCAQMD's Legal Authority under AB 617

- a. **The California Health Safety & Code plainly allows for alternative means producing emissions reductions; AB 617 does not curtail this authority and does not mandate individual controls for each emission unit covered under Proposed Rule 1109.1.**

The SCAQMD should consider alternative emission reduction approaches such as mass-based facility caps when considering BARCT. Alternative reduction approaches are not prohibited by AB 617 as has been suggested by the SCAQMD. On the contrary, alternative approaches are plainly allowed under California Health & Safety Code (HSC) §40920.6 (which provides that an air district "shall allow" such alternatives) and the 2016 AQMP.

AB 617 amended Division 26 of the HSC which is the portion of the HSC that establishes the authority and responsibility of the CARB and the air districts relating to the attainment of ambient air quality standards, among other air quality programs, including the requirement that BARCT be installed on existing permitted sources under certain circumstances (see, Sections 40919, 40920, 40920.5). HSC Section 40920.6 sets forth the process for BARCT rulemaking by air districts, including the following provisions:

(e) A district shall allow the retirement of marketable emission reduction credits under a program which complies with all of the requirements of [Section 39616](#), or emission reduction credits which meet all of the requirements of state and federal law, including, but not limited to, the requirements that those emission reduction credits be permanent, enforceable, quantifiable, and surplus, in lieu of any requirement for best available retrofit control technology, if the credit also complies with all district rules and regulations affecting those credits.

(f) After a district has established the cost-effectiveness, in a dollar amount, for any rule or regulation adopted pursuant to this section or [Section 40406](#), [40703](#), [40914](#), [40918](#), [40919](#), [40920](#), [40920.6](#), or [40922](#), the district, consistent with [subdivision \(d\) of Section 40001](#), shall allow alternative means of producing equivalent emission reductions at an equal or lesser dollar amount per ton reduced, including the use of emission reduction credits, for any stationary source that has a demonstrated compliance cost exceeding that established dollar amount.

It has been suggested that the adoption of AB 617 somehow altered the way districts must establish and implement BARCT requirements. Specifically, it has been suggested that AB 617 mandates emissions controls on every source and precludes districts from taking advantage of the flexibility provided in HSC Sections 40920.6 (e) and (f). The history of the evolution of the BARCT retrofit provisions of AB 617, described in brief below, makes clear that HSC Sections 40920.6 (e) and (f), which were unaffected by AB 617 and remain unchanged in the statute, continue to apply to BARCT rulemaking by air districts.

Early versions of AB 617 released in June 2017 did not address BARCT retrofit obligations other than through the community monitoring and facility risk reduction programs. However, a version released on July 3, 2017 would have subjected all covered industrial entities to a new district-administered, but state-board defined, BARCT retrofit

program. The initial proposed language would have required “use” of the specific control technologies by January 1, 2021 with three-year updates thereafter. Because the new language would have been placed among the facility emission reduction provisions of the statute instead of in the BARCT rulemaking section (Section 40920.6), regulated industry expressed concerns that this new process appeared to bypass rulemaking at either the state or district levels.

The next version of AB 617 released on July 5, 2017 would have required districts to update BARCT determinations for covered source categories (i.e., “implement” BARCT) by January 1, 2021 and every three years thereafter. BARCT determinations would be done by districts using existing authority under HSC Section 40920.6, however, the new language was placed in its own new section of the HSC (i.e., in a new Section 40920.7).

During negotiations that occurred over the period of July 6-9, 2017 with representatives of the legislature, Governor’s Office and CARB, regulated industry expressed serious concerns about (1) the short time frame allowed for district BARCT rulemaking, (2) the ambiguity in the language regarding implementation and (3) based on the placement of the new language in its own section (i.e., in a new Section 40920.7), regarding whether the proposal intended to restrict rulemaking or to deprive the districts of the robust compliance flexibility authority in existing subdivisions (e) and (f) of Section 40920.6 (i.e., the authority to establish alternative BARCT, to allow a facility to comply through emissions trading and the authority to comply through equivalent emissions reductions at lower cost).

Revisions were offered to address these concerns, including (1) the use of the term “implementation” instead of “use” to provide that the schedule would apply to district rulemaking as opposed to the date of control installation, (2) an extended schedule (i.e., three years later – December 31, 2023 instead of January 1, 2021) to allow adequate time for district rulemaking and (3) deletion of the triennial BARCT update. Regulated industry remained concerned, however, about the lack of clarity regarding the continued availability of compliance flexibility provisions and provided further language to resolve these ambiguities. Following continued negotiations on July 9, 2017, agreement was reached to provide the clarity that industry sought regarding the retention of district compliance flexibility authority by placing the new BARCT program within existing Section 40920.6 (as industry had previously proposed). Moving the BARCT retrofit language from the initial facility emission reduction section to the existing BARCT rulemaking section (HSC Section 40920.6) preserves the requirement for district rulemaking based on an evaluation of incremental cost-effectiveness as well as district authority to offer any existing compliance flexibility alternatives retained in the statute, including those described in HSC Sections 40920.6 (e) and (f).

