# EXECUTIVE SUMMARY

The States of the Ozone Transport Commission (OTC) are considering adopting additional control measures as part of their attainment and maintenance plans for the health-based Federal ozone standard. The analyses in this report provide estimates of the emission reductions and associated costs for adopting five volatile organic compound (VOC) model rules and one nitrogen oxides ($NO_x$) model rule throughout the Ozone Transport Region (OTR). The VOC model rules have the potential to reduce emissions from consumer products, portable fuel containers, architectural and industrial maintenance (AIM) coatings, mobile equipment refinishing and repair operations, and solvent cleaning operations. The $NO_x$ model rule has the potential to reduce emissions from stationary internal combustion engines, gas turbines, industrial boilers, and cement kilns. This $NO_x$ model rule will yield additional reductions for smaller $NO_x$ sources that are not regulated under current regional or Federal $NO_x$ programs.

The analysis for this study assesses additional emission reductions from OTC model rules taking into account the expected emissions reduction from current Federal and State regulations and State Implementation Plan (SIP) assumptions; this ensures no double counting. Population based emission factors were used for the four VOC source category model rules. The portable fuel container analysis was done for residential and commercial usage using housing and business indicators.

The $NO_x$ model rule analysis presented in this report is the product of an extensive review of available data and a review process with the OTC States during the project period. This was important because previous regulatory efforts have focused on $NO_x$ sources that are larger than those affected by the OTC $NO_x$ model rule.

Table ES-1 summarizes the expected model rule emission reductions for the three severe ozone nonattainment areas in the Northeast OTR: the Baltimore, Maryland area; the Philadelphia-Wilmington-Trenton area; and the New York-Northern New Jersey-Long Island-Southwest Connecticut area. The emission reductions listed in this table are either for 2005 or 2007, depending on the area's attainment date.

Figure ES-1 shows the OTC VOC model rule expected 2005 emission reductions by State. The largest estimated VOC emission reductions are in the most populous States – Pennsylvania and New York. Emission reduction estimates for each State are proportional to population: those areas with regulation already in place will show smaller reductions. Since these rules will yield additional reductions beyond 2005, those States having 2007 attainment dates will report higher emission reductions for SIP accounting purposes.

## Table ES-1
## OTC Model Rule Estimated Benefits for Severe Ozone Nonattainment Areas

| Nonattainment Area | Attainment Date | Model Rule | 2005/2007 Benefit (tpd) | | EPA Shortfall (tpd) | |
|---|---|---|---|---|---|---|
| | | | $NO_x$ | VOC | $NO_x$ | VOC |
| Baltimore, MD | 2005 | $NO_x$ Model Rule | 5 | 0 | | |
| | | Consumer Products | 0 | 4 | | |
| | | Portable Fuel Containers | 0 | 2 | | |
| | | AIM Coatings | 0 | 8 | | |
| | | Mobile Equipment Refinishing | 0 | 0 | | |
| | | Solvent Cleaning Operations | 0 | 0 | | |
| | | **Total** | **5** | **13** | **0** | **13** |
| Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD | 2005 | $NO_x$ Model Rule | 6 | 0 | | |
| | | Consumer Products | 0 | 9 | | |
| | | Portable Fuel Containers | 0 | 5 | | |
| | | AIM Coatings | 0 | 19 | | |
| | | Mobile Equipment Refinishing | 0 | 6 | | |
| | | Solvent Cleaning Operations | 0 | 20 | | |
| | | **Total** | **6** | **59** | **3** | **62** |
| New York-N. New Jersey-Long Island, NY-NJ-CT | 2007 | $NO_x$ Model Rule | 22 | 0 | | |
| | | Consumer Products | 0 | 26 | | |
| | | Portable Fuel Containers | 0 | 25 | | |
| | | AIM Coatings | 0 | 42 | | |
| | | Mobile Equipment Refinishing | 0 | 20 | | |
| | | Solvent Cleaning Operations | 0 | 7 | | |
| | | **Total** | **22** | **120** | **7** | **85** |

NOTES: Emission benefits estimates in this table are provided as integer values. Any emission benefit of less than 0.5 tpd is listed as a zero in this table. Totals may not equal the sum of the individual rule benefits because of rounding.

