

State of Maine
Department of Environmental Protection
Clean Air Act § 176A(a)(2) Petition Summary
Maine's Ozone Success Story
June 2018

I. The Ozone Transport Region and Maine's Ozone Success Story Summary

The State of Maine is petitioning the U.S. EPA to reassign parts of the State to more appropriate air quality regulatory requirements. The Clean Air Act is structured such that when regions of the country have had success in meeting Clean Air Act standards, those regions may present scientific findings and data to change the regulatory structure of a region to more appropriately manage air quality. As a result of Maine's air quality success under the Clean Air Act, Maine now requests to modify how it manages future air quality impacts in a responsible and pragmatic way.

A. Maine's Petition

The State of Maine is submitting for U.S. EPA approval a Clean Air Act (CAA) § 176A(a)(2) Ozone Transport Region Petition, Maine's Ozone Success Story. Maine has documented technical analyses justifying the removal of certain areas of the State of Maine from the Ozone Transport Region (OTR). This State has been and continues to be in attainment with ozone National Ambient Air Quality Standards (NAAQS) in those areas petitioned for removal, and emissions from Maine sources have negligible impact on the ozone attainment status of any part of the OTR. The information presented in the petition justifies the exclusion of a portion of the State of Maine from the OTR.

Nitrogen oxides (NO_x) and volatile organic compounds (VOC) are ozone precursor pollutants which 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 demonstrations presented in the petition show that further controls in the State of Maine of both NO_x and VOC emissions have no significant impact on ozone levels in the OTR outside of Maine.

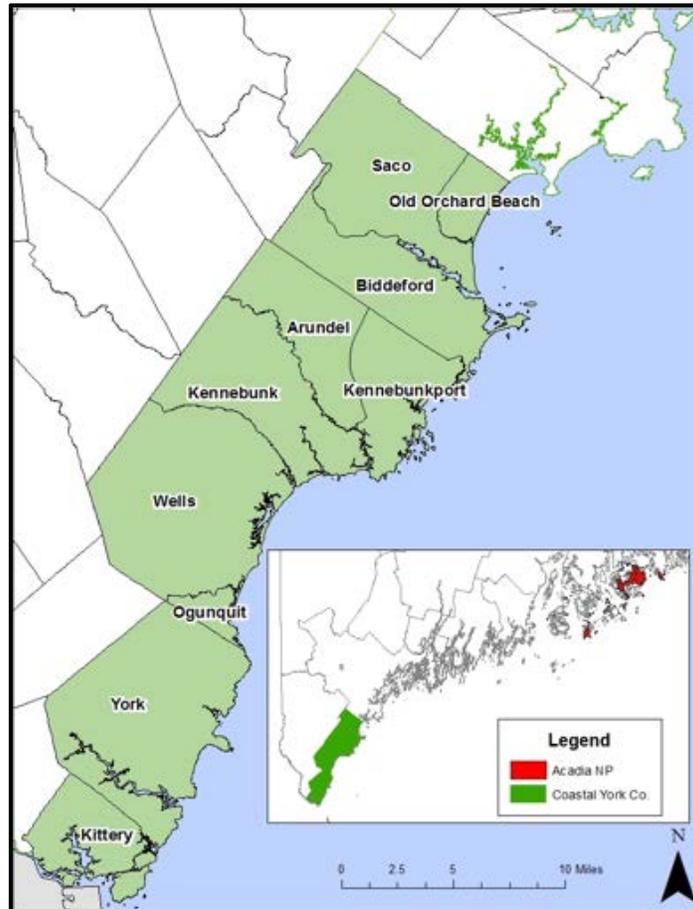
The fulfillment of the petition will not harm air quality in Maine or in any other state. The proposal does not remove or modify any existing control measures contained in the Maine State Implementation Plan (SIP). Pursuant to section 110(l) of the CAA, the removal or modification of control measures 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. Required controls for existing facilities in Maine will not be relaxed upon removal of portions of the State from the OTR, thus ensuring that air quality does not degrade. This 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. Upon receiving approval of the petition, Maine will initiate rulemaking to revise certain State rules to include appropriate provisions for non-attainment areas consistent with the CAA but to remove language subjecting the entire State to such provisions by default because of inclusion in the OTR.

