

**Response to Comments
State of Maine
Department of Environmental Protection
Clean Air Act § 176A(a)(2) Petition**

February 6, 2020

The State of Maine is petitioning the U.S. Environmental Protection Agency (EPA) pursuant to Clean Air Act (CAA) Section 176A(a)(2) for the removal of certain areas of the State from the Ozone Transport Region (OTR). CAA Section 176A(a)(2) provides that the EPA Administrator may, upon petition from the Governor of any State, “remove any State or portion of a State from the region whenever the Administrator has reason to believe that the control of emissions in that State or portion of the State pursuant to this section will not significantly contribute to the attainment of the standard in any area in the region.”

The technical analyses contained in Maine’s Section 176A(a)(2) petition (referred to herein as the “petition” or “proposal”) include ozone exceedance day back trajectories for monitors in both other OTR states and those portions of Maine that will remain in the OTR, source apportionment modeling conducted by EPA for the 2008 and 2015 ozone standards, and an assessment of Maine’s emissions inventory, all of which support the conclusion that nitrogen oxides (NO_x) and volatile organic compounds (VOC) emissions from Maine clearly are insignificant contributors to ozone non-attainment in any other state.

On December 12, 2019, the Department held a public hearing on this proposal.¹ The Department received comments on this proposal from eight interested parties during the public comment period and has summarized these comments and provided its responses below.

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¹ Public notice of the hearing was published on the Department’s Opportunity for Comments webpage and sent to all persons on the Department’s mailing list on November 8, 2019. The public comment period closed on December 23, 2019.

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Summary of Comments

1) Comment: Several commenters expressed strong support for the Department's proposal, noting that it is based on a technically-sound determination that opting certain areas of Maine out of the OTR will not degrade air quality in any part of the OTR, including the Portland and Midcoast Ozone Maintenance Areas of Maine. These same commenters noted that the Department's petition, if approved, will allow the Department to more fully assess the full spectrum of benefits and costs when reviewing air emission license applications, and eliminate the need for new major sources and major modifications of existing sources to purchase emissions offsets in the opt-out portions of Maine. (Commenters 1, 2, 3, 4, and 5)

Response: The Department agrees with the commenters and has developed a thoroughly documented technical analyses justifying the removal of certain areas of the State of Maine from the OTR. This State has been and continues to be in attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in those areas petitioned for removal, and emissions from Maine sources have a negligible impact on the ozone attainment status of any part of the OTR, including the Portland and Midcoast Ozone Maintenance Areas. The information presented in the petition provides a sound technical basis for the exclusion of a portion of the State of Maine from the OTR.

NO_x and VOC are ozone precursor pollutants that contribute to the formation of ground-level ozone. In accordance with CAA § 182(f), the EPA has previously granted the State of Maine Nitrogen Oxides Waivers (NO_x Waivers) under the 1-hour and 8-hour ozone NAAQS. NO_x Waivers provide regulatory relief from otherwise applicable NO_x emissions requirements because further reduction of NO_x will not benefit ozone levels in Maine or the OTR. After receiving NO_x Waivers, Maine has continued to observe lower ozone levels and be designated in attainment with the ozone NAAQS. The petition demonstrates that further controls on VOC and NO_x emissions in those areas of Maine proposed for removal from the OTR will not have a significant impact on ozone levels in areas remaining in the OTR, including southern and Midcoast Maine.

Under new source review for major sources of emissions in Maine, OTR-related requirements discourage economic investment in the State and often impede the development of environmentally superior and more globally competitive facilities here. Moreover, no commensurate environmental benefits accompany the nonattainment new source review requirements in the areas proposed for removal from the OTR. If approved, Maine's Section 176A(a)(2) petition will provide a mechanism for the Department to consider all costs and benefits, both environmental and economic, when determining the appropriate controls for new and modified major sources and help to ensure the long-term viability of Maine's forests and the forest products industry.

2) Comment: Several commenters noted that, under the proposal, new major sources and major modifications located within the opted-out region of the state would be subject to Best Available Control Technology (BACT) emission control requirements in lieu of Lowest Achievable Emission Rate (LAER) controls, thereby allowing the Department an opportunity to more appropriately weigh the costs and benefits of different control options. (Commenters 1, 2, 3, 4, and 5)

Response: The Department agrees with the comment. The application of BACT provides the Department with greater flexibility when assessing the most appropriate control method for a proposed emission source. The federal BACT definition clearly determines requirements for each source on a case-by-case basis considering economic, energy, and environmental impacts. In contrast, the federal LAER definition does not allow for the consideration of economic, energy, or environmental impacts and is based solely on the most stringent control achieved in practice for a particular source category.

This distinction is especially important given that many control technologies for NO_x and VOC have adverse energy use and environmental impacts. For example, the use of Selective Non-Catalytic Reduction (SNCR) or Selective Catalytic Reduction (SCR) may be considered LAER for NO_x because these technologies are able to drive NO_x emissions to extremely low levels. However, both systems have a side-effect of significantly increasing emissions of ammonia,² which contributes to particulate pollution and regional haze.

Lumber kilns provide another helpful example of how the flexibility of BACT is preferable to LAER with regard to control of ozone precursors. Maine lumber kiln facilities use either continuously fed or batch kilns to dry dimensional lumber. Stacks of green lumber are loaded into the kiln which is heated with steam produced by the facility's boilers. As the lumber sits in the heated kiln, moisture is driven off and vented through numerous vents in the kiln roof. The lumber also releases naturally-occurring VOC. Potential controls for emissions of VOC from kilns include thermal oxidizers and wet scrubbers.

Thermal oxidizers. Thermal oxidation raises the temperature of the exhaust stream to oxidize (burn) the VOC present. Typically, this is done by passing the exhaust stream through a natural gas or propane flame. The most efficient thermal oxidizers are Regenerative Thermal Oxidizers (RTOs) which use heat exchangers to preheat the exhaust and recover waste heat from the treated air stream. Regenerative Catalytic Oxidizers (RCOs) are similar units that utilize a precious metal catalyst to allow oxidation to take place at lower temperatures.

RCOs are not technically feasible for controlling emissions of VOC from lumber kilns because various compounds in the exhaust stream would quickly poison and/or blind the catalyst.

