
**Policy Guidance on the Use of
MOVES2014 for State Implementation
Plan Development, Transportation
Conformity, and Other Purposes**



Policy Guidance on the Use of MOVES2014 for State Implementation Plan Development, Transportation Conformity, and Other Purposes

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INTRODUCTION

1. What is the purpose of this guidance?

This guidance describes how and when to use the MOtor Vehicle Emission Simulator (MOVES) emissions model for state implementation plan (SIP) development, transportation conformity determinations, and other purposes.

MOVES2014 is U.S. Environmental Protection Agency's (EPA's) latest motor vehicle emissions model for state and local agencies to estimate volatile organic compounds (VOCs), nitrogen oxides (NO_x), particulate matter (PM_{2.5} and PM₁₀), carbon monoxide (CO), and other precursors from cars, trucks, buses, and motorcycles for SIP purposes and conformity determinations outside of California.¹

References to "MOVES" in this guidance relates to "MOVES2014" and any future minor revisions to MOVES2014. References to "MOVES2010" in this guidance relate to the previously approved versions of MOVES2010 and subsequent minor revisions (MOVES2010a and MOVES2010b).

All states other than California should use MOVES2014 for future SIPs in order to take full advantage of the improvements incorporated in this version. However, state and local agencies that have already completed significant work on a SIP with MOVES2010 can continue to use it. See Questions 5-8 for further information on using MOVES2014 in SIP development.

EPA will be publishing a *Federal Register* notice of availability in the near future to approve MOVES2014 for official purposes. EPA currently intends to include in the notice a two-year grace period for using MOVES2014 for transportation conformity purposes. EPA coordinated closely with the U.S. Department of Transportation (DOT) in the development of this guidance. MOVES2014 will be required for new regional emissions analyses for transportation conformity determinations ("regional conformity analyses") that begin after the end of the grace period. In addition, MOVES2014 will be required for new PM and CO hot-spot analyses for project-level conformity determinations that begin after the grace period ends. See Questions 9-14 for further information on using MOVES2014 in transportation conformity determinations. In addition, see Question 15 for information on using MOVES2014 in general conformity determinations.

EPA has also included information regarding the use of MOVES for estimating mobile source air toxic and greenhouse gas emissions. Although there are no SIP or conformity requirements for these emissions, MOVES2014 is EPA's best tool for estimating air toxic and greenhouse gas emissions from on-road mobile sources. See Questions 16 and 17 for further information.

¹ Nonattainment and maintenance areas located in California use the latest approved version of the Emission FACTor (EMFAC) model.

This guidance applies to the current version of MOVES2014, as well as any future MOVES2014 minor revisions.² This guidance supersedes the previous April 2012 version of the MOVES2010 guidance (EPA-420-B-12-010).

The following EPA contacts are available regarding this guidance:

- for general questions about the MOVES model, email mobile@epa.gov;
- for SIP questions, contact [Rudy Kapichak](mailto:Rudy.Kapichak@epa.gov) or kapichak.rudolph@epa.gov;
- for transportation conformity questions, contact [Astrid Larsen](mailto:Astrid.Larsen@epa.gov) or larsen.astrid@epa.gov;
- for general conformity questions, contact [Tom Coda](mailto:Tom.Coda@epa.gov) or coda.tom@epa.gov, and
- for questions about the National Emissions Inventory, contact [Laurel Driver](mailto:Laurel.Driver@epa.gov) or driver.laurel@epa.gov.

A copy of this policy guidance can be found at the following website:
<http://www.epa.gov/otaq/stateresources/transconf/policy.htm#models>

2. What is MOVES2014 and how does it compare to MOVES2010?

MOVES is EPA's state-of-the-art tool for estimating emissions from on-road mobile sources. The model is based on analyses of millions of emission test results and considerable advances in the Agency's understanding of vehicle emissions. The first model in the MOVES series, called MOVES2010, was released in December of 2009. MOVES2010 was followed by two minor updates, MOVES2010a and MOVES2010b. Both of these minor MOVES2010 revisions enhanced model performance and did not significantly affect the criteria pollutant emissions results from MOVES2010.

MOVES2014 is a major revision to MOVES2010b and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data include both light and heavy duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and VMT data.