Maine DEP is requesting the State of Maine be removed from the OTR per CAA § 176A(a)(2), except for Acadia National Park and the municipalities listed in the table below. Maine is requesting OTR inclusion similar to the State of Virginia, where only a portion of the state is part of the OTR.

Maine Municipalities to Remain in the OTR
Arundel
Biddeford
Kennebunk
Kennebunkport
Kittery
Ogunquit
Old Orchard Beach
Saco
Wells
York
Other Areas in Maine to Remain in the OTR
Acadia National Park

Maine Municipalities and Acadia National Park to Remain in the OTR



B. Background

The federal government first instituted an ozone ambient air quality standard in the 1970s. The State of Maine started monitoring for ozone at that time and struggled with attaining the standard in the southern part of the State through the 1980s. In 1990, major Clean Air Act legislation created the Ozone Transport Region (OTR) which includes states in the Northeast U.S. transportation corridor and the entire State of Maine. The OTR was created to address ozone pollution on a regional basis: No one state could solve an ozone non-attainment problem by themselves. All areas in the OTR were made subject to requirements applicable to moderate ozone non-attainment areas, regardless of whether specific areas were in attainment or not.

The OTR was created over a quarter century ago. When the OTR was first formed, parts of southern Maine were in non-attainment for ozone, whereas northern Maine has always been in attainment. Collaborative work done by OTR states and other pollution control efforts have reduced ozone levels such that today, Maine does not experience the high ozone levels of the past, and the entire State has been designated in attainment with the ozone standards since 2007 even as the standard itself continues to be lowered.

Understanding of the science and impacts of this broad regulation has increased tremendously since its promulgation. Today's application of OTR-related constraints to facilities in Maine does not achieve the results originally intended for the OTR. Withdrawal of portions of the State from the OTR will bring greater regulatory certainty to facilities, which will allow them to make decisions, allocate resources more efficiently, and undertake improvements to realize greater economic and environmental benefits.

C. OTR Requirements

For states outside the OTR, when attainment levels are reached, the state may re-classify non-attainment areas to attainment and comply with regulatory requirements for attainment areas. Those areas are then no longer subject to the regulatory constraints for non-attainment areas. For states in the OTR, the ability to respond to changes in classification is a much more involved process. Because of Maine's success in consistently meeting the ozone standard and with demonstrations that emissions from Maine neither significantly nor adversely impact any other area in the OTR, Maine is petitioning for removal of portions of Maine from the OTR.

Maine supports the regional approach to controlling emissions of NO_x and VOC, pollutants which are precursors to ground-level ozone formation. However, Maine is faced with a basic equity problem: Its sources are subject to the same emission restrictions and requirements as those in upwind non-attainment areas, and Maine's sources are subject to more restrictive requirements than sources in certain upwind states that contribute significantly to downwind non-attainment areas. Maine is subject to these requirements even though it has been classified as in attainment by EPA and has repeatedly demonstrated that emissions from Maine sources do not cause or contribute to non-attainment in any other state.

Maine has implemented OTR requirements for major sources of VOC or NO_x emissions which include the following:

- Existing sources are subject to control strategies to reduce NO_x and VOC emissions through Reasonably Available Control Technology (RACT), a more stringent regulatory control mechanism under the CAA than is applicable to most sources outside the OTR.
- New major stationary sources and major modifications of NO_x or VOC in the OTR must comply with Lowest Achievable Emission Rate requirements and are subject to emission offset requirements.

Additionally, being in the OTR mandates all sources, both major and minor, be subject to applicable requirements identified in VOC Control Techniques Guidelines (CTG). There are many different CTGs which contain non-attainment-level controls and requirements for many specific processes, including, for example, surface coating of a variety of different materials; storage, distribution, and transport of gasoline and other petroleum

