

Implementing Clean Air Act Section 182(d)(1)(A): Transportation Control Measures and Transportation Control Strategies to Offset Growth in Emissions Due to Growth in Vehicle Miles Travelled

Purpose

The document is intended to provide guidance to Severe and Extreme ozone nonattainment areas on how to address Clean Air Act (CAA) section 182(d)(1)(A). This section of the CAA requires such areas to offset growth in emissions due to growth in vehicle miles traveled (VMT) through the implementation of transportation control strategies and transportation control measures (TCMs). This guidance is necessary due to a decision issued by the U.S. Court of Appeals for the 9th Circuit in a case related to the 1-hour ozone SIP for the South Coast area in California.

Background

CAA section 182(d)(1)(A) applies to Severe and Extreme ozone nonattainment areas and requires that:

Within 2 years after November 15, 1990, the State shall submit a revision [to their state implementation plans (SIPs)] that identifies and adopts specific enforceable transportation control strategies and transportation control measures to offset any growth in emissions from growth in vehicle miles traveled or numbers of vehicle trips in such area and to attain reduction in motor vehicle emissions as necessary, in combination with other emission reduction requirements of this subpart, to comply with the requirements of subsection (b)(2)(B)¹ and (c)(2)(B) of this section (pertaining to periodic emissions reduction requirements). The State shall consider measures specified in section 108(f) of this title, and choose from among and implement such measures as necessary to demonstrate attainment with the national ambient air quality standards; in considering such measures, the State should ensure adequate access to downtown, other commercial, and residential areas and should avoid measures that increase or relocate emissions and congestion rather than reduce them.

EPA has observed in prior final SIP approvals that section 182(d)(1)(A) contains three elements [i.e., 1) offsetting growth in motor vehicle emissions from growth in vehicle miles traveled or vehicle trips, 2) attaining reduction in motor vehicle emissions consistent with reasonable further progress (RFP) demonstrations, and 3) implementing measures as necessary to demonstrate attainment of the ozone national ambient air quality standards (NAAQS)] that can be divided into three separate SIP submissions that could be submitted on different dates. EPA explained in the SIP approvals that it views the elements of section 182(d)(1)(A) as distinct and separate from one another. The elements do not rely on one another in that they are either considered as a stand-alone element (in the case of the first element) or are considered in

¹ So in original. Probably should read “subsections (b)(1)(A)”. (Committee Print: Compilation of of Selected Acts Within the Jurisdiction of the Committee on Energy and Commerce. Clean Air Act Section 182(d)(1)(A). Page 182 U.S. Government Printing Office. Washington, DC. 1993.)

conjunction with other SIP elements (the 15% and post-1996 RFP demonstrations in the case of the second element and the attainment demonstration in the case of the third element). This document relates only to the first element addressed in section 182(d)(1)(A), referred to herein as the "VMT Offset requirement," not the second or third elements of CAA section 182(d)(1)(A).

EPA first issued guidance on the VMT Offset requirement in the April 1992 "General Preamble," which advised states to first estimate on-road volatile organic compound (VOC) emissions starting in the base year through the area's attainment year.² Under this guidance, as long as a state's SIP submission showed that on-road emissions did not increase from year to year, states could demonstrate that there was no increase in emissions due to growth in VMT. In such circumstances, it would not be necessary to include TCMs in the SIP, in order to meet the VMT Offset requirement of CAA section 182(d)(1)(A). Alternatively, if there was an upturn in emissions before the attainment year, those increased on-road emissions would need to be offset with reductions obtained through additional transportation-related measures in the SIP.

In approving the VMT Offset demonstration submitted in connection with the 2003 South Coast 1-Hour Ozone SIP, EPA applied its longstanding interpretation of the corresponding CAA requirement that allowed a state to conclude that no further TCMs are necessary if aggregate motor vehicle emissions are projected to decline each year from the base year of the plan to the attainment year. EPA's approval was then challenged in the U.S. Court of Appeals for the 9th Circuit. One aspect of the suit concerned EPA's approval of the VMT Offset demonstration that showed compliance with the VMT Offset requirement by showing an annual decline in aggregate motor vehicle emissions for the area through the attainment year. The Court ruled against EPA in early 2011, saying in part that EPA should have required TCMs to be implemented to offset growth in emissions from growth in VMT, because in the Court's view EPA incorrectly interpreted the phrase "growth in emissions" as meaning a growth in "aggregate motor vehicle emissions." *Association of Irrigated Residents v. EPA*, 632 F.3d 584, at 596-597 (9th Cir. 2011), reprinted as amended on January 27, 2012.