² Both selective non-catalytic reduction and selective catalytic reduction NO_x controls utilize ammonia or urea as reagent to chemically reduce NO_x molecules into molecular nitrogen and water vapor. Excess nitrogen from these processes, also known as "ammonia slip", can react with other atmospheric pollutants (e.g., sulfates and nitrates) to form fine particulates.

Unlike RCOs, RTOs are technically feasible for use on lumber kilns to control emissions of VOC. However, due to the significant moisture content of the exhaust gas, a larger combustion source (flame) is required to raise the temperature of the exhaust gas to a level sufficient to destroy the VOC. Unfortunately, emissions of combustion by-products from RTOs, including NO_x, can frequently exceed the mass of reduced VOC emissions.

Wet Scrubbers. Wet scrubbers utilize gas/liquid contact to absorb VOC from the exhaust stream into a liquid stream. Depending on the characteristics of the VOC to be removed, the scrubbing liquid may be water, acid, caustic, or organic in nature. No single absorbent can effectively remove the variety of VOC present in the exhaust gases from a lumber kiln. Thus, wet scrubbers have a moderate to low efficiency for removing VOC in this setting.

Scrubbing liquid requires further treatment after it has removed VOC from the exhaust stream. This is typically accomplished through wastewater treatment processes. Most lumber manufacturers do not have such facilities on-site nor are they typically located near a municipal wastewater treatment facility.

Under a BACT regime, the use of add-on VOC emission control equipment would likely be contraindicated due to the significant environmental trade-offs associated with these controls. Thermal oxidation would simply replace emissions of VOC with emissions of other pollutants including NO_x (another ozone precursor), and wet scrubbers would produce a difficult-to-manage wastewater stream. In contrast, a LAER regime would not take these trade-offs into consideration. Currently, any significant emissions increase of VOC at any of the state's lumber mills would trigger LAER and potentially the inclusion of add-on control technologies such as those described above. The inclusion of such controls would satisfy LAER requirements, but the resulting overall environmental impacts could be worse than if BACT had been applied.

In closing, LAER limits the ability of the Department to require the best control technology for the application, whereas BACT allows the Department to fully consider all benefits and disbenefits of a given technology and require those technologies that provide the most holistically advantageous environmental solution.

3) Comment: Maine's state-wide inclusion in the OTR puts Maine businesses at a disadvantage. Unsubstantiated and more stringent NO_x and VOC emission standards significantly increase production costs. Inclusion in the OTR imposes additional regulatory requirements that unnecessarily restrict businesses by increasing costs and eliminating operational flexibility without commensurate environmental benefit. Companies are choosing not to increase production or invest in their Maine facilities due to current restrictions. Facilities are accepting production and license restrictions to avoid the uncertainty of obtaining offsets and the additional cost. Spending a few million dollars on offsets is not practicable for some facilities, and, for others, means that investment will occur elsewhere, outside of the State. Currently, it is not a fair setting for Maine's facilities to compete in. A strong economy and good jobs are also vital to public health and environmental protection. (Commenters 1, 2, 3, 4, and 5)

Response: The Department agrees that the cost of implementing LAER emission controls and obtaining emissions offsets can impose significant additional costs on the regulated community and that these additional costs are not accompanied by commensurate environmental benefits in those areas of the State proposed for removal from the OTR.

The additional costs of implementing LAER emission controls can result in business decisions to operate at reduced capacity factors,³ forego expansions, or simply invest in business opportunities outside the State. While appropriate for nonattainment, upwind contributing areas, and maintenance areas, the marginal environmental benefit of LAER controls (in comparison with BACT) in those areas of Maine proposed for removal from the OTR is minimal at best.

Emissions offsets impose an even greater impediment to business and industrial opportunities in those areas of the State proposed for removal. Offsets are emission reductions that must: (1) offset the emissions increase from the new source or modification; and (2) provide a net air quality benefit. The purpose of requiring offsetting emissions decreases is to allow an area to move towards attainment of the NAAQS while still allowing some industrial growth. In general, offsets can be created by “over-control” (or controlling emissions to a lower level than is required by law), new technology, materials or processes that reduce emissions, shutdown of a facility, or a permanent reduction in operating hours. For new or modified projects, emissions offsets must be obtained from the same nonattainment area.^{4,5}

Federal and state government do not set prices for offsets; prices are instead established through the “law” of supply and demand. Demand has consistently outpaced supply throughout most of the region. When available, VOC offsets typically trade for \$500 per ton or greater, while NO_x offsets generally sell for more than \$10,000 per ton. Since most offsets result from facility shutdowns, the offset requirement provides only negligible environmental benefits while imposing significant costs to the regulated community.

4) Comment: Burdensome requirements from being part of the OTR can be removed without negatively impacting air quality. EPA has previously granted Maine NO_x Waivers under the 1990 1-hour and the 1997 and 2008 8-hour ozone NAAQS, and Maine has still seen lower ozone levels. Maine has been, and will continue to be, in attainment with ozone NAAQS in those areas petitioned for removal. The Department has demonstrated that further reductions of both NO_x and VOC emissions in Maine will not change the State’s attainment status or have a significant impact on ozone levels in the OTR outside of Maine. Things change over time, and rules need to be updated to keep up with the changing reality. (Commenters 1, 2, 3, 4, and 5)

Response: As noted by the commenters, Maine has applied for and received a Section 182(f) NO_x waiver on several previous occasions. On December 26, 1995,⁶ EPA approved the Maine’s Section 182(f) NO_x waiver request for counties in northern and eastern Maine that were attaining the 1-hour ozone NAAQS applicable at that time (specifically, Aroostook, Franklin, Oxford, Penobscot, Piscataquis, Somerset, Washington, Hancock, and Waldo Counties). On February 3, 2006,⁷ EPA approved a Section 182(f) NO_x waiver request for a similar area in Maine (specifically, Aroostook, Franklin, Oxford, Penobscot, Piscataquis, Somerset, Washington, and portions of Hancock and Waldo Counties) in relation to the 1997 8-hour ozone NAAQS. Finally, on July 29, 2014, EPA approved a statewide Section 182(f) NO_x waiver for 2008 8-hour ozone NAAQS.⁸ Thus, since December 1995, major stationary sources of NO_x in all or

³ These sources have the potential to emit what would be considered major source levels of air pollution but have agreed to enforceable permit limitations such as restrictions on their production or operating hours to reduce their potential to emit and thereby avoid LAER control requirements.