MOVES2014 incorporates three new federal emissions standard rules not included in MOVES2010:

- Heavy duty greenhouse gas standards (promulgated September 2011, 76 FR 57106) began phasing in with the 2014 model year, and will result in lower heavy duty energy consumption rates and some reduction in criteria pollutant emissions as a result of improved aerodynamics and rolling resistance.

² Details on MOVES2014 can be found at <http://www.epa.gov/otaq/models/moves/>.

- Light duty greenhouse gas standards (promulgated October 2012, 77 FR 62623) will begin phasing in with the 2017 model year, and will result in decreased energy consumption rates and decreased refueling emissions.
- Tier 3 vehicle and fuel standards (promulgated April 2014, 79 FR 23414) will begin phasing in with the 2017 model year, and will reduce both tailpipe and evaporative emissions from light duty cars and trucks, and some heavy duty vehicles, for VOC, NO_x, CO and PM.

MOVES2014 also includes a number of new functional improvements and features. Some of these, such as the addition of multiday diurnal events to evaporative emissions calculations, directly affect the estimation of criteria pollutant emissions. Others, such as new options for entering start and extended idle activity, make MOVES2014 more flexible and better able to incorporate local data where available.

EPA performed a comparison of MOVES2014 to MOVES2010b using local data for several different urban counties, varying the local data used by fleet age distribution, fraction of light- and heavy-duty vehicle miles travelled (VMT), local fuel specifications, meteorology, and other input factors. In general, VOC, NO_x, PM, and CO emissions show greater decreases over time compared to MOVES2010b. Differences in total emissions vary by calendar year and location, but in general, VOC and NO_x emissions are lower in MOVES2014. PM emissions may be higher in some areas and lower in others. Actual results will vary based on local inputs in a given area, with local variations in fleet age distribution and composition having a significant influence on the final results.

MOVES2014 includes the capability to estimate vehicle exhaust and evaporative emissions as well as brake wear and tire wear emissions for criteria pollutants and precursors. However, MOVES does not include the capability to estimate emissions of re-entrained road dust. To estimate emissions from re-entrained road dust, practitioners should continue to use the latest approved methodologies.³

MOVES2014 also incorporates the code and database for the NONROAD2008 model, which provides the option of calculating emissions of nonroad equipment. Because the nonroad capability in MOVES2014 is essentially the same as NONROAD2008, either MOVES2014 or NONROAD2008 can be used in analyses to meet any regulatory requirements that call for the development of new nonroad inventories. This guidance does not address SIP and conformity policy for the use of NONROAD2008.

³ See EPA's notice of availability, "Official Release of the January 2011 AP-42 Method for Estimating Re-Entrained Road Dust from Paved Roads", published in the *Federal Register* on February 4, 2011 (76 FR 6328) available on EPA's website at: <http://www.epa.gov/otaq/stateresources/transconf/policy.htm#models>

3. What additional resources are available to assist in implementing MOVES2014?

In addition to this guidance document, EPA has developed several documents to assist in implementing MOVES, including the following:

- The MOVES User Guide (available at www.epa.gov/otaq/models/moves/ and in the MOVES Help menu) provides detailed instructions for using MOVES and has been updated for MOVES2014.

The following documents will be updated in the near future. In the meantime, users can continue to use the existing guidance based on MOVES2010b:

- [“Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a, and 2010b”](http://www.epa.gov/otaq/models/moves/) (available at <http://www.epa.gov/otaq/models/moves/>) provides guidance on creating a RunSpec and adding local data using the County Data Manager for SIPs and regional transportation conformity analyses.
- [“Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas”](http://www.epa.gov/otaq/stateresources/transconf/policy.htm#project) (available at <http://www.epa.gov/otaq/stateresources/transconf/policy.htm#project>) explains how to use MOVES to complete hot-spot analyses required for projects of local air quality concern in PM_{2.5} and PM₁₀ nonattainment and maintenance areas.
- [“Using MOVES in Project-Level Carbon Monoxide Analyses”](http://www.epa.gov/otaq/stateresources/transconf/policy.htm#project) (available at <http://www.epa.gov/otaq/stateresources/transconf/policy.htm#project>) describes how to use the MOVES emissions model to estimate CO emissions from transportation projects.
- [“Using MOVES for Estimating State and Local Inventories of On-Road Greenhouse Gas Emissions and Energy Consumption – Final”](http://www.epa.gov/otaq/stateresources/ghgtravel.htm) (available at <http://www.epa.gov/otaq/stateresources/ghgtravel.htm>) describes how to use MOVES to estimate greenhouse gas emissions and/or energy consumption from on-road vehicles in a state or metropolitan area.