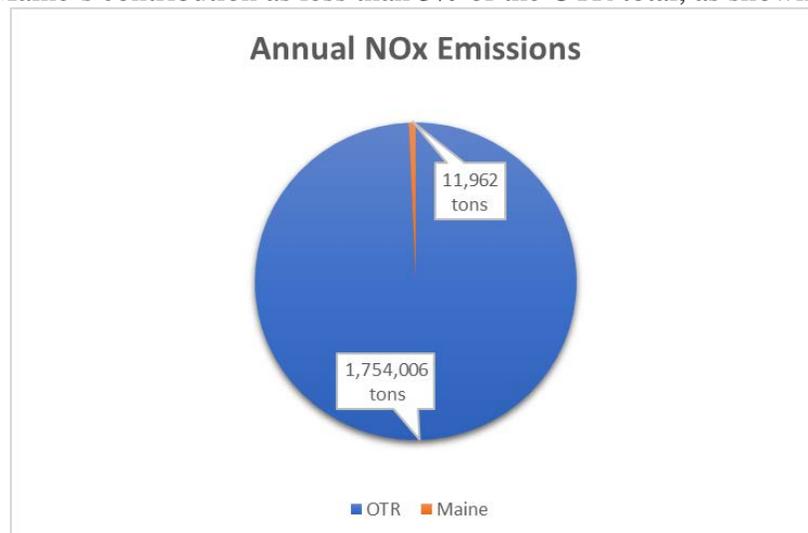
products; wood furniture manufacturing; boat manufacturing; portable fuel containers; and other specific activities.

Under major new source review, OTR-related requirements for Maine sources discourage economic investment and development in the State. In recent years, Maine has lost several major industrial sources, and the thousands of jobs associated with them, for a variety of reasons. The regulatory hurdles involved to be able to invest in new, more efficient, and cleaner operations is one of those reasons. Investment in existing enterprises, which results in environmentally superior and more globally competitive facilities, must not continue to be impeded by the burdens of additional OTR requirements without the intended environmental benefits. There are many projects that have been considered in the State of Maine but have been withdrawn or put on hold indefinitely due to the lack of availability of and economic burden to acquire emission offsets, simply because Maine is part of the OTR. Additionally, many VOC control options result in increased NO_x emissions which are not beneficial to ozone level reductions. Maine’s emissions do not significantly impact any non-attainment areas and, therefore, should not be subject to OTR constraints designed to address regional ozone transport.

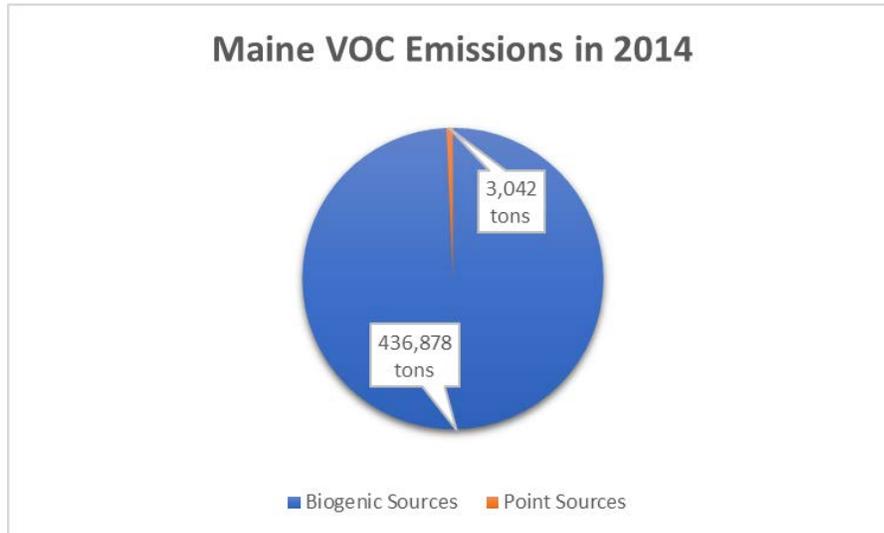
D. Technical Justifications

Maine’s attainment status for the ozone NAAQS is a success story of the emissions reduction strategies implemented across the nation. Each state in the multi-state Ozone Transport Commission (OTC), created under the CAA, has been required to reduce emissions of pollutants which contribute to the formation of ozone. This has resulted in the lowering of monitored ozone values. Maine’s emissions are a small portion of total emissions from the OTR and do not contribute significantly to any monitors recording ozone standard exceedances in the OTR. EPA modeling analyses show Maine’s maximum contribution to ozone levels at every monitoring site in the other OTR states is less than 1% of the ozone NAAQS.