⁴ The OTR is treated as a single nonattainment area. Trading is allowed throughout the region provided it is both “directionally correct” (i.e., upwind) and consistent between nonattainment areas (i.e., offsets are obtained from a source or sources in the same or higher nonattainment status).

⁵ Massachusetts is the only jurisdiction for which Maine has an emissions offset trading agreement.

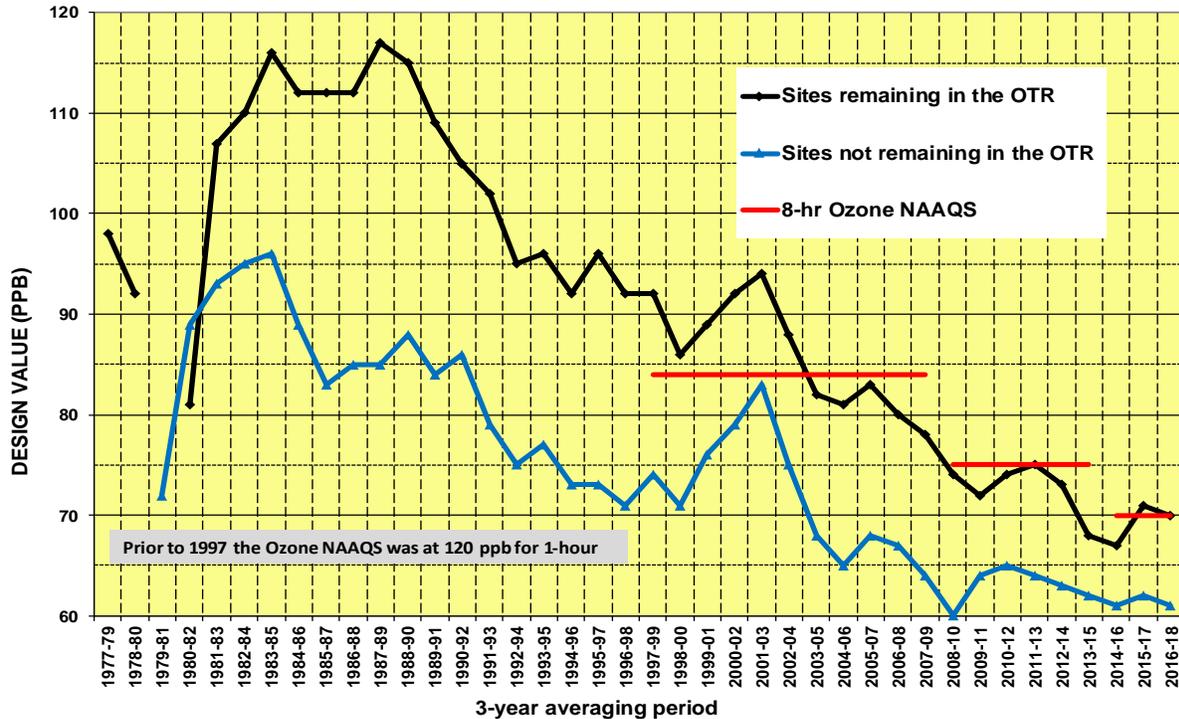
⁶ U.S. EPA, 1995a

⁷ U.S. EPA, 2006a

⁸ U.S. EPA, 2014

part of Maine have not been subject to the nonattainment NSR permitting requirements that are applicable throughout the OTR.⁹ Ozone levels in Maine have nevertheless declined throughout this period as illustrated below:

Maine’s Statewide Maximum 8-hour Ozone Design Value Trends



Maine’s VOC emissions from point sources are approximately 0.7% of Maine’s natural (biogenic) VOC emissions;¹⁰ any additional emissions reductions from the application of nonattainment NSR requirements in those areas of the State proposed for removal from the OTR would be inconsequential in comparison to BACT. The Department is confident the removal of nonattainment NSR requirements for those areas proposed for removal from the OTR will not increase ozone concentrations in any jurisdiction. (See also response to comment #8.)

5) Comment: The proposal does not change or eliminate any requirements or restrictions currently in place at existing facilities. Controls on existing sources and facilities will not be relaxed upon removal of portions of the state from the OTR. The proposal does not remove any requirements in Maine’s State Implementation Plan (SIP). There is no potential for backsliding as it is prohibited under the CAA. (Commenter 4)

Response: The Department agrees with the comment. The proposal does not remove or modify any existing control measures contained in Maine’s SIP. Pursuant to section 110(l) of the CAA, the removal or modification of control measures in the SIP requires EPA approval and an affirmative demonstration that such a removal or modification will not interfere with attainment of the NAAQS, rate of progress, reasonable further progress, or any other applicable requirement of the CAA. Also known as the “anti-backsliding” provisions, these federal requirements ensure that the required controls for existing facilities

⁹ Maine has not applied for Section 182(f) NO_x waiver under the 2015 8-hour ozone NAAQS.

¹⁰ 2014 National Emissions Inventory

in Maine will not be relaxed upon removal of portions of the State from the OTR. Continued use of existing controls will also eliminate any potential for backsliding, consistent with anti-backsliding provisions of the CAA which prohibit the reduction or removal of pollution controls where such action could allow an area to slip back into noncompliance with the CAA.

Federal and state requirements under the New Source Review – Prevention of Significant Deterioration (NSR – PSD) rules will continue to apply to Maine facilities. New or modified equipment at any licensed facility will be controlled by BACT. Maine’s BACT requirements apply to a greater number of sources than federal BACT requirements because they apply to minor sources in addition to major sources, and this will not change because of this proposal.

Under the proposal, those portions of the State remaining within the OTR would be required to implement all regional controls pursuant to CAA Section 184(b), and the application of VOC and NO_x Reasonably Available Control Technology (RACT) as a SIP-strengthening measure in other areas of the State will help to guarantee the continued maintenance of ozone air quality throughout the State while providing ancillary benefits addressing a variety of air quality concerns, including regional haze, fine particulates, hazardous air pollutants, eutrophication, and acid deposition.

6) Comment: The science (most of which is based on EPA technical analysis techniques) strongly supports reassignment as requested in the proposal. Maine DEP has documented the technical analysis justifying the removal of certain areas of the State from the OTR. (Commenter 4)

Response: The Department agrees with the comment that its proposal is based on the best available science.