Additional training materials, examples, and MOVES technical information are available at the MOVES website: <http://www.epa.gov/otaq/models/moves/index.htm> and at the Transportation Conformity Training and Presentations website: <http://www.epa.gov/otaq/stateresources/transconf/training.htm>.

MOVES users are urged to check the MOVES website regularly and subscribe to EPA’s mobile source emissions model listerv (subscription information on the MOVES website) to find any updates to MOVES.

4. Does this guidance create new requirements?

No. The discussion in this document is intended solely as guidance. The statutory provisions and EPA regulations described in this document contain legally binding requirements. This document is not a regulation itself, nor does it change or substitute for those provisions and regulations. EPA retains the discretion to adopt approaches on a case-by-case basis that may differ from this document, but still comply with the statute and regulations. Any decisions regarding a particular SIP or conformity determination will be made based on the statute and regulations. This document may be revised periodically without public notice.

SIP DEVELOPMENT

5. How does the release of MOVES2014 affect SIPs that have already been submitted and/or approved, or SIPs that are currently under development?

MOVES2014 should be used in ozone, CO, PM, and NO₂ SIP development as expeditiously as possible, as there is no grace period for the use of MOVES2014 in SIPs. The Clean Air Act requires that SIP inventories and control measures be based on the most current information and applicable models that are available when a SIP is developed.⁴ However, it is also important to recognize the time and level of effort that certain states have already undertaken in SIP development. States should consult with their EPA Regional Office if they have questions about how MOVES2014 affects SIPs under development in specific nonattainment or maintenance areas. Early consultation can facilitate EPA's adequacy finding or SIP approval process. The following paragraphs articulate EPA's policy for the use of MOVES in the development of SIPs.

States should use the latest version of MOVES that is available at the time that a SIP is developed, which is currently MOVES2014. All states other than California should use MOVES2014 for future SIPs in order to develop the most accurate estimates of emissions possible. However, state and local agencies that have already completed significant work on a SIP with MOVES2010 (e.g., attainment modeling has already been completed with MOVES2010) can continue to do so. It would be unreasonable to require the states to revise these SIPs with MOVES2014 since significant work has already occurred based on the latest information available at the time the SIP was developed, and EPA intends to act on these SIPs in a timely manner.

The Clean Air Act does not require states that have already submitted SIPs or will submit SIPs shortly after the release of a new model to revise these SIPs simply because a new motor vehicle emissions model is now available. This is supported by existing EPA policies and case law [*Sierra Club v. EPA*, 356 F.3d. 296, 307-08 (D.C. Cir. 2004)]. Of course, states can choose to use MOVES2014 in these SIPs, for example, if it is determined that it is appropriate to update motor vehicle emissions budgets ("budgets")

⁴ See Clean Air Act section 172(c)(3) and 40 CFR 51.112(a)(1).

with the model for future conformity determinations. However, as stated above, states should use MOVES2014 where SIP development is in its initial stages or has not progressed far enough along that switching from a previous model version would create a significant adverse impact on state resources.

Incorporating MOVES2014 into the SIP now could assist areas in mitigating possible transportation conformity difficulties in the future after the MOVES2014 conformity grace period ends. New regional conformity analyses that are started after the grace period is over must be based on MOVES2014 (40 CFR 93.111), so having MOVES2014-based SIP budgets in place at that time could provide more consistency with transportation conformity determinations. See Question 11 for more information on using MOVES2014 for regional conformity analyses and transportation plan and transportation improvement program (TIP) conformity.

6. When existing SIPs and budgets are revised with MOVES2014, what do states need to submit to show that a SIP continues to meet applicable requirements?