The following is intended to provide guidance to Severe and Extreme ozone nonattainment areas on how to address this CAA requirement in light of the Court's decision.

This guidance is not a final action, and is merely based on CAA requirements and does not create any new requirements. The CAA contains legally binding requirements. This document is not a substitute for those provisions and it is not a regulation itself. Thus, it does not impose legally binding requirements on EPA, or states, and may not apply to a particular situation based upon the circumstances. This guidance may be revised periodically without public notice. This guidance recommends how states and local government agencies might address the CAA section 182(d)(1)(A) VMT Offset requirement, taking into consideration the 9th Circuit's aforementioned decision.

² See 57 Fed. Reg. 13,498, at 13,521-15,523 (April 16, 1992).

The 9th Circuit's Decision

In its February 2011 decision the Court determined that the question that it needed to address was “whether ‘any growth in emissions’ can mean any growth in aggregate motor vehicle emissions, or is unambiguous in meaning any increase in the level of emissions solely from VMTs.” The Court concluded that EPA’s longstanding guidance on the requirements of CAA section 182(d)(1)(A) gave meaning only to the portion of the provision that requires TCMs to be used if they are needed for RFP or attainment purposes and did not give meaning to the portion of the provision that “contemplates using TCMs to reduce VMT.” The decision included a review of legislative history for this CAA section. For example, the decision included language from the House Committee report which states that the baseline for determining “growth in emissions” should be established by calculating the “level of vehicle emissions that would occur if VMT held constant in the area.” (H.R.Rep. No. 101-490, pt. 1 at 242 (1990)) The Court concluded that in order to give meaning to all of the requirements in CAA section 182(d)(1)(A) EPA should have required TCMs that offset the growth in emissions that was due to the increase in VMT in addition to requiring TCMs if they were needed for RFP or attainment purposes. However, even in purporting to reject EPA’s longstanding interpretation of the phrase “growth in emissions,” the Court acknowledged that “clean car technology” advances could result in there being no increase in emissions even in the face of VMT growth, which would then allow VMT to increase without triggering the requirement to adopt offsetting TCMs: “we cannot ignore the possibility that with advances in clean car technology, one day VMT could increase without a corresponding increase in emissions. If that happens, under the statute, EPA would not need to impose TCMs even though VMT increased.” *Association of Irrigated Residents v. EPA*, 632 F.3d 584, at 596-597 (9th Cir. 2011), reprinted as amended on January 27, 2012.

Note that the Court held that “EPA should have required transportation control measures,” which are clearly defined in the CAA and in EPA’s implementing regulations. See CAA section 108(f) and 40 C.F.R. 51.100(r). However, the Court omitted any reference to “transportation control strategies,” which are not specifically defined in the CAA, but which under CAA section 182(d)(1)(A) are equally eligible to offset any growth in emissions resulting from growth in VMT. Similarly, EPA regulations do not explicitly define “transportation control strategies.” Instead, EPA’s regulations at 40 C.F.R. 51.100(n) broadly define “control strategy” to mean “a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards, including, but not limited to, measures such as: [...] (6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels; [. . .] (8) Any variation of, or alternative to any measures delineated herein.” Clearly, several “control strategies” under EPA regulations are transportation-related, and the regulations do not therefore on their face appear to restrict what kinds of measures might be eligible for treatment as “transportation control strategies” for purposes of section 182(d)(1)(A)’s VMT Offset requirement.

In fact, in light of the Court’s statement that clean car technologies could advance such that there is no increase in emissions from growth in VMT and therefore no need to adopt TCMs for this purpose, the Court seems to sensibly recognize and imply that improvements in vehicle technology, motor vehicle fuels and other control strategies that are transportation-related might

reasonably be counted as offsetting “any increase in emissions due solely to VMT,” as the Court put it. This guidance suggests how these technology improvements might be included by states in the group of measures that the CAA refers to as “transportation control strategies” which may be used to offset growth in emissions from VMT growth.³ We now recommend that both transportation control strategies and TCMs should be included in calculations for the purpose of determining the degree to which any hypothetical growth in emissions due to growth in VMT should be offset.