7) Comment: The proposal has taken a conservative approach and is only requesting removal of those portions of Maine that are least likely to be impacted by other areas of the OTR. Leaving a portion of the State in the OTR will continue to give Maine a “seat at the table.” (Commenter 4)

Response: The Department agrees with the comment. The proposal does not remove the entire State from the OTR. Since a portion of the State will remain, Maine will continue to be engaged in the OTR partnership and will continue to participate in regional ozone strategy discussions and decisions.

8) Comment: Proper forestry management is necessary for healthy forests. Healthy forests provide multiple benefits to Maine, including acting as a greenhouse gas sink. A healthy forest also produces vast amounts of biogenic VOC, which are a naturally occurring component of wood. Industrial drying of wood (e.g., lumber kilns, wood pellet production, paper making) releases VOC at a faster rate. However, the level of VOC from the forest products industry is dwarfed by the amount of VOC emissions in Maine that come from forests naturally. It does not make sense to put environmental roadblocks on the industrial sector when so little of the VOC emitted within the State comes from these sources. (Commenters 4 and 5)

Response: The Department agrees with the comment. Sustainable utilization of Maine’s forest resources can have a beneficial effect on greenhouse gas concentrations through both carbon sequestration and longer-term carbon storage. As they grow, trees remove CO₂ from the atmosphere and release oxygen. By managing our forests sustainably for the long-term we can ensure that they continue to provide economic, social and environmental benefits, including climate change mitigation.¹¹

¹¹ Of the CO₂ emitted in Maine annually, approximately 55% (9.6 MMTCO₂e) is offset by Maine’s live trees (personal correspondence between S. Knapp, DEP and I. Fernandez, University of Maine).

In addition to helping ensure the long-term viability of Maine's carbon-mitigating forest lands, the forest products industry can help play an additional role in carbon mitigation through the expansion of innovative products for the construction and other industries industry. For example, replacing concrete construction materials with advanced lumber products can help avoid the high CO₂ emissions from cement production and also provide for long-term carbon storage.

As noted by the commenter, forests and other vegetation naturally release a large amount of VOC, with these emissions dwarfing anthropogenic or man-made emissions in many areas of the State. For example, statewide biogenic emissions of VOC totaled 436,878 tons in 2014, 143 times higher than total point source emissions of 3,042 tons that year. The ratio of biogenic to anthropogenic emissions is even greater in those areas proposed for removal from the OTR. For example, in 2014, biogenic VOC emissions for Aroostook County totaled 99,604 tons while anthropogenic emissions from all point sources were only 208.5 tons.¹²

The Department's proposal will provide for the consideration of both costs and environmental disbenefits during the air licensing process and help facilitate Maine's transition to a carbon neutral economy.

9) Comment: This action will bring greater regulatory certainty to facilities. This will allow capital decisions and allocation of resources to be made with more clarity and certainty. (Commenters 3 and 4)

Response: The Department agrees with the comment. Approval of the proposal will provide greater certainty to the regulated community throughout the entire State but especially within those areas being removed from the OTR. Emissions offsets are often scarce and expensive. Although a facility may be able to reasonably forecast required control technologies several years out during the planning phase of a project, information predicting the availability or cost of offsets is much less reliable.

10) Comment: The proposal would increase harmful air pollution in Maine. Since the purpose of the petition is to allow some new sources of pollution (including expanded and modified facilities) to emit more ozone-forming NO_x and VOC emissions than currently allowed, it is false to claim that the proposal will not degrade air quality in Maine. Unless there are no new, expanded, or modified sources, emissions in these areas will be higher and will negatively affect air quality. The petition also states that emissions from parts of the State proposed for removal from the OTR "do not significantly contribute to nonattainment of the ozone standard in Maine or any other state." However, the data cited by the Department is backward-looking and based on sources operating under existing CAA-mandated controls. The Department makes no attempt to quantify or model potential emissions and impacts from those areas of the state proposed for removal from the OTR once these controls are lessened. If the petition is granted, there are many potential sources that would emit more pollution than they are allowed under OTR-wide requirements. (Commenter 8)

Response: As demonstrated in the proposal, Maine's stationary sources have minimal, if any, impact on formation of the ground-level ozone that impacts citizens of this or any other state. The proposal retains OTR control requirements for those areas of the State exposed to the highest levels of transported ozone and ozone precursors. For all areas of the State, except the summit of Cadillac Mountain, monitored pollutant levels that could possibly trigger non-attainment have not been experienced since 2007.

A recent weather event in the Northeast U.S. (June 27, 2018 – July 4, 2018) demonstrated clearly that Maine emissions do not cause exceedances of the standard in Maine. During that several-day period, stagnant wind conditions minimized the amount Maine was impacted by other states and kept Maine's

¹² EPA National Emissions Inventory 2014.

own emissions primarily within the state. Maine did not exceed the standard, whereas the metropolitan areas to our south monitored many areas exceeding the standard for multiple days.

The proposal presents an extensive evaluation of modeled impacts from several states on non-attainment and maintenance sites in the OTR. Based on the data in Table 7 of the proposal and on data in the EPA March 27, 2018, memorandum, “Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone NAAQS under CAA Section 110(a)(2)(D)(i)(I),” in 2023, stationary sources will account for less than 38% of Maine’s anthropogenic NO_x emissions and less than 8% of Maine’s anthropogenic VOC emissions. Thus, if a NO_x waiver would again be granted as it has in the past, this action will impact only those anthropogenic emissions originating in northern and eastern Maine. The Department finds that the continued application of nonattainment NSR on new major sources and major modifications in those areas of Maine proposed for removal from the OTR is unwarranted.

11) Comment: Actions and controls that reduce VOC not only reduce ozone pollution but also reduce emissions of harmful air toxics. Air toxics cause numerous harmful health effects, including brain developmental impacts in children. This is an additional reason to be concerned about weakening emission limits on VOCs. (Commenter 8)

Response: The Department recognizes that many VOC are also hazardous air pollutants (or air toxics) and will continue to control these emissions on a statewide basis in accordance with Maximum Achievable Control Technology standards, BACT, and delegated programs such as the National Emission Standards for Hazardous Air Pollutants (NESHAPS).

12) Comment: New source review is a critically important tool for ensuring that the best available pollution controls are put in place from the beginning of a project. Integrating pollution-reducing technologies is most cost-effective when done at the time of initial investment. Removing significant portions of the state from the OTR would remove the obligation to integrate this pollution-reducing technology. (Commenter 8)

Response: Removing portions of Maine from the OTR will not affect the obligation of new major sources and major modifications of existing sources will to install pollution control equipment at the time of initial investment. These sources will, however, be subject to BACT instead of LAER control requirements.