As stated in Question 5, a SIP revision would not be required solely due to the release of MOVES2014 for SIPs that have been approved, submitted, or where significant development has already occurred. However, there may be cases where an existing SIP that was based on MOVES2010 or MOBILE6.2 is revised with MOVES2014. In addressing these cases, EPA is applying the same principles it has in the past when budgets have been revised using a new emissions model. States should consult with their EPA Regional Office prior to submitting MOVES2014 SIP revisions. Early consultation can facilitate EPA's adequacy finding or SIP approval process.

Under the Clean Air Act, EPA has always required that revisions to existing SIPs and budgets continue to meet applicable requirements (e.g., reasonable further progress (RFP) or attainment). For example, if a state revises a maintenance plan to add or delete control measures, the state needs to show in its revised SIP that maintenance continues to be demonstrated with the new mix of control measures. Similarly, states that revise existing SIPs with MOVES2014 must show that the SIP continues to meet applicable requirements with the new level of motor vehicle emissions calculated by the new model.

In addition, the transportation conformity rule (40 CFR 93.118(e)(4)(iv)) requires that "the motor vehicle emissions budget(s), when considered together with all other emissions sources, is consistent with applicable requirements for reasonable further progress, attainment, or maintenance (whichever is relevant to the given implementation plan submission)." This and other criteria must be satisfied before EPA can find submitted budgets adequate or approve them for use in the conformity process.

The following paragraphs describe how to meet applicable requirements for existing SIPs that are revised with MOVES2014, including ideas for how to streamline these revisions whenever possible.

Use of latest planning assumptions: When SIPs are revised with MOVES2014, base year, milestone year and attainment/maintenance year motor vehicle emissions inventories will need to be recalculated with the latest available planning assumptions. As required by Clean Air Act section 172(c)(3) and EPA's regulation at 40 CFR 51.112(a), states must use the latest planning assumptions available at the time that the SIP is developed, including but not limited to the latest information for VMT, speeds, fleet mix, and SIP control measures.⁵ Base year and historical year inventories must use the latest data available for those years. Future year projection inventories must also be based on the latest data available. If planning assumptions have not changed since the original SIP was submitted, the state should document this in its new SIP submission.

In addition, states must consider whether growth and control strategy assumptions for non-motor vehicle sources (i.e., stationary, area and non-road mobile sources) are still accurate at the time that the MOVES2014 SIP revision is developed. Such assumptions include population and economic assumptions and any allowable emissions relied upon for stationary or other sources. If these assumptions have not changed, the state can simply re-submit the original SIP with the revised motor vehicle emissions inventories and budgets and meet the remaining requirements as discussed below. The state may also in these cases simply provide summary emissions information for categories of sources and references to the applicable portions of the original SIP, as long as those portions continue to apply after the SIP revision with the MOVES2014 budget is approved. States should consult with their EPA Regional Office to determine what should be included in the SIP revision. Otherwise, the emissions categories in the SIP that have changed must be brought up to date.

Milestone, attainment or maintenance demonstration: As discussed above, SIP revisions based on MOVES2014 must continue to show that the SIP still meets applicable requirements (e.g., attainment or maintenance) when previous motor vehicle emissions inventories are replaced with MOVES2014 inventories. The level of effort needed for this demonstration can vary depending upon how MOVES2014 affects the level of motor vehicle emissions and whether non-motor vehicle inventories require updating. The method used to develop the original demonstration could also be a factor.

Areas can revise their motor vehicle emissions inventories and budgets using MOVES2014 without revising the entire SIP or completing additional modeling if:

- (1) The SIP continues to meet applicable requirements when the previous motor vehicle emissions inventories are replaced with MOVES2014 base year and milestone, attainment, or maintenance year inventories; and,
- (2) The state can document that the growth and control strategy assumptions for non-motor vehicle sources continue to be valid and any minor updates do not change the overall conclusions of the SIP.

⁵ See EPA and DOT's joint "Guidance for the Use of Latest Planning Assumptions in Transportation Conformity Determinations," EPA420-B-08-901 (Dec. 2008). This guidance also addresses requirements for using the latest planning assumptions in SIP development.