A comparison of total annual anthropogenic NO_x emissions from Maine and from the entire OTR show Maine’s contribution as less than 3% of the OTR total, as shown below:



The Maine Forest Service identifies approximately 90% of Maine as forests, a natural source of VOC emissions. As shown in the chart below, Maine's VOC emissions from point sources are approximately 0.7% of Maine's natural VOC emissions. Therefore, any emissions reductions from within the State that could possibly be realized because of being in the OTR are rendered inconsequential in comparison to the naturally occurring VOC emissions from Maine's forests.

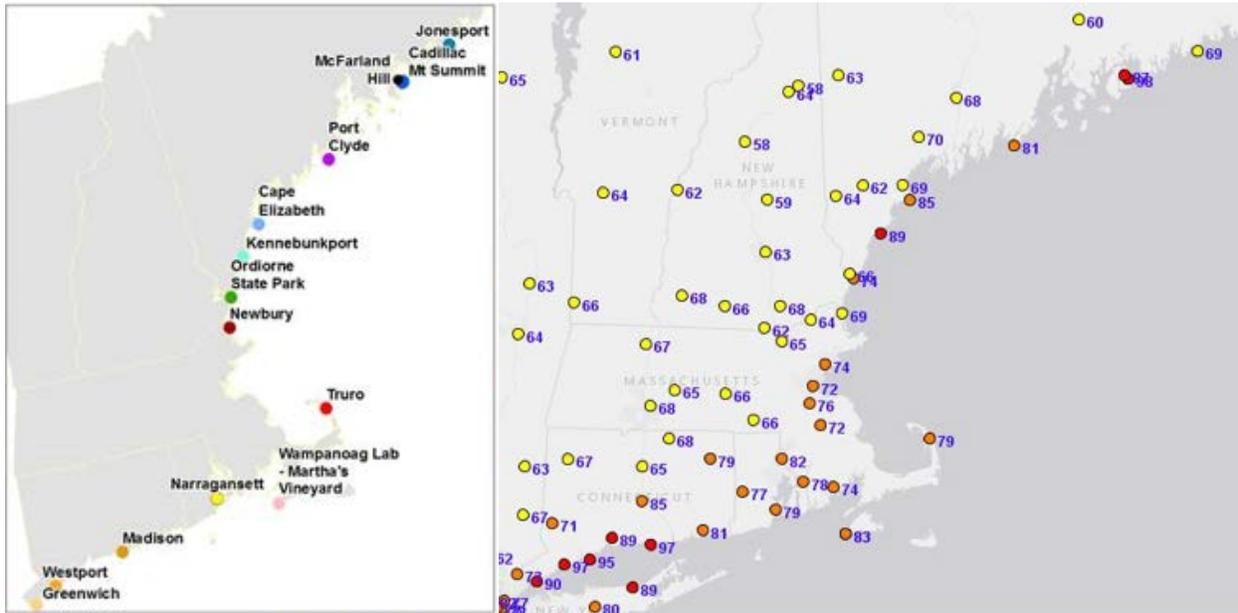


In addition to information presented in the two charts above, Maine's point source emissions of NO_x and VOC have been trending downward over the last 25 years. Additional OTR-related controls on these diminishing emissions will not result in appreciable benefits to ozone pollution-related efforts.

