

1. Transmittal Note for Comments from OAR OTAQ

From: Margaret Zawacki, EPA OAR OTAQ ASD; 9-21-09

One of the Target Recommendations of the report is that EPA should reduce N from mobile sources. The report indicates that further reductions are needed from on-road vehicles and that off-road vehicles are currently uncontrolled. This is factually incorrect. Although some of EPA's rules which reduce NOx are not yet fully implemented it is not true that off-road vehicles are currently uncontrolled with respect to emissions of NOx. For example we adopted controls for locomotives in 2008 (to take effect starting in 2009), construction and farm equipment in 2004 (to take effect starting in 2007), landscaping equipment in 2008 (to take effect starting in 2010), marine spark-ignition vessels in 2008 (to take effect starting in 2010), marine diesel vessels in 2008 (to take effect in 2009) and ocean-going marine vessels (proposed in 2009, to be finalized in 2009 and take effect in 2011). For more information I've attached a write-up on mobile source NOx rules that was previously edited for the Chesapeake Bay Air Workgroup. I have also attached a slide which shows the reductions in on-road and off-road NOx emissions both currently and into the future.

<<< DFO NOTE: ATTACHMENTS are placed here in the email but are immediately following in this record >>>

Thanks,
Molly

Margaret H. Zawacki
US EPA Office of Transportation and Air Quality
Assessment and Standards Division
2000 Traverwood Drive
Ann Arbor, MI 48105
Phone: 734.214.4472

Recent Major Mobile Source Rules to Control NOx

EPA is in the process of implementing a number of regulations that will continue to dramatically reduce NOx from a variety of mobile sources. These include the clean diesel regulations for trucks and buses and nonroad engines, as well as locomotives and smaller marine vessels. EPA first regulated NOx emissions from motor vehicles for the 1973 model year and, since then, has considerably tightened these standards, resulting in a roughly 99% reduction in NOx emissions per vehicle. EPA's efforts to control NOx emissions from nonroad vehicles, locomotives, and commercial marine vessels started in the 1990s. The rules listed below represent the most recent major mobile source rules with NOx reductions. NOx reductions for each rule were calculated based on inventories available at the time of the rule.

- Light Duty Tier 2 Rule: Starting in 2004, with plans to be fully implemented this year (2009), EPA's Tier 2 Vehicle and Gasoline Sulfur Program represents a ground breaking pollution control strategy for motor vehicles -- for the first time treating vehicles and fuels as a system. This program requires new cars, sport

utility vehicles (SUVs), pick up trucks, and vans to be 77 to 97 percent cleaner than 2003 models, while reducing sulfur levels in gasoline by 90 percent. When fully implemented, this will be the national equivalent of removing 164 million cars from the road. As newer, cleaner cars enter the national fleet, the new tailpipe standards will reduce emissions of nitrogen oxides from vehicles by 3 million tons, or about 74 percent in 2030. Prior to that, the EPA Tier 1 vehicle regulations effective with the 1995 model year also resulted in significant NOx reductions.