**Figure ES-1**
**OTC VOC Model Rule Benefits by State within the OTR for 2005**
**(in tons per day)**

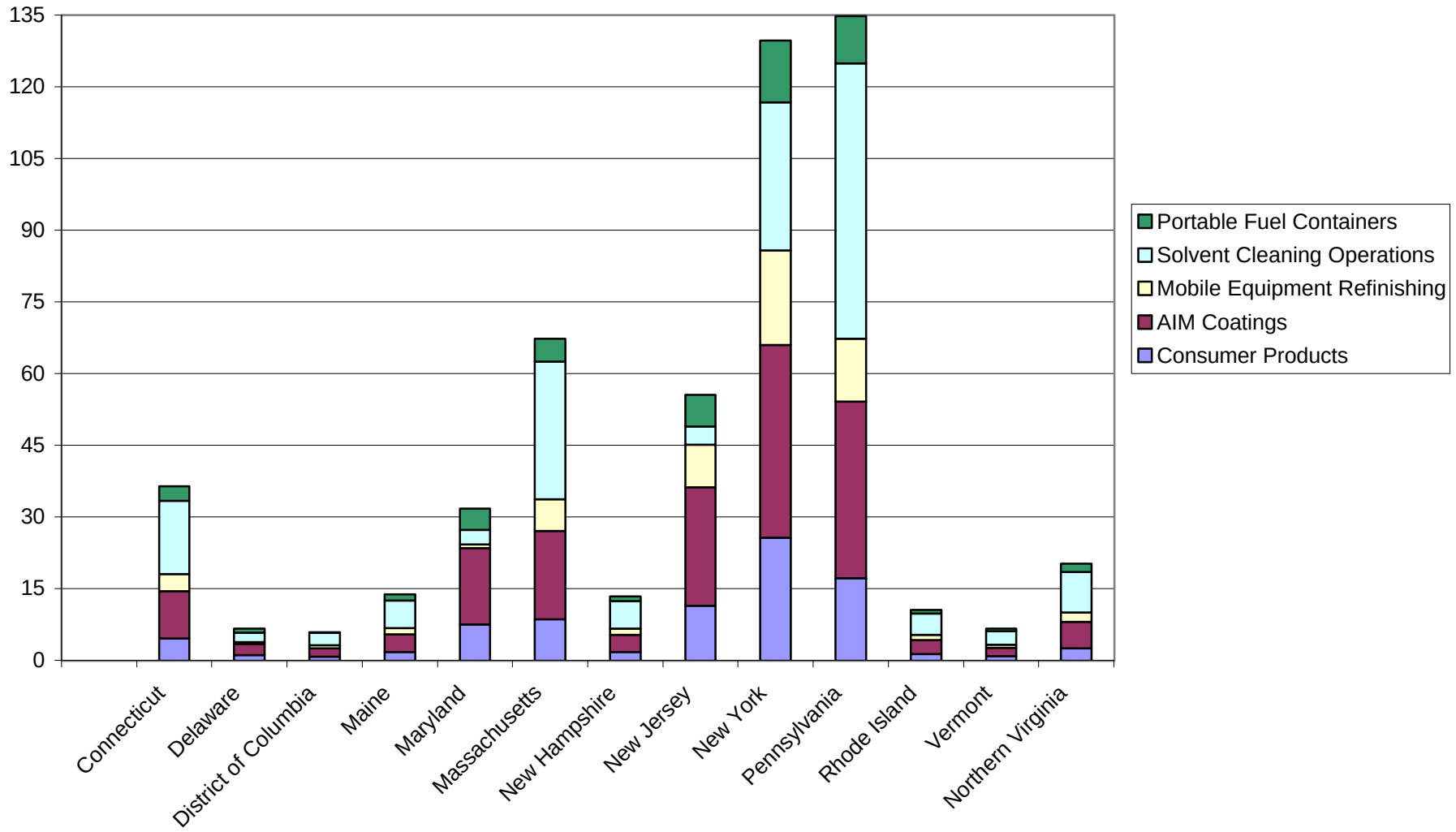

Figure ES-2 provides a similar display for the $NO_x$ model rule. The biggest $NO_x$ model rule-associated emission reductions are expected in New York, followed by those in New Jersey and Pennsylvania.

Figure ES-3 summarizes the expected VOC and $NO_x$ emission reductions from the OTC model rules for the different geographic areas that have been examined in this analysis. The total emission reductions in the three severe ozone nonattainment areas for all of the model rules combined in 2005 are 180 tons VOC per day and 32 $NO_x$ tons per day (tpd). Expanding the analysis area to counties within 100 kilometers (km) of these three severe ozone nonattainment areas provides an additional 168 tpd in VOC emission benefits, and another 11 tpd in $NO_x$ emission reductions. OTR-wide model rule benefits total 533 VOC tpd and 65 $NO_x$ tpd in 2005.