Accordingly, alternative means of producing equivalent emissions reductions are not prohibited by AB 617, and AB 617 does not restrict air SCAQMD’s authority to allow alternative means of producing emissions reductions. On the contrary, based upon the legislature’s admonition in HSC §40920.6(f) that air districts “*shall allow* for alternative means of producing equivalent emission reductions at an equal or lesser dollar amount per ton reduced...” (emphasis added), any rule that does not allow for alternatives may directly conflict with the HSC.

V. Consistency

California Health and Safety Code §40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD shall make certain findings, including a findings of consistency, which means that the proposed rulemaking is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations. Proposed Rule 1109.1 is inconsistent with other air quality programs.

a. Greenhouse Gas Emissions will increase as a direct result of this rulemaking.

Proposed Rule 1109.1 does not align with California's goals for reducing greenhouse gas emissions and other decarbonization regulations such as low carbon fuel standards. Increased greenhouse gas emissions will result from production of the additional electricity needed to power the new control equipment, as well as within the manufacturing and transporting of the materials needed to construct the new control equipment (e.g., manufacture of construction materials, ammonia reagents, catalysts, etc.). For example, the estimated increase in GHG emissions from installing new electric fan motors for the potentially required new SCRs at LAR is approximately 9,000 metric tons GHG per year.

b. Particulate Matter emissions, including fine particulate matter less than 2.5 microns, will increase as a direct result of this rulemaking.

Proposed Rule 1109.1 does not align with AB 617 goals to reduce local toxic air contaminants in disadvantaged communities. Forced SCR installations will increase localized air toxics (PM 2.5) in the Carson, Wilmington and West Long Beach AB 617 communities through ammonium sulfate formation.

VI. SCAQMD needs to prepare a California Environmental Quality Act (CEQA) analysis for Proposed Rule 1109.1.

A CEQA analysis includes a review of all environmental effects from a proposed project, including rulemaking activities directly undertaken by any public agency. CEQA requires environmental impacts associated with a proposed project/rulemaking be identified, disclosed, and mitigated to the maximum extent feasible. SCAQMD is developing Proposed Rule 1109.1 pursuant to directives in control measure CMB-05 of the 2016 Final AQMP and AB 617, resulting in the transition of existing RECLAIM facilities to new command and control regulations for each industry. Each new command and control regulation requires a separate CEQA analysis. According to information provided by SCAQMD on December 10, 2020 during Proposed Rule 1109.1 Working Group Meeting #16, SCAQMD is preparing a Supplemental Environmental Assessment that tiers off the December 2015 Final Program Environmental Assessment for RECLAIM (2015 RECLAIM NO_x Shave PEA) and the March 2017 Final Program Environmental Impact Report for the 2016 AQMP (2016 AQMP EIR).¹² Proposed Rule 1109.1 is a standalone regulation that was not considered in the 2015 RECLAIM NO_x Shave PEA or the 2016 AQMP EIR.

Supplementing the 2015 RECLAIM NO_x Shave PEA is not appropriate because RECLAIM is an emissions trading regulation that covers a wide-range of NO_x emitting equipment and

¹² See <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1-wgm16.pdf?sfvrsn=4>.

not one specific industrial activity (i.e., refinery equipment.). Each RECLAIM facility has the option of implementing new controls or purchasing RTCs to satisfy RECLAIM requirements. Proposed Rule 1109.1 is not a supplement to RECLAIM, it is an entirely different regulatory program. Proposed Rule 1109.1 will result in retrofitting almost all refinery equipment with new NO_x control equipment to meet the currently proposed BARCT levels, and Proposed Rule 1109.1 will increase PM emissions (as PM₁₀ and PM_{2.5}) from refinery equipment retrofitted with SCR. Similarly, the 2016 AQMP EIR did not analyze the transition from RECLAIM to command and control regulations.

MPC believes that NO_x control projects that must be implemented in the Los Angeles Basin as a result of Proposed Rule 1109.1 will have a significant effect on the environment. Therefore, as a lead agency for rule adoption, CEQA compels SCAQMD to conduct a comprehensive CEQA analysis and prepare an Environmental Impact Report (EIR) specifically for the Proposed Rule 1109.1 instead of attempting to supplement past, unrelated rules in a piecemeal fashion.