

support attainment of the NAAQS for ozone. EPA has articulated its policy regarding the use of MOBILE6.2 in SIP development in its "Policy Guidance on the Use of MOBILE6.2 for SIP Development and Transportation Conformity"<sup>5</sup> and "Clarification of Policy Guidance for MOBILE6.2 in Mid-course Review Areas."<sup>6</sup> Consistent with this policy guidance, Connecticut submitted a relative reduction comparison to show that its one-hour ozone attainment demonstration SIP continues to demonstrate attainment when applying the new MOBILE6.2 budgets.

In developing the EPA approved one-hour ozone attainment demonstrations, Connecticut relied on a "weight-of-evidence" approach that examined photochemical grid modeling results, emission projections, and air quality data. As part of Connecticut's one-hour attainment demonstration, the level of additional emission reductions needed for attainment was determined by applying a relative emission reduction technique.<sup>7</sup> This relied on measured air quality data and emission estimates

from 1999, along with previous photochemical grid modeling with 2007 emission estimates, to determine whether additional emission reductions were necessary to provide for a projection of attainment for Connecticut in 2007. EPA concluded that attainment could be demonstrated if emission reductions expected from the federal motor vehicle Tier 2 program were incorporated into the SIP, and Connecticut subsequently incorporated this program into the SIP as part of revisions submitted to EPA in February 2000 and October 2001, respectively.<sup>8</sup>

CTDEP used a similar approach to determine if the 2007 MOBILE6.2 emission projections remain consistent with the approved attainment plans. CTDEP analyzed 1999 through 2007 to compare the relative emission reductions projected by MOBILE6.2 to those projected by MOBILE5b to determine if the relative reductions estimated over the 1999–2007 period with MOBILE6.2 equal or exceed those estimates using MOBILE5b.

MOBILE6.2 generally calculates higher emission factors than MOBILE5b

between the base year and the attainment year, or 1999 and 2007 for the budgets that are being approved today. As can be seen in table 1, for the Connecticut portion of the New York-Northern New Jersey-Long Island nonattainment area, MOBILE6.2 reductions are greater than MOBILE5b for emissions of total precursors (39.7 tons per summer day (tpd) versus 26.6 tpd), VOC (18.3 tpd versus 7.9 tpd), and NO<sub>x</sub> (21.4 tpd versus 18.7 tpd). In addition, the rate of emission reductions between the base year of 1999 and attainment year of 2007 is also greater with MOBILE6.2 than MOBILE5b for total precursor emissions (46.3% versus 44.3%) and VOC emissions (52.7% versus 44.9%); but slightly lower for NO<sub>x</sub> emissions (41.9% versus 44.1%). Therefore, MOBILE6.2 provides an "excess" rate of VOC reductions that is 7.9% above what MOBILE5b provided in the approved attainment SIP. In addition, MOBILE6.2 provides a 2.2% smaller rate of NO<sub>x</sub> reductions compared to the MOBILE5b emissions included in the approved attainment SIP.

TABLE 1.—COMPARISON OF MOBILE5B AND MOBILE6.2 EMISSION ESTIMATES: 1999–2007

	Connecticut portion of the New York-Northern New Jersey-Long Island nonattainment area			Greater Connecticut		
	VOC + NO <sub>x</sub>	VOC	NO <sub>x</sub>	VOC + NO <sub>x</sub>	VOC	NO <sub>x</sub>
MOBILE5b: 1999 (tpd) .....	60.0	17.6	42.4	191.7	52.3	139.4
MOBILE5b: 2007 (tpd) .....	33.4	9.7	23.7	109.6	30.0	79.6
M5b Reduction (tpd) .....	26.6	7.9	18.7	82.1	22.3	59.8
M5b % Reduction .....	44.3%	44.9%	44.1%	42.8%	42.6%	42.9%
MOBILE6.2: 1999 (tpd) .....	85.8	34.7	51.1	272.2	107.3	164.9
MOBILE6.2: 2007 (tpd) .....	46.1	16.4	29.7	150.3	51.9	98.4
M6.2 Reduction (tpd) .....	39.7	18.3	21.4	121.9	55.4	66.5
M6.2 % Reduction .....	46.3%	52.7%	41.9%	44.8%	51.6%	40.3%
Difference in % Reductions (M6.2 – M5b) .....	1.9%	7.9%	–2.2%	2.0%	9.0%	–2.6%
"Excess" Reductions with MOBILE6.2 (after VOC for NO <sub>x</sub> substitution at 0.83 to 0.61 ratio established by EPA method) .....	NA	4.9%	0.0%	NA	5.5%	0.0%

To demonstrate the net beneficial effect on ozone of the combined 7.9% "excess" VOC reductions and the 2.2% NO<sub>x</sub> "deficit," CTDEP applied the emission reduction factors previously approved by EPA to determine the amount of additional reductions needed in Connecticut to ensure attainment of the ozone standard. See Addenda to the

Ozone Attainment Demonstrations for the Southwest Connecticut Severe Ozone Nonattainment Area and Greater Connecticut Serious Ozone Nonattainment Area, section 3.B. at 4–7 (January 14, 2000). This method determined that emission reductions of 0.83% VOC and 0.61% NO<sub>x</sub> resulted in an ozone air quality improvement of one

ppb in the New York City modeling domain. Scaling these "normalized" values, the 2.2% MOBILE6.2 NO<sub>x</sub> deficit described above can be offset by 3.0% (*i.e.*,  $(0.83/0.61) \times 2.2\% = 3.0\%$  with rounding) of the 7.9% MOBILE6.2 VOC "excess."<sup>9</sup> This substitution results in a final MOBILE6.2 VOC "excess" reduction of 4.9% (with a net

<sup>5</sup> Memorandum, "Policy Guidance on the Use of MOBILE6.2 for SIP Development and Transportation Conformity," issued January 18, 2002.

<sup>6</sup> Memorandum, "Clarification of Policy Guidance for MOBILE6.2 SIPs in Mid-course Review Areas," issued February 12, 2003.

<sup>7</sup> 66 FR 63921–63938 (December 11, 2001) for the New York-Northern New Jersey-Long Island nonattainment area; 66 FR 634–663 (January 3, 2001) for the Greater Connecticut area.

<sup>8</sup> MOBILE5b inputs and estimates are from the previously approved SIP submittals "Addenda to the Ozone Attainment Demonstrations for the Southwest Connecticut Severe Ozone Nonattainment Area and Greater Connecticut Serious Ozone Nonattainment Area" (submitted to EPA on February 8, 2000) and "Updates to the Ozone Attainment Demonstration for the Southwest Connecticut Severe Ozone Nonattainment Area (submitted to EPA in October 2001). MOBILE6.2

estimates were determined as described in the current SIP revision.

<sup>9</sup> Note that Connecticut's submittal indicates that the required "offset" for the level of NO<sub>x</sub> reduction from the MOBILE6 model is 3.1%, not 3.0%. EPA has re-run these calculations, and we believe that the correct number is 3.0%. In either case, it is clear that the level of VOC reduction projected by the MOBILE6 model more than compensates for the "deficit" in NO<sub>x</sub> reductions.