EFFECTS OF GROWTH IN VMT AND NEW MOBILE SOURCE EMISSION STANDARDS ON NO_x AND VOC EMISSIONS IN TENNESSEE 1999-2030 (Based on MOBILE6-Final Version)

by

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ABSTRACT

The relative importance of on-road emissions as a participant in ozone formation depends in large part on the total vehicle miles traveled (VMT) per day in a given area. In the future, the relative importance of on-road emissions will be affected by the growth in VMT, which results in increased emissions, and the implementation of motor vehicle emissions controls, which will reduce the emissions associated with each mile of travel. This study evaluates the combined effects of VMT growth and the national LEV, HDDVNO_x, Tier2/Sulfur and HDDV/Sulfur vehicle emission standards on NO_x and VOC emissions for the State of Tennessee utilizing the final version of MOBILE6.

The new LEV, HDDVNO_x, Tier2/Sulfur and HDDV/Sulfur standards, which will be fully in-place by 2001, 2004, 2006, and 2007, respectively, will significantly reduce the emissions of NO_x and VOC from individual on-road vehicles. The implementation of the new regulations will have less effect on VOC emissions compared to NO_x emissions. There is an 80% reduction in NO_x emissions and a 61% reduction in VOC emissions without an I/M program compared to a reduction of 87% in NO_x emissions and 70% reduction in VOC emissions with an I/M program by year 2025. On the other hand, the year-to-year emission reduction with and without an I/M program is 2% to 42% for NO_x emissions and 21 to 39% reduction for VOC emissions for 1999 and 2030, respectively.

With the potential of increasing NO_x and VOC emissions in the future due to increasing growth of DVMT, there is a need to develop strategies which will decrease the current growth rate of DVMT, improve emission control technologies, and/or utilize alternative lesser polluting vehicles in order to maintain the lower emissions which will be achieved during the next 10 to 15 years.

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