For example, consistent with EPA’s SIP modeling guidance for various pollutants, if an ozone SIP relied on changes in emissions from the base year to an attainment or maintenance year inventory to estimate relative changes in monitored ozone levels, the first criterion could be satisfied by demonstrating that the relative emissions reductions between the base year and the attainment or maintenance year are the same or greater using MOVES2014 than they were previously. Alternatively, if an ozone attainment SIP relied on absolute model predictions for the future attainment year, then the first criterion could be satisfied by demonstrating that the MOVES2014 estimates are equal to or lower than the previous estimates for the future attainment year. Or, if a CO maintenance plan relied on either a relative or absolute demonstration, the first criterion could be satisfied by documenting that the relative emissions reductions between the base year and the maintenance year are the same or greater using MOVES2014. In any case, if using the latest planning assumptions for emissions estimates results in changes to other emissions categories (e.g., stationary or area emissions), the demonstration would apply to the entire inventory, rather than just the on-road mobile inventory.

If both of the above criteria are met, the state can simply re-submit the original SIP with the revised MOVES2014 motor vehicle emissions inventories. The state may simply be able to provide summary emissions information for categories of sources and references to the applicable portions of the original SIP. States should consult with their EPA Regional Office to determine what should be included in the SIP revision. If either criterion is not met, the emissions categories in the SIP that have changed must be brought up to date. Any changes in control strategies, including stationary source inventories, must be factored in to both base and future year inventories to determine if they would indicate a nonattainment problem. However, a state would not necessarily have to revise a non-motor vehicle emissions inventory category just to account for a regulatory or permit change that *reduces* these emissions in an attainment or maintenance year relative to the existing SIP.

Regardless of the technique used, a more rigorous reassessment of the SIP’s demonstration may be necessary if a state decides to reallocate the original SIP’s excess emissions reductions to the motor vehicle emissions budget as a safety margin.⁶ In other words, the state will need to assess how its original demonstration is affected by using MOVES2014 and confirm whether excess emissions reductions exist prior to allocating them to the budget. This assessment would need to be sufficiently detailed to permit the recalculation with MOVES2014 of any excess emissions reductions. This assessment is critical to ensure that SIP budgets in the context of all other emissions sources continue to protect public health and meet the conformity rule’s adequacy criteria (40 CFR 93.118(e)(4)).

⁶ A “safety margin” is the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance (40 CFR 93.101). See also 40 CFR 93.124(a) for its application.

7. How will MOVES2014 affect the need for emissions reductions in the development of future attainment or maintenance SIPs?

The answer to this question depends upon the unique circumstances of each nonattainment or maintenance area. The emissions comparisons depend very heavily on the pollutants of concern, the dates of concern, and on existing local regulations, travel activity patterns, fleet age, and mix of cars and trucks. In some cases, a change from MOVES2010 to MOVES2014 may result in increased emissions estimates, while in other cases it may result in decreased emissions estimates for various time periods.

Moreover, because of the complex chemistry and meteorology involved in air pollution, the implications of changes in on road vehicle emissions may not be clear until multiple years are examined and the new emissions levels are applied to an air quality model. Relative differences in emissions over time from MOVES2010 to MOVES2014 may be as important as, or more important than, differences between the models in any one year. Therefore, MOVES2014 users should not immediately assume that increases or decreases in emissions in any single year imply the need for more or fewer SIP control measures until those changes in emissions have been put in the complete SIP context.

An increase in emissions due to the use of MOVES2014 may affect an area's ability to demonstrate conformity for its transportation plan and/or TIP. Areas are encouraged, to consider, through interagency consultation, if and how MOVES2014 will impact their future conformity determinations and discuss any concerns with the appropriate EPA Regional Office.

8. What role will MOVES2014 play in EPA's National Emissions Inventory?

The National Emissions Inventory (NEI) is updated with state, local, and tribal submissions once every three years. The most recent NEI, Version 1 of the 2011 NEI, is available and is based on MOVES2010b.⁷ EPA used data that state and local agencies submitted to the Emission Inventory System (EIS), added additional information for fuels and some other inputs, and then ran MOVES2010b to develop emissions estimates for version 1 of the 2011 NEI. EPA will use MOVES2014 for Version 2 of the 2011 NEI and for the 2014 NEI.