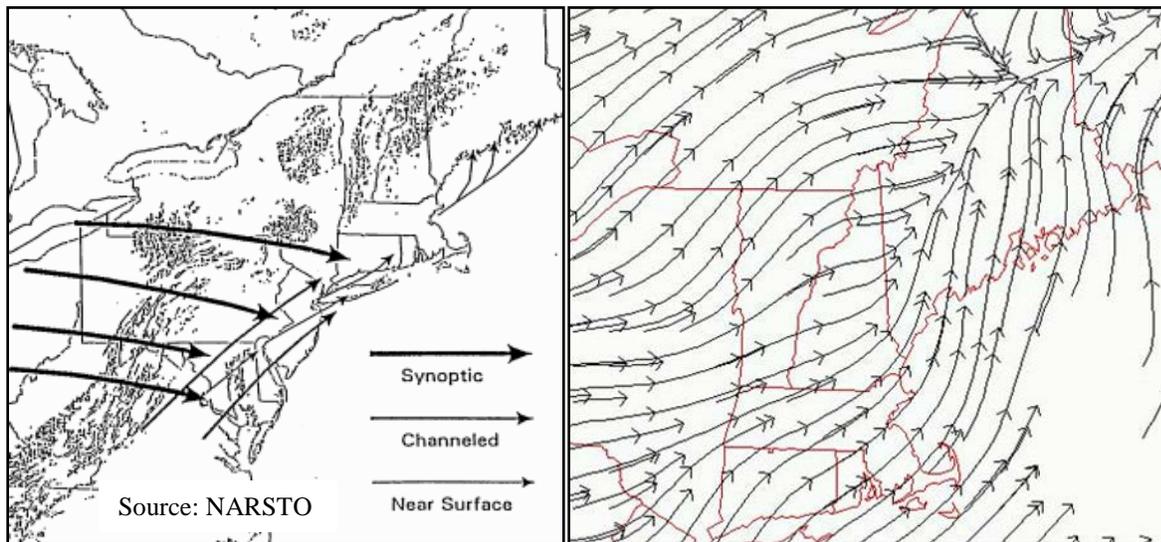
The Maine Department of Environmental Protection's (Maine DEP) Bureau of Air Quality has documented analyses which demonstrate that Maine does not contribute significantly to non-attainment of the 8-hour ozone NAAQS at monitors recording exceedances of the standard in other states within the OTR. Thus, reductions of NO_x or VOC emissions in Maine will not have a significant impact on the ozone NAAQS attainment status of those areas. The analyses consist of back trajectories for 2013-2017 ozone exceedance days at certain monitoring locations in Southern New England, EPA back trajectories for 2014-2016 ozone exceedance days at certain monitoring locations in southern OTR states, EPA ozone apportionment modeling results, and emissions inventory data for the OTR.

There are many maps in the full petition document, but the following figures show the typical transport pollution pattern causing ozone impacts in Maine and demonstrate that the State's emissions have a nearly nonexistent impact on coastal Maine ozone levels.

Coastal Ozone Monitoring Sites in New England and Maximum 8-Hour Ozone Levels (ppb) for June 12, 2017