13) Comment: The proposal would undermine regional cooperation that is essential for improving and protecting Maine’s air quality. Instead of removing portions of the State from the OTR, Maine should be working to strengthen and expand the geographic scope of the region. Whereas, most of our upwind neighbors have actively supported expanding the OTR, Maine has not supported these efforts despite the potential increased air quality benefits from increased OTR participation. Maine should do its share to help reduce air pollution, just as we wish Midwest utilities to do theirs, and keeping the entirety of the state in the OTR provides Maine the moral, political, and economic authority to expect more from other polluting states. It is important that the state and regional partnership continue, and the justification for withdrawal is a recipe for unravelling the OTR. Regional cooperation becomes even more important given that federal efforts have either stalled or been rolled back. For example, the Cross-State Air Pollution Rule has been repealed, and greenhouse gas reduction efforts that also provide co-benefits have either been repealed (e.g., the Clean Power Plan) or are under threat (such as the Corporate Average Fuel Economy standards). These programs would have provided a beneficial impact on air quality in Maine. Remaining in the OTR is the best method to ensure continued upwind emission reductions. (Commenters 7 and 8)

Response: Maine’s participation in the OTR will not be changed or curtailed by this proposal. The Department will continue to implement CAA requirements and work to improve Maine’s air quality, which is considered to be among the best in the country based on an analysis performed by the Indiana Department of Environmental Management Office of Air Quality in 2018.¹³ The Department will continue to engage with the OTR members, the Northeast States for Coordinated Air Use Management (NESCAUM), the Mid-Atlantic Northeast Visibility Union, the Regional Greenhouse Gas Initiative, the Environmental Council of States, and the Association of Air Pollution Control Agencies to research and implement clean air strategies.

Department staff will continue to commit staff resources to various Ozone Transport Commission (OTC) committees, including but not limited to the Modeling, Stationary & Area Sources, and Mobile Sources committees. As part of the OTC Modeling Committee, Department staff prepare and update several spreadsheets of regional ozone data with calculations of various ozone metrics weekly during the ozone season. These spreadsheets utilize EPA data handling conventions for proper calculations of the design value, threshold value for the next season, and other information. Department staff also map this regional data. Department staff regularly provide the spreadsheets and maps to OTC Modeling Committee members to show past and season-to-date ozone standings not just in the OTR but also for the eastern half of the U.S.

NESCAUM has coordinated a campaign to study ozone and its precursors in Long Island Sound—part of the OTR—called the Long Island Sound Tropospheric Ozone Study (LISTOS). LISTOS campaign participants include EPA, National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), New York Department of Environmental Conservation (NY DEC), Connecticut Department of Energy and Environmental Protection (CT DEEP), Rhode Island Department of Environmental Management (RI DEM), Maine DEP, several universities, and others. Maine DEP staff have contributed forecasting knowledge as well as the provision and analysis of canisters used to measure various VOC parameters as encountered by a small research air craft flying over the study area. LISTOS results will help to determine causes of high levels of ozone along the Connecticut shoreline. This, in turn, will enhance regional knowledge of ozone behavior around other large bodies of water such as the Gulf of Maine and along the Maine coastline.

Each state in the U.S., whether in the OTR or not, is required by the CAA to evaluate and minimize the impacts of emissions from that state on other states. Under CAA sections 110(a)(1) and 110(a)(2), each state is required to submit a SIP that provides for the implementation, maintenance, and enforcement of each primary and secondary NAAQS. This new SIP submission is commonly referred to as an “infrastructure SIP.” Specifically, CAA section 110(A)(2)(D)(i)(1) requires the submittal to

... contain adequate provisions ... prohibiting, consistent with provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will ... contribute significantly to nonattainment in, or interfere with the maintenance by, any other state with respect to any such national primary or secondary ambient air quality standard.

Commonly known as the “Good Neighbor” SIP, the CAA section 110(A)(2)(D)(i)(1) requirements apply to all states whether part of the OTR or not when implementing a promulgated ozone standard.

Furthermore, other states in the OTR understand Maine’s unique position within the region in that emissions from Maine sources do not affect the attainment (or lack thereof) for any other area in the OTR.

¹³ Indiana Department of Environmental Management publication. Keith Baugues, *The State’s View of the Air*, (April 2018) https://www.in.gov/idem/airquality/pages/states_view/files/report_2018.pdf

In conclusion, this proposal has no effect on the ability of other states to either enter or leave the OTR and will not cause an “unravelling” of the OTR. In order for other states to be removed from the OTR, they are required to demonstrate that their emissions do not have an impact on any areas within the OTR, and this is a very difficult if not impossible task for most of the OTR. Maine’s geographic location puts it in a unique position of being only a recipient of, and not a significant contributor to, ozone in the OTR. (See also, response to Comment #7)

14) Comment: The proposal to divide the State into two control areas is arbitrary and creates unnecessary inequity. Having different sets of air pollution control requirements from one town to the next creates inequity and could distort investment and push polluters into less-controlled areas of the State. The proposed use of the ozone maintenance areas is convenient, but these areas were not designed for this purpose. Instead, the Department could have considered, for example, where actual ozone advisories have been issued in the recent past. The Department’s decision to split the state in this manner is also shortsighted because its analysis of past emissions patterns, while helpful to understand source contributions to ozone, does not illuminate how industry will respond in the future. It is highly likely that future industrial development activities will locate in the less-controlled regions of the State, dramatically changing the historical emissions pattern the Department used to justify this petition. (Commenter 8)

Response: The coastal areas of Maine extending from York County to the summit of Cadillac Mountain in Acadia National Park have historically monitored the highest ozone levels in the State. This area is best defined by the existing Portland and Midcoast Ozone Maintenance areas, which were first redesignated to attainment of the 1997 ozone NAAQS in 2006. Since that time, all areas of Maine have been subsequently designated as either “attainment” or “unclassifiable attainment” for the 2008 and 2015 ozone NAAQS. While the Department could have chosen an alternative geographic region, bifurcating the State using the ozone maintenance areas is technically sound; the Portland and Midcoast Ozone Maintenance areas represent the highest populations and emissions densities in the State. Furthermore, the Section 175A maintenance plans for these areas must not only demonstrate continued maintenance of the ozone NAAQS for 20 years post-redesignation but must also include contingency plans in the event of a future violation. The maintenance areas are not only convenient demarcation for the Section 176A(a)(2) petition but are more importantly technically appropriate and consistent with those locations for which most ozone air quality alerts have been issued:

Air Quality Alert Forecast Regions

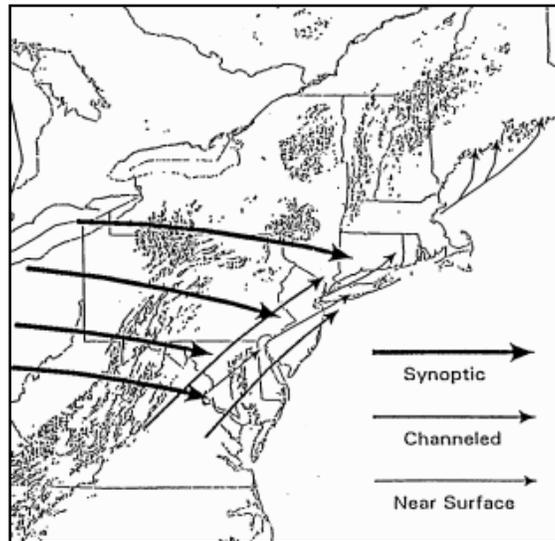


Although it is difficult to predict the geographic location of future industrial development activities, it is important to keep in mind that point sources are responsible for relatively small percentage of both VOC and NO_x emission throughout the State. For example, in 2014, point sources in Maine were responsible

for only 7.1% of the total anthropogenic VOC emissions and only 23% of the total NO_x emissions.¹⁴ Furthermore, both VOC and NO_x emissions are forecast to continue their decades-long declining trend. (See Maine’s Section 176A(a)(2) Petition Section 3C: “Emissions Data Analysis.”)

Additionally, elevated levels in Maine are seldom experienced outside of the southern and Midcoast areas.¹⁵ Ozone levels in Maine are overwhelmingly the result of transported ozone and precursor emissions from areas to the south and west as demonstrated by the NARSTO-NE¹⁶ project:

Historical Ozone Transport Routes in the Northeast

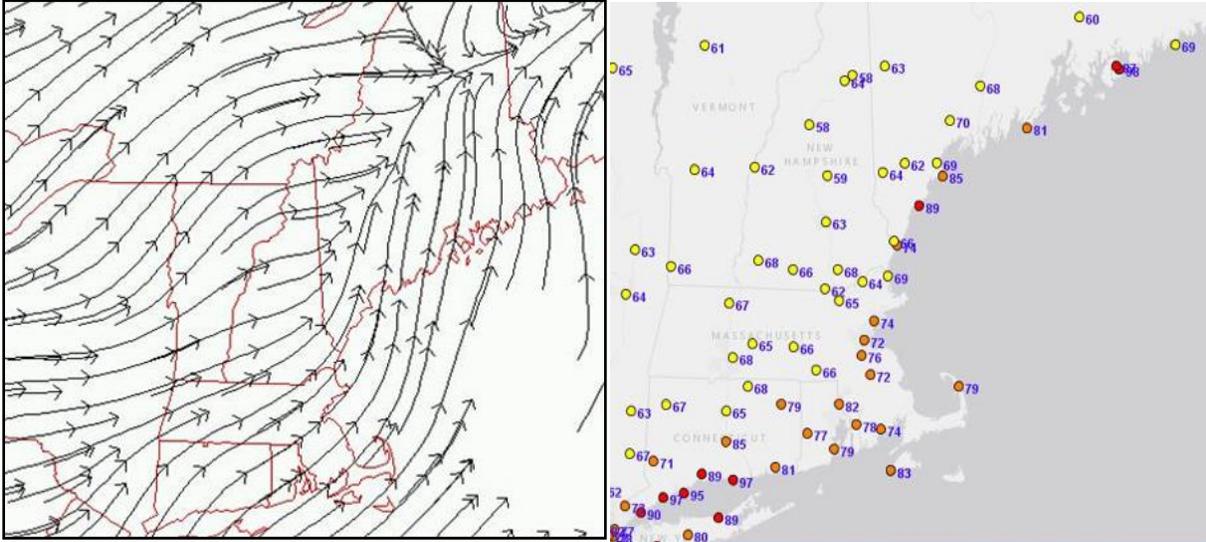


These patterns of emission transport were evident during a recent a July 12, 2017, ozone event that affected the Mid-Atlantic and Northeast states. Ozone exceedences during this event were limited to Maine’s coast, namely the Portland and Midcoast Ozone Maintenance Areas. Similar emissions transport regimes have been demonstrated for virtually every day in which Maine experiences elevated ozone. In contrast, the northerly and easterly winds that might transport emissions from northern and eastern Maine are associated with some of Maine’s lowest ozone concentrations. The Department is confident that its Section 176A(a)(2) petition will neither result in a large increase in VOC or NO_x emissions, nor will any emissions have a discernible effect on public health or the environment.

¹⁴ 2014 EPA National Emissions Inventory and Maine Air Emissions Inventory Reporting System

¹⁵ Table B-1 of Maine’s Section 176A(a)(2) Petition illustrates ozone design values for both those areas proposed to remain in the OTR and those to be excluded.

¹⁶ NARSTO 2000 (formerly North American Research Strategy for Tropospheric Ozone), citing Blumenthal *et al*, 1997, shows typical transport patterns when ozone events occur in the Northeast (Blumenthal and NARSTO).



15) Comment: Weakening environmental protections to allow industry to pollute more is a failed and outdated economic development strategy. Most Maine people have abandoned the old idea that environmental protection is at odds with economic development and understand that clean air, land, and water are essential to Maine’s economy. For example, the link between clean air and tourism is easy to see. One recent study found a direct connection between ozone levels and visitations at national parks, including Acadia.