TRANSPORTATION CONFORMITY

9. When will the use of MOVES2014 be required for transportation conformity determinations?

EPA will be publishing a *Federal Register* notice of availability in the near future to approve MOVES2014 for official purposes, and EPA, in consultation with DOT,

⁷ NEI emissions for California are based on California's EMFAC model.

currently intends to establish a 2-year grace period before MOVES2014 is required for transportation conformity analyses. Section 176(c)(1) of the Clean Air Act and the transportation conformity rule (40 CFR 93.111) require conformity analyses to be based on the latest motor vehicle emissions model approved by EPA. When EPA approves a new emissions model, such as MOVES2014, we establish a grace period before the model is required to be used for conformity analyses (40 CFR 93.111(b)). In consultation with DOT, EPA must consider several factors when establishing a grace period for conformity determinations, including the degree of change in emissions models and the effects of the new model on the transportation planning process (40 CFR 93.111(b)(2)).

Transportation conformity is a Clean Air Act requirement to ensure that federally supported highway and transit activities are consistent with (“conform to”) the SIP. Conformity to a SIP means that a transportation activity will not cause or contribute to new air quality violations; worsen existing violations; or delay timely attainment of the national ambient air quality standards or an interim milestone.

MOVES2014 will be required for new regional conformity and project level PM and CO hot-spot analyses, outside of California, that begin after the 2-year grace period ends. However, MOVES2014 will be required prior to the end of this grace period for any new regional conformity and hot-spot analyses once an area has MOVES2014-based SIP budgets that have been found adequate or approved for conformity purposes. The MOVES2014 grace period for regional conformity and hot-spot analyses applies to the use of MOVES2014 and any future minor revisions that occur during the grace period.⁸ See Questions 10-11 for further information on how the MOVES2014 grace period will be implemented for regional conformity analyses. See Questions 12-14 for further information on how the MOVES2014 grace period will be implemented for PM and CO hot-spot analyses.

EPA encourages state and local agencies to use the latest version of the MOVES model available at the time that any conformity modeling begins, since the model enhancements will optimize model performance.

10. Under what circumstances will the MOVES2014 grace period for regional conformity analyses be shorter than two years?

As stated above, the grace period for regional conformity analyses will end 2 years after we publish the *Federal Register* notice approving MOVES2014, unless new MOVES2014-based budgets become applicable sooner, in which case the grace period will end for specific areas once these new MOVES2014-based approved or adequate budgets become effective. MOVES2014 will be required prior to the end of the grace period for a given pollutant if an area revises its SIP and budgets with MOVES2014, and such budgets become applicable for regional conformity purposes prior to the end of the grace period. In this case, the new regional emissions analysis for that pollutant must use MOVES2014 if the conformity determination is based on a MOVES2014-based budget.

⁸ A minor revision would be one that is made to improve performance but not change results.

The interagency consultation process must be used to develop any SIP revision based on MOVES2014 (40 CFR 93.105(a)).

Areas that are designated nonattainment or maintenance for multiple pollutants may rely on both MOVES2014 and MOVES2010 to determine conformity for different pollutants during the grace period. For example, if an area revises a previously submitted (but not approved) MOVES2010-based PM₁₀ SIP with MOVES2014 and EPA finds these revised MOVES2014 budgets adequate for conformity, such budgets would apply for conformity on the effective date of the *Federal Register* notice announcing EPA's adequacy finding. In this example, if an area was in nonattainment for PM₁₀ and ozone, the MOVES2014 grace period would end for PM₁₀ once EPA found the new MOVES2014-based SIP budgets adequate. However, MOVES2010 could continue to be used for ozone conformity determinations until the end of the MOVES2014 grace period.⁹ In addition, the length of the grace period for hot-spot analyses would not be affected by an early submission of MOVES2014-based budgets. In this example, the grace period for PM₁₀ hot-spot analyses would still apply even if the grace period is shortened for regional PM₁₀ conformity analyses, as explained in Question 12. EPA Regional Offices should be consulted for questions regarding other situations in multi-pollutant areas.

In addition, in most cases, if an area revises a previously approved MOBILE or MOVES2010-based SIP budget with MOVES2014, the revised MOVES2014 budgets would be used for conformity purposes once EPA approves the MOVES SIP revision. In general, submitted SIPs cannot supersede approved budgets until the submitted SIP is approved.