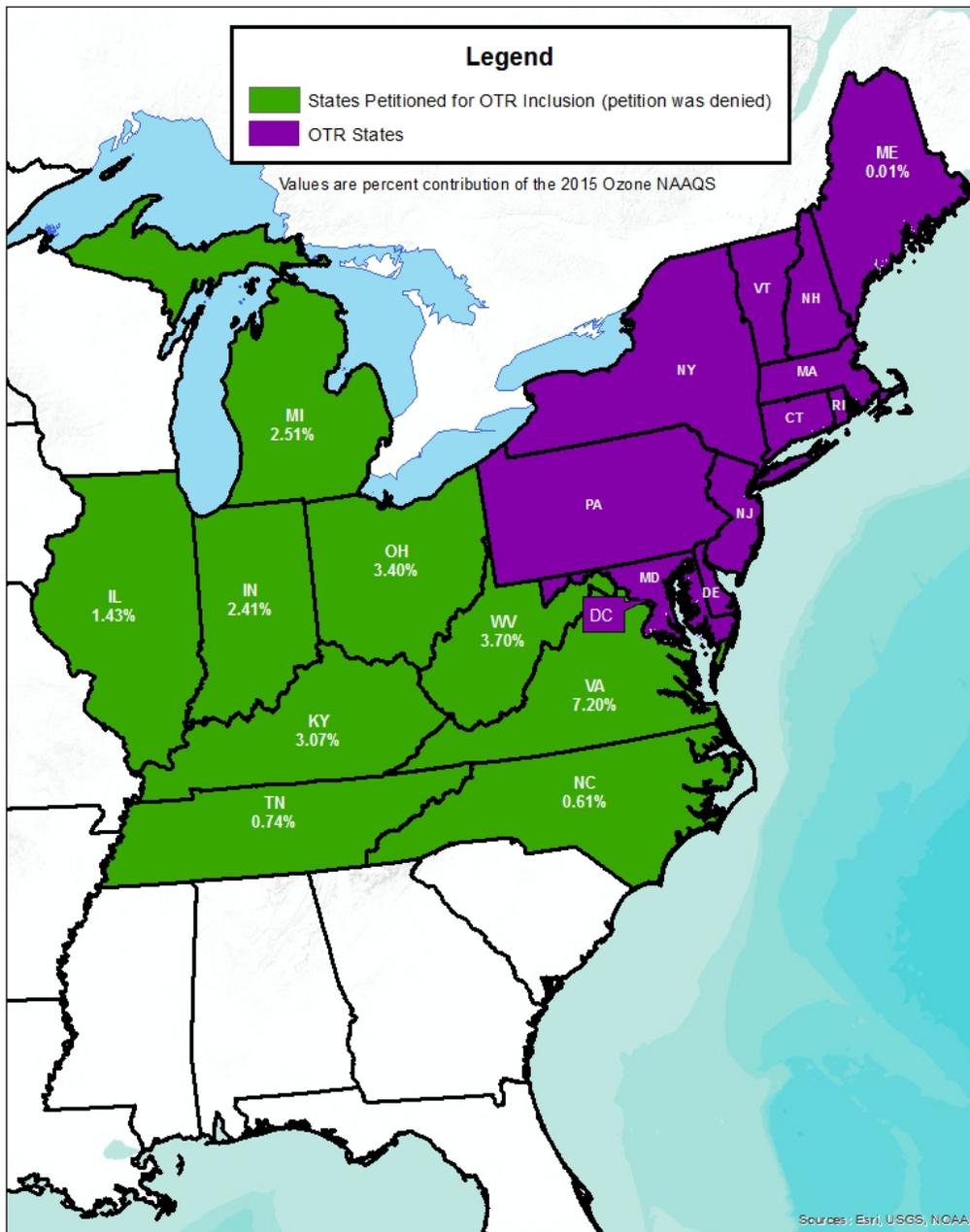
Historical Ozone Transport Routes in the Northeast and June 12, 2017 1 PM (18Z) Surface Wind Streamlines



EPA Denial of CAA § 176A Petition to Expand the OTR

On October 27, 2017, EPA denied an OTR expansion petition from several OTR states to expand the OTR under section 176A(a) of the CAA. These states petitioned EPA to expand the OTR to include several states to their south and west, as depicted in the following map, alleging that these states significantly contribute to violations of the 2008 Ozone NAAQS inside the OTR. In their decision, EPA stated that there were better,

alternative pathways to remedy pollutant interstate transport from those states. In support of the denial, EPA pointed to more recent rulemakings to reduce transport and noted that in 2017, eight of the nine states named in the petition were linked to downwind non-attainment and maintenance sites in eastern states for the 2008 ozone NAAQS, and seven of the nine states for the 2015 ozone NAAQS. Since Maine emissions are clearly insignificant to any downwind non-attainment and maintenance sites, Maine seeks similar CAA remedies to be instituted in Maine as they are in the states with greater impacts which are outside the OTR.



II. Summary of Results and Conclusions for The Petition

Granting the petition will not degrade the air quality in Maine or in any other state. Required controls for existing facilities in Maine will not be relaxed upon removal of portions of the State from the OTR, thus ensuring that air quality does not degrade. This 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 a decrease of control could allow an area to slip back into noncompliance with the CAA. Upon receiving approval of the petition, Maine will initiate rulemaking to revise certain State rules to include appropriate provisions for non-attainment areas consistent with the CAA but to remove language subjecting the entire State to such provisions by default because of inclusion in the OTR.