Through enforcement of the CAA and other laws, Maine has experienced a cleaner environment while our economy has grown and diversified. With its simplistic logic that air pollution standards are hurting our economy, this petition belongs in the 1950s. While it is true that reducing pollution may increase costs for polluters, Maine is embarking on a race to the bottom when we fail to recognize the benefits of reducing pollution, whether they be public health benefits or a stronger tourism economy. (Commenter 8)

Response: The proposal does not remove any regulatory air pollution controls, licensed emission limits, or rules existing in Maine today. Future new major sources and major modifications located within those areas of Maine proposed for removal from the OTR will be subject to BACT technology requirements that will provide an opportunity for the Department to more fully weigh the relative benefits and costs of control technologies.¹⁷ The Department’s proposal is not a “race to the bottom” but is instead a technically sound effort to better balance competing priorities, whether they be environmental or economic.

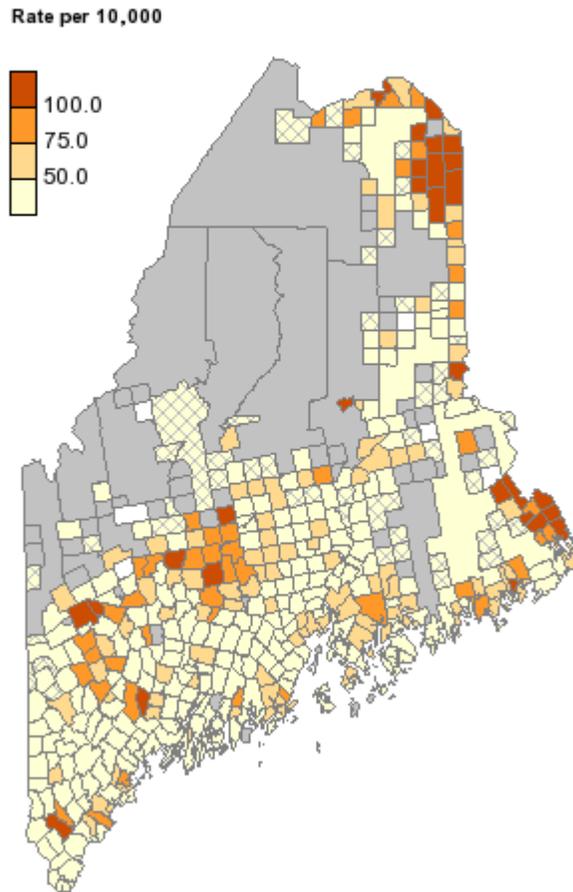
16) Comment: Clean air is essential to Maine and needs continued improvement, especially in the face of weakening federal standards. While we agree with Maine that the OTR has been successful in reducing air pollution, we strongly disagree with the implication that Maine’s air is “clean enough” or that more action is not needed. The fact that Maine continues to suffer from poor air quality in many occasions attest to the fact that “attainment” of the national standards is simply not indicative of healthy air quality. Preliminary data from 2019 indicates that there were at least 32 bad air quality days in Maine caused by high ozone levels. Maine has some of the highest asthma rates in the nation—11.7%, compared to a national average of 8.9%—and these high ozone days are particularly dangerous for asthmatics as well as

¹⁷ For example, a recently proposed project would have substituted a non-toxic VOC in its production process. However, this same process change would have resulted in an increase in (non-toxic) emissions requiring the use of a thermal oxidizer to meet LAER control technology requirements, thereby increasing NO_x, particulate, and other emissions.

people with heart or other lung disease, the elderly, teenagers, and children. Thousands of Maine residents are severely impacted by ozone concentrations below the federal standards of 70 ppb. EPA's Clean air Scientific Advisory Committee chose the 70 ppb standard as the highest acceptable concentration, but the standard does not address highly susceptible populations. Beyond the public health benefits, clean air is also essential for Maine's tourism economy. At the federal level, there are several proposals to weaken pollution limits under the CAA, including significantly weakened tailpipe standards for car and trucks and weaker standards for power plants. To the extent these efforts are successful, they will result in greater pollution from upwind states and worsened air quality in Maine, making this a terrible time to lift limits on ozone pollution and weaken regional cooperation that acts as a check of federal rollbacks. (Commenters 7 and 8).

Response: Data from Maine's Center for Disease Control & Prevention (CDC) Tracking Network for environmental public health for asthma shows that asthma rates are not just confined to coastal communities (see figure below). There are many factors which may contribute to higher asthma rates including, but not limited to, personal habits, temperature, humidity, radon, pollen, ozone, particle pollution and other environmental factors.

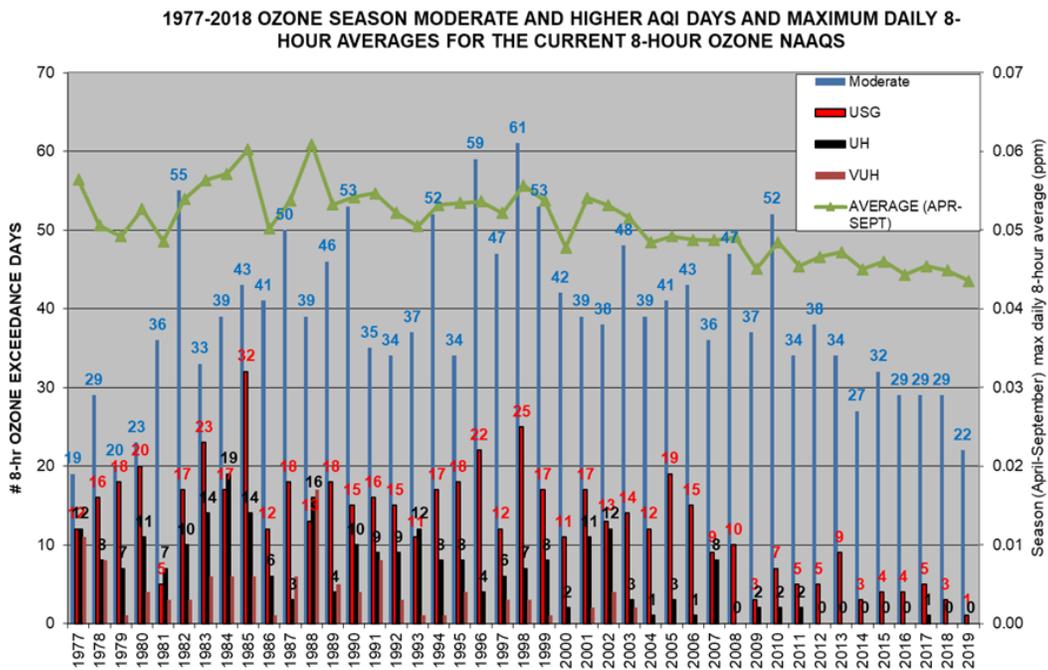
Rate of Asthma ED Visits
by Town, Maine 2010-2014
Based on: Admission Date