Revised Guidance

As noted above EPA’s earlier guidance advised states to estimate VOC emissions starting in the state implementation plan’s base year through the attainment year and, if there is ever an upturn in emissions, that emissions increase must be offset. Under the earlier guidance, states calculated on-road emissions for each year starting with the SIP’s base year through the area’s attainment year in order to determine if an upturn in emissions ever occurred.

Under today’s revised guidance states would no longer need to calculate year to year changes in emissions. Instead the state would estimate emissions in only two years, the nonattainment area’s base year and its attainment year. We believe that states’ estimating emissions in these two years rather than in every year would be reasonable because examining the base year and attainment year would be consistent with the overall purpose of SIPs, which is to provide for attainment of the NAAQS, because of the long lead time necessary to achieve significant emissions reductions from adoption and implementation of transportation control strategies (such as new vehicle emissions standards or engine retrofit or replacement programs), and because the only other reasonable analysis years to evaluate would be the periodic milestone years (for RFP) and transportation-related requirements for those years are addressed separately in the second element of CAA section 182(d)(1)(A). The decision did not take up the issue of what temporal period should be used to determine whether emissions were being sufficiently offset. Rather, the Court merely referred to changed circumstances compared to “a prior year” without specifying which prior year, without being clear whether it was comparing year-to-year changes or a base year to a much later year change.

The following paragraphs describe recommended calculations that could be done to determine if sufficient transportation control strategies and TCMs have been adopted and implemented to offset the growth in emissions due solely to growth in VMT. A flow chart depicting the process described below is included in the appendix.

The state would present the base year on-road VOC emissions. The base year on-road emissions should be based on VMT in that year and it should reflect all transportation control strategies and TCMs in place in the base year. This would include the vehicle emissions

³ Based on the definition of “control strategy” found in 40 CFR 51.100(n) and the Court’s acknowledgement that “clean car technology” advances could result in there being no increase in emissions even in the face of VMT growth, “transportation control strategies” could include but would not be limited to: motor vehicle inspection and maintenance programs, reformulated gasoline, low Reid vapor pressure gasoline, and new vehicle emissions standards (e.g., federal Tier 2 and California Low Emission Vehicle emissions standards and the fuel requirements associated with these regulations).

standards, state and local control programs such as inspection and maintenance programs or fuel rules, and any implemented TCMs that were already required by or credited in the SIP as of that base year. For the attainment year the state would present three emissions estimates as shown in the graph below, two of which would represent hypothetical emissions scenarios that would provide the basis to identify the “growth in emissions” due to growth in VMT, and one that would represent projected actual motor vehicle emissions after fully accounting for projected VMT growth and emissions reductions obtained by all creditable TCMs and transportation control strategies.

The first emissions calculation for the attainment year would be based on the projected VMT for that year, and assuming that no new transportation control strategies or TCMs have been put in place since the base year. This calculation demonstrates how emissions would hypothetically change if no new transportation control strategies or TCMs were implemented, and VMT was allowed to grow at the projected rate from the base year. In other words, this estimate would show the potential for an “increase in emissions due solely to VMT,” as the Court put it. This emissions estimate is shown as the red bar in the graph below, and represents a no-action-taken scenario. It should be noted that even though no new transportation control strategies or TCMs were hypothetically implemented and VMT was allowed to increase, emissions in the attainment year may be lower than those in the base year. This would be due to the fleet that was on the road in the base year gradually being replaced through fleet turnover with newer vehicles certified to the emissions standards that were in effect for new production in the area’s base year and were already accounted for in the SIP.