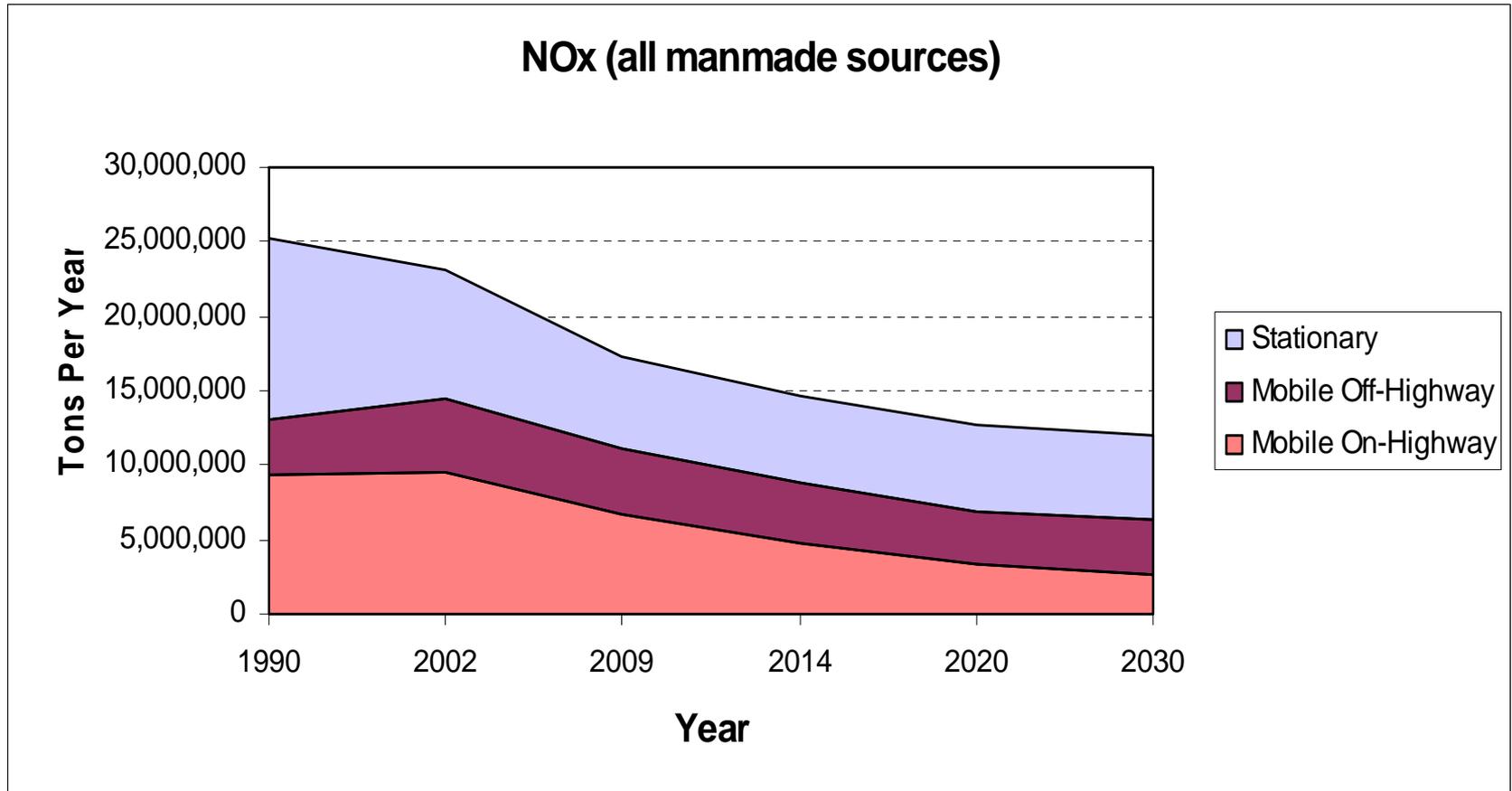
- EPA's Clean Heavy Duty Truck and Bus Rule When the Agency finalized the Heavy Duty Truck and Bus Diesel Rule in 2001, trucks and buses accounted for about one-third of NOx emissions from mobile sources. In some urban areas, the contribution was even greater. With model year 2010, all new heavy duty trucks and buses will result in NOx emission levels that are 95 percent below the pre-rule levels. This program will provide annual emission reductions equivalent to removing the pollution from more than 90 percent of today's trucks and buses, or about 13 million trucks and buses. EPA projects a 2.6 million ton reduction of NOx emissions in 2030 when the current heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.
- Clean Air Nonroad Diesel - Tier 4 Rule: In 2004, EPA adopted a comprehensive national program to reduce emissions from future nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest emission reductions. In 2030, EPA estimates that this program will reduce annual emissions of NOx by about 740,000 tons.
- Marine-Related NOx Reductions From 1999 to 2003, EPA completed three rulemakings with respect to the diesel marine sector which will reduce NOx emissions. These rules are now in effect and being phased-in. In 1999, EPA promulgated NOx requirements for diesel engines used in commercial boats (large inland and near shore boats) and commercial vessels (ocean going vessels). These reduced emissions by about 30% from these vessels. In 2002, EPA promulgated rules reducing NOx emissions from diesel engines used in recreational marine vessels by 25%. In 2003, EPA promulgated yet another rule further reducing NOx from diesel engines used in commercial vessels by about 20%. On a nationwide basis, these four programs will reduce marine-related NOx by more than 1 million tons in 2030.
- Locomotive and Marine Diesel Rule: In March 2008, EPA adopted standards that will dramatically reduce NOx emissions from locomotives and marine diesel engines. The near-term emission standards for newly-built engines will phase in starting in 2009. The long-term standards begin to take effect in 2015 for locomotives and in 2014 for marine diesel engines. EPA estimates NOx emissions reductions of 80 percent from engines meeting these standards. In 2030, about