The CAA § 176A(a)(2) states that EPA's Administrator may remove any State or portion of a State from the OTR whenever control of emissions in that state or portion of the state will not significantly contribute to non-attainment of the standard in any part of the OTR. Maine DEP herein has provided conclusive proof that Maine emissions are clearly insignificant contributors to non-attainment in any portion of the OTR, as demonstrated through the following:

- The examination of back trajectories conducted by Maine DEP and EPA illustrate Maine's emissions clearly are insignificant contributors to ozone transport in any non-attainment areas within the OTR. Thus, reductions of either NO_x or VOC emissions in Maine are irrelevant to bringing other areas in the OTR into attainment.
- EPA's source apportionment modeling results for both the 2008 and the 2015 ozone standards demonstrate that Maine's contribution to other states in the OTR is less than one percent.
- Maine's emissions are clearly insignificant contributors to ozone levels in the OTR and are less than impacts from states cited in the CAA § 176A OTR expansion petition which EPA has denied.
- The results of back trajectory and time series analyses for the monitor at the summit of Cadillac Mountain in Acadia National Park show that transport over water, transport along the land-water interface (Maine's coastline), and transport of the aloft ozone reservoir from other areas in and outside of the OTR supports the conclusion the site is in a rural transport area where emission controls from outside of Maine are needed to reduce ozone levels in that area.
- Any additional VOC emissions reductions from within the State that could possibly be realized due to inclusion in the OTR are rendered inconsequential in comparison to Maine's the naturally occurring biogenic emissions of VOC.

Maine businesses are subject to several investment barriers compared to other parts of the country such as higher energy costs, higher transportation costs, and more stringent environmental standards. However, regulatory structures that create additional barriers without appreciable value should be routinely analyzed and

modified, as appropriate. Once the Petition for removal of portions of the State of Maine from the OTR is granted, several benefits will be realized.

Maine's working forests will benefit by giving forest products industries regulatory certainty when considering investment in Maine with respect to the following air emission requirements:

- Forest products facilities will not have to repeatedly reevaluate the appropriate non-attainment level NO_x emission controls for their combustion equipment or VOC non-attainment level emission controls for drying kilns every time the ozone standard is changed. Because of being in the OTR, every time the ozone standard is changed, a state needs to reevaluate nitrogen oxide and VOC control strategies to meet non-attainment level Reasonably Available Control Technology requirements.
- Under current requirements, wood processing facilities such as lumber or pellet mills need to apply Lowest Achievable Emission Rate (LAER) technology, such as thermal oxidizers, to wood drying operations and would need to find VOC offsets if a new facility is being planned or an existing facility is planning expansion. Removal from the OTR will allow Maine DEP to consider more holistic environmental approaches in evaluating emission control options.
- Wood processing facilities such as lumber or pellet mills will not have to take production restrictions to avoid LAER requirements or offsets and could run at more efficient levels.
- Pulp and paper facilities will not need to obtain offsets or consider LAER for NO_x or VOC just because the facility wants to operate an idled paper machine or change the product produced on an existing paper machine.
- For facilities to remain competitive in the world market, existing equipment must be invested in to increase utilization and efficiency. Currently, facilities need to consider LAER and offsets when increasing production at existing facilities. This change will reduce the dis-incentives to investing in Maine facilities. Technology investments in Maine facilities will ultimately result in production being more efficient which results in lower environmental impacts.

The following are real examples of some of the above considerations:

- Expera Old Town, LLC (an integrated pulp and paper facility) was considering converting their facility to process softwood instead of hardwood. Among other factors, acquiring offsets for this project contributed to management's decision to close the facility.
- F.E. Wood – Natural Energy LLC licensed the construction and operation of a wood pellet manufacturing facility. Due to current OTR requirements, the license included the requirement to install and operate a regenerative thermal oxidizer for control of VOC from the wood drying process. This facility was never constructed.

- To allow a lumber mill currently operating in Maine to increase the quantity of lumber dried in their existing kilns would require offsets and potentially the installation of control equipment to address the same type of VOC emissions occurring naturally just outside their fence line.
- Maine companies compete with facilities located in places such as Ohio and Oklahoma, both of which currently have integrated greenfield tissue mills in various stages of construction and which are neither part of the OTR nor subject to the same requirements.
- A proposed facility that will use non-toxic VOC containing coatings would be required to install thermal oxidizer controls as LAER. These controls create NO_x in an area dominated by biogenic VOCs. The net effect would be to increase ozone levels rather than decrease them.

The removal of portions of Maine from the OTR would allow Maine DEP to focus resources on tangible environmental solutions to real problems the State is faced with as opposed to implementing unnecessary requirements which provide no benefit to Maine or other states. Approval of the petition would effectively enable Maine to build on this Ozone Success Story and develop and implement other air quality success stories in the State of Maine.