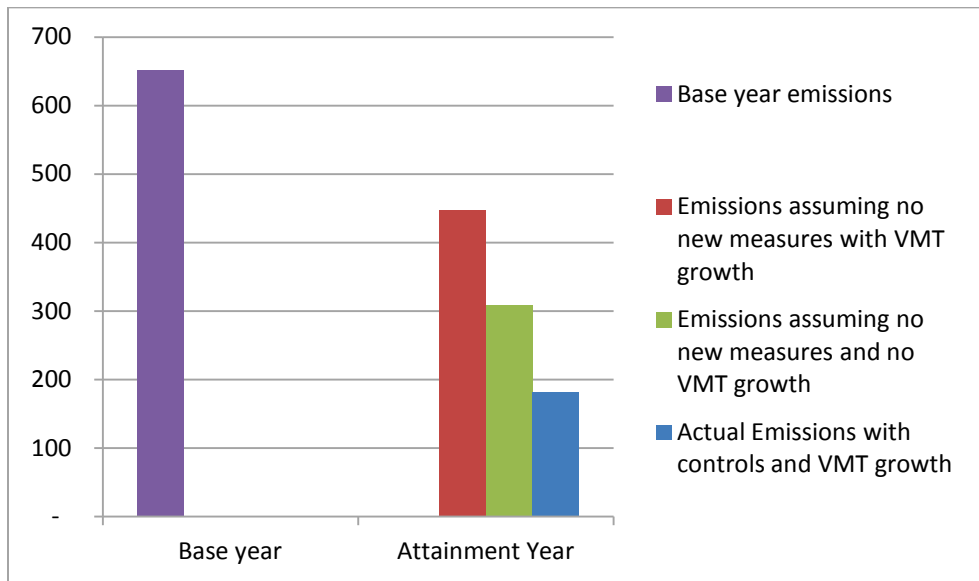
The second emissions calculation for the attainment year would also assume that no new transportation control strategies or TCMs beyond those already credited were added or implemented after the base year and would also assume that there was no growth in VMT between the base year and attainment year. This estimate would reflect the hypothetical emissions level that would have occurred had no further TCMs or transportation control strategies been adopted or implemented and had VMT levels “held constant,” in the Court’s words. This is shown as the green bar in the graph below, and, like the first estimate, emissions in the attainment year may be lower than those in the base year due to the fleet that was on the road in the base year gradually being replaced through fleet turnover. This emissions estimate would reflect a ceiling on the emissions that should be allowed to occur under the statute as interpreted by the Court in the attainment year because it shows what would happen under a scenario in which no new transportation control strategies or TCMs are put in place and VMT is “held constant” during the period from the area’s base year to its attainment year. While this estimate obviously would reflect a hypothetical status quo that is extremely unlikely to exist in reality, under the Court’s reasoning it is a necessary step in identifying the target level of emissions from which states would determine whether further TCMs or transportation control strategies would need to be adopted and implemented in order to remedy “any increase in emissions due solely to VMT” as shown by the first calculation. The comparison of these first two calculations would thus identify whether there is a hypothetical growth in emissions from growth in VMT that would need to be offset.

Finally, the state would present the emissions that are actually expected to occur in the area’s attainment year. This estimate would be based on the VMT that is expected to occur in

the attainment year (i.e., the VMT level from the first estimate) and all of the transportation control strategies and TCMs that are in reality expected to be in place and for which the SIP will take credit in the area’s attainment year, including any TCMs and transportation control strategies adopted and credited since the baseline year (i.e., the estimate of such measures that existed prior to the baseline year, plus any additional measures that come into place by the attainment year). This is shown as the blue bar in the graph below. If this emissions estimate is less than or equal to the emissions ceiling that was established in the second calculation, the credited transportation control strategies or TCMs for the attainment year would be sufficient to offset the hypothetical growth in emissions represented by comparing the first two calculations. If, instead, the estimated attainment year emissions are greater than the ceiling which was established in the second calculation, the state would need to implement additional transportation control strategies or TCMs to further offset the growth in emissions and bring the actual emissions down to at least the “had VMT held constant” ceiling estimated in the second calculation.

When a state makes a SIP submittal that addresses the section 182(d)(1)(A)’s VMT Offset requirement, that submittal should include the calculations described above and it should clearly identify the transportation control strategies and TCMs that were included in the calculations for the base year and the attainment year. If any additional transportation control strategies or TCMs are required in order to offset growth in emissions, those transportation control strategies and TCMs should also be clearly identified and distinguished from the list of strategies and measures included in the initial calculations for the base year and the three scenarios required for the attainment year.

Figure 1
Graphical Depiction of the Results of the Calculations for the Base Year and Attainment Year for a Hypothetical Nonattainment Area



Appendix

Flow Chart Describing the Steps in the Process for Determining if Additional Transportation Control Strategies or TCMs are Necessary to Offset Growth in Emissions Due to Growth in VMT