420,000 tons of NO_x will be reduced from the locomotive engines, and 375,000 tons of NO_x will be reduced from commercial and recreational marine engines.

- Non-road Spark-Ignition Engines: In 2002, EPA promulgated emissions standards for large spark-ignition engines which took effect in 2004 for Tier 1 standards and 2007 for Tier 2 standards. EPA promulgated emissions standards for small spark-ignition engines in 2008. When fully implemented, the new standards will result in a 35 percent reduction in HC+NO_x emissions from new engines' exhaust and will reduce evaporative emissions by 45 percent. Together, these programs will reduce NO_x by more than 585,000 tons in 2030.
- EPA's Coordinated Strategy for Control of Emissions from Ocean-Going Vessels: EPA's coordinated strategy to control emissions from ocean-going vessels consists of actions at both the national and international levels. On June 26, 2009 EPA proposed emissions standards for ocean-going vessels which would take effect in 2011. In addition to this proposed rule the United States Government has also submitted a proposal to the International Maritime Organization to amend MARPOL Annex VI to designate U.S. coasts as an Emission Control Area (ECA) in which all vessels, regardless of flag, would be required to meet the most stringent engine and marine fuel sulfur requirements in Annex VI and the new engine emission and fuel sulfur limits contained in the amendments to Annex VI that are applicable to all vessels regardless of flag and that are implemented in the U.S. through the Act to Prevent Pollution from Ships (APPS). When fully implemented, the coordinated strategy will reduce NO_x emissions from ocean-going vessels by 80%. In 2030, the coordinated strategy is expected to yield a reduction in NO_x of about 1.2 million tons.
- EPA's Voluntary Clean Diesel Programs: EPA has created a number of very successful innovative programs, all designed to reduce emissions (including both PM and NO_x) from the diesel fleet. In conjunction with state and local governments, public interest groups, and industry partners, EPA has established a goal of reducing emissions from the over 11 million diesel engines in the existing fleet by 2014. Looking at these engines, EPA determined there were general sectors that provided the best opportunity to obtain significant reductions and created programs for Clean Agriculture, Clean Construction, Clean Ports, Clean School Bus, and SmartWay Transport.
- Section 177 of the Clean Air Act allows states outside of California to adopt California emissions standards, once EPA has granted such a waiver. As a result, several northeastern states have adopted California standards. Maryland adopted its California LEV II NO_x standards as part of its Low Emission Vehicle Program (COMAR 26.11.34, effective December 17, 2007). These standards take effect with the 2011 model year. Maryland submitted that program to EPA as a SIP revision. Pennsylvania adopted California LEV II NO_x standards as part of its Clean Vehicles Program (codified at *Pa. Code* Chapters 121 and 126, effective

December 9, 2006). Pennsylvania's program began with model year 2008 vehicles. Pennsylvania submitted this program as a SIP revision.

NOx Emissions Inventory



- Mobile source NOx is currently 15% lower than 1990 levels
- 50% reduction in mobile source NOx by 2030
- In 2030, mobile sources will be about half of the total NOx