However, 40 CFR 93.118(e)(1) allows an approved budget to be replaced by an adequate budget if EPA's approval of the initial budgets specifies that the budgets being approved may be replaced in the future by new adequate budgets. This flexibility has been used in limited situations in the past, such as during the transition from MOBILE5 to MOBILE6. In such cases, the MOVES2014-based budgets would be used for conformity purposes once they have been found adequate, if requested by the state in its SIP submission and if specified in EPA's SIP approval. States should consult with their EPA Regional Office to determine if this flexibility applies to their situation.

11. How will the MOVES2014 grace period be implemented for regional conformity analyses?

During the conformity grace period, areas should use interagency consultation to examine how MOVES2014 will impact their future transportation plan and TIP conformity determinations, including regional conformity analyses. Isolated rural areas should also

⁹ In this example, such an area would use MOVES2014 to develop a regional emissions analysis for comparison to the revised MOVES2014-based budgets (e.g., PM₁₀ budgets). The regional emissions analysis for ozone could be based on MOVES2010 for the VOC and NO_x budgets in the ozone SIP for the remainder of the conformity grace period.

consider how future regional conformity analyses will be affected when MOVES2014 is required. Areas should carefully consider whether the SIP and budget(s) should be revised with MOVES2014 or if transportation plans and TIPs should be revised before the end of the conformity grace period, since doing so may be necessary to ensure conformity in the future.

The conformity rule provides some flexibility for analyses that are started during the grace period. Regional conformity analyses that are started during the grace period can use either MOVES2010 or MOVES2014. Interagency consultation should be used if it is unclear if a MOVES2010-based analysis was begun before the end of the grace period. When the grace period ends, MOVES2014 will become the only approved motor vehicle emissions model for transportation conformity purposes in states outside California. In general, this means that all new regional conformity analyses started after the end of the grace period must be based on MOVES2014, even if the SIP is based on MOVES2010 or a version of MOBILE. As discussed above, the grace period for new regional conformity analyses would be shorter for a given pollutant if an area revised its SIP and budgets with MOVES2014 and such budgets were approved or found adequate for conformity purposes prior to the end of the grace period.

As discussed in more detail in the MOVES Technical Guidance, MOVES allows for multiple approaches to develop a regional emissions inventory, which may result in small differences in results.¹⁰ EPA recommends that the same approach be used in any analysis that compares two or more cases (e.g., the SIP budget and the regional conformity analysis). Interagency consultation should be used to agree upon a common approach. If different approaches are used for the SIP budget and the regional conformity analysis for practical reasons, interagency consultation should be used to determine how to address (and minimize) any differences in results. The methods used to develop inventories should be fully documented in the SIP and conformity determination.

12. How will the MOVES2014 grace period be implemented for CO, PM₁₀ and PM_{2.5} hot-spot analyses?

The MOVES2014 grace period also applies to the use of MOVES2014 for CO, PM₁₀ and PM_{2.5} hot-spot analyses, as stated above. See Question 9 for more general information about the conformity grace period.

Sections 93.116 and 93.123 of the conformity rule contain the requirements for when a hot-spot analysis is required for project-level conformity determinations.¹¹ The conformity rule provides some flexibility for analyses that are started before the end of

¹⁰ See the most current version of the MOVES Technical Guidance, available at www.epa.gov/otaq/models/moves/index.htm#sip

¹¹ In CO nonattainment and maintenance areas, a hot-spot analysis is required for all non-exempt projects, with quantitative hot-spot analyses being required for larger, congested intersections and other projects (40 CFR 93.123(a)(1)). In addition, the conformity rule requires that a quantitative PM₁₀ or PM_{2.5} hot-spot analysis be completed for certain projects of local air quality concern (40 CFR 93.123(b)(1)).

the grace period. A conformity determination for a transportation project may be based on a previous model if the analysis was begun before or during the grace period, and if the final environmental document for the project is issued no more than three years after the issuance of the draft environmental document (40 CFR 93.111(c)). Interagency consultation should be used if it is unclear if a previous analysis was begun before the end of the grace period. If you have questions about which model should be used in your project-level conformity determination, you should consult with your EPA Regional Office.