**Figure ES-2**
**OTC NOx Model Rule Benefits by State within the OTR for 2005**
**(in tons per day)**

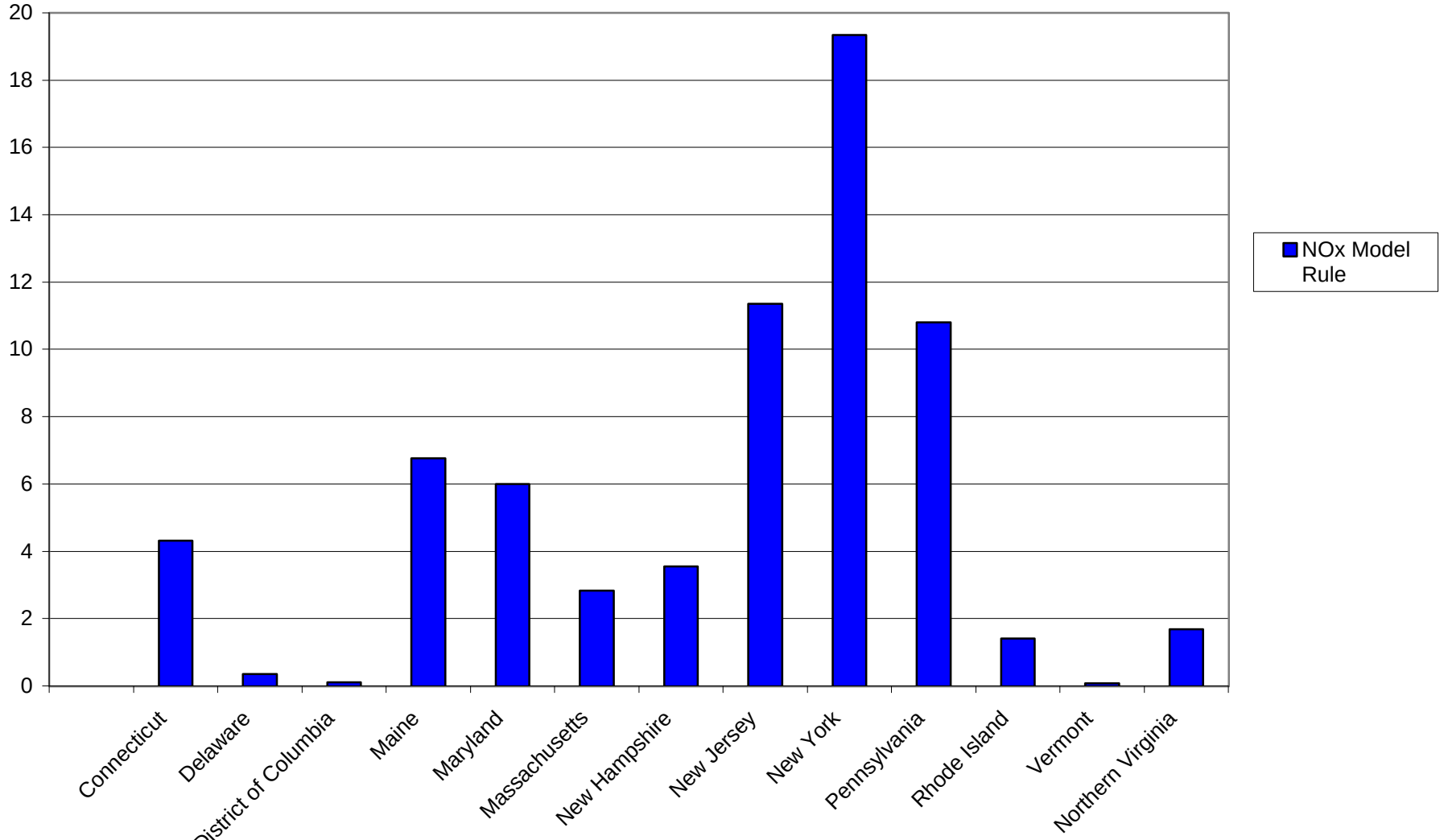

**Figure ES-3**
**Estimated Reductions from Six OTC Model Rules in 2005**
**(in tons per day)**