Monitoring data shows the air quality in Maine is much better than it was 20 years ago, and ozone levels are now substantially and consistently lower than they have ever been. It is important to note that the Ozone NAAQS has changed over the years, being lowered each time,¹⁸ as follows:

Year	National Standard
1979	120 ppb (parts per billion)
1997	84 ppb
2008	75 ppb
2015	70 ppb

Thus, the value defining “high ozone” has been a moving target. The days identified in 2018 as potentially high ozone days would not have been classified as such 25 years ago. The following chart depicts ozone season moderate and higher air quality index days along with maximum daily 8-hour ozone averages based on the 2015 8-hour ozone NAAQS. Note that there were 32 days in 2018 with moderate or higher ozone levels and 23 days in 2019, which is the fewest since ozone monitoring started in 1977.



Emissions of air pollutants have been decreasing, and, not surprisingly, monitored levels of air pollutants have been decreasing. Since asthma rates in Maine have been climbing, the data strongly suggests that a cause or causes other than ozone are responsible. This is not to say that high levels of ozone do not affect sensitive groups or exacerbate symptoms. However, as demonstrated in the proposal, Maine’s stationary sources in that portion of the state proposed for opting-out of the OTR have minimal, if any, impact on formation of ground-level ozone in either the Portland and Midcoast Ozone Maintenance Areas or any other state. Maine’s air has continuously improved, even as the entire state has been subject to a NO_x waiver issued under Section 182(f) of the CAA. The approval of this proposal will not cause ozone levels to increase in the State. (See also response to comment #14).

¹⁸ The form of the standard also changed from a 1-hour maximum to an 8-hour average.

17) Comment: The Department’s revised Section 176A(a)(2) Petition, while inadvisable, is nevertheless more palatable than previous submittals and retains those areas of Maine that need to remain in the OTR due to the uncertainty of the air quality in those regions. Unlike the previous submittal, it also expands the coastal area to include those areas that are within an existing air quality maintenance plan and where special precautions are necessary. Keeping a larger geographic area within the OTR also lends credence to Maine as an OTR partner by including those areas most likely needing better controls. Retaining more of southern and coastal Maine within the OTR will also help protect air quality in downwind areas of concern such as Acadia National Park, as both local and upwind controls along the eastern seaboard can be expected to reduce these concentrations. (Commenters 6 and 7)

Response: The Department agrees that its revised Section 176A(a)(2) Petition will help to protect air quality in southern and Midcoast Maine and ensures that Maine will continue to play a significant role in the development of regional air quality policies and programs.

18) Comment: The Department’s proposal is a vast improvement over the previous (2018) proposal that would have retained only a few towns within the OTR. Keeping the entire State in the OTR however, would yield several benefits, including 1) maintaining equitable regulatory requirements across the region; 2) avoiding inequitable control requirements within the State; 3) ensuring that new and modified sources install the best available technologies for the control of air emissions throughout the State; and 4) allowing the entire State to share in the co-benefits that derive from additional VOC and NO_x reductions.¹⁹ (Commenters 6 and 7)

Response: The Department’s proposal is a technically sound approach to addressing multiple priorities and utilizes several quantitative techniques to demonstrate that emissions from sources in Maine neither cause nor contribute to nonattainment of the ozone NAAQS in any other state and within that portion of Maine that will remain in the OTR. With respect to potential control requirement inequities both within the region and in-state, it is important to remember that, beginning in 1995, Maine has had a Section 182(f) waiver of NO_x controls (NO_x waiver) in nine or more counties.²⁰ These NO_x waivers eliminated nonattainment NSR and federal NO_x RACT requirements²¹ throughout the NO_x waiver area, and new sources were instead subject to BACT requirements. While the cost of emission controls, especially nonattainment NSR, can have a major impact on the viability of a prospective project, other factors (e.g., the proximity to forest resources) appear to play a much greater role in-state. Section 184(c) NO_x waivers have not resulted in the translocation of sources from outside the NO_x waiver area to within.

Moreover, the Department will continue to implement existing and future RACT requirements on a statewide basis, providing a cost-effective means of reducing both VOC and NO_x while capturing the co-benefits of their control.²²

Since the CAA does not provide a mechanism for a “VOC waiver,”²³ the Department is utilizing the provisions of CAA Section 176A(a)(2) to provide similar regulatory relief when addressing VOC

¹⁹ The Department discussed the co-benefits derived from controlling VOC and NO_x emissions on page 25 of its petition.

²⁰ In 2014, EPA approved Maine’s request for a statewide NO_x waiver.

²¹ Maine continued to implement its 06-096 C.M.R. ch. 134 NO_x RACT rule but was not required to meet CAA Section 182 certification requirements for the 1997 and 2008 ozone NAAQS.

²² For example, many area source control programs (e.g., solvent degreasing and surface coating) provide significant reductions in hazardous air pollutants.

²³ In 2013, the Department submitted a request to EPA for the “restructuring” of the OTR requirements in Maine. Although submitted to EPA on February 11, 2013, EPA ultimately declined to take action on this request because of the pending 2015 ozone NAAQS.

emissions in those parts of the State that do not contribute to ozone exceedences or interfere with maintenance of the ozone standard either in Maine or elsewhere in the OTR. (See also response to Comment #4.)

19) Comment: The Department's proposal represents a reasonable compromise between reducing the costs of environmental regulation and protecting public health and the environment. Although Maine previously had a statewide Section 184(c) NO_x waiver for NSR and NO_x RACT requirements, this waiver has since expired, and Maine would be unlikely to receive future waivers because of the need to demonstrate NO_x "disbenefits." Additionally, although Maine had previously submitted a request that would essentially waive the NSR requirements for VOC, EPA never acted upon it. The CAA provides a legal mechanism for a state to remove itself or part of the state from the OTR, and the Department has provided an excellent technical justification for this action. Although it does not provide as much protection and environmental improvement as statewide OTR membership does, the Department's proposal is a reasonable effort to address multiple priorities. (Commenter 7)

Response: The Department agrees that its Section 176A(a)(2) petition represents a technically sound and reasonable proposal to address multiple and sometimes competing priorities. (See also response to comment #18.)

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