Implementation of grace period for PM₁₀, PM_{2.5} and CO hot-spot analyses: For CO, PM₁₀ and PM_{2.5} hot-spot analyses that start during the grace period, project sponsors can choose to use MOVES2010 or MOVES2014. EPA encourages sponsors to use the consultation process to determine which option may be most appropriate for a given situation. Any new CO, PM₁₀ or PM_{2.5} hot-spot analyses for conformity purposes begun after the end of the grace period must be based on MOVES2014. EPA released guidance on how to conduct quantitative PM_{2.5} and PM₁₀ hot-spot modeling for transportation conformity purposes and will update it to include MOVES2014. See EPA's Project-level [web page](#) for latest information and guidance documents on how to conduct CO, PM₁₀ and PM_{2.5} hot-spot modeling for transportation conformity purposes.

13. How will MOVES2014 affect FHWA's CO categorical hot-spot finding?

FHWA's CO categorical hot-spot finding for intersection projects was released on February 12, 2014, and is based on MOVES2010b.¹² During the MOVES2014 grace period, a project sponsor may continue to rely on the categorical finding for applicable projects that are determined through interagency consultation to be covered by the finding's parameters. Any new CO hot-spot analyses for conformity purposes begun after the end of the grace period may no longer rely on the February 2014 CO categorical hot-spot finding because the finding was based on MOVES2010.

14. How will MOVES2014 affect previously approved CO SIP hot-spot protocols?

Section 40 CFR 93.123(a)(1) of the transportation conformity rule allows areas to develop alternate procedures for determining localized CO hot-spot analyses, when developed through interagency consultation and approved by the EPA Regional Administrator. Some states have chosen in the past to develop such procedures based on previously approved EPA emissions models.

¹² Information about the FHWA categorical finding can be found at http://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf/index.cfm

During the MOVES2014 grace period, areas with previously approved CO hot-spot protocols based on MOVES2010 may continue to rely on these protocol. Areas with previously approved CO hot-spot protocols based on MOBILE6.2 or earlier MOBILE versions can no longer be used, and should have been discontinued at the end of the previous MOVES2010 grace period. Once the MOVES2014 grace period ends, any new CO hot-spot analyses for conformity purposes begun after the end of the grace period may no longer use their previously approved CO hot-spot protocols that were based on MOVES2010.

USING MOVES FOR OTHER PURPOSES

15. When will the use of MOVES2014 be required for general conformity?

The general conformity regulations in 40 CFR 93.159(b) require the most current version of the motor vehicle emissions model specified by EPA and available for use in the preparation or revision of SIPs in a State to be used for a general conformity analysis. The general conformity regulations state that the grace period announced in the *Federal Register* also applies for general conformity. Therefore, there is a 2 year grace period before MOVES2014 must be used for general conformity.¹³ When the 2-year grace period ends, MOVES2014 must be used in general conformity analysis. During the grace period, either MOVES2010 or MOVES2014 can be used for general conformity. The general conformity regulation, in this same section, does provide for a Federal agency to obtain written approval from the appropriate EPA Regional Administrator for a modification or substitution of other emission estimation techniques on a case-by-case basis, or on a generic basis if the vehicle emission model specified by EPA is inappropriate to use.

16. Can MOVES2014 be used to estimate greenhouse gas emissions?

Yes, MOVES2014 is currently the best tool EPA has for estimating greenhouse gas (GHG) emissions from the transportation sector, and is a significant improvement over MOVES2010. As described in Question 2, MOVES2014 incorporates three new emissions standard rules not included in MOVES2010. EPA notes that there are no SIP and transportation conformity requirements for GHG emissions. State and local agencies estimating GHG emissions in the transportation planning process should consider using the latest version of MOVES in the future.

EPA has developed technical guidance¹⁴ that describes how to use MOVES to estimate GHG emissions and/or energy consumption from on-road vehicles in a state or metropolitan area. EPA will be updating this guidance to reflect MOVES2014.

¹³ The MOVES2014 grace period does not apply to the use of NONROAD, as it is not a new model.

¹⁴ The latest version of "Using MOVES for Estimating State and Local Inventories of On-Road Greenhouse Gas Emissions and Energy Consumption" is available on the web at <http://www.epa.gov/otaq/stateresources/ghgtravel.htm>.

17. Can MOVES2014 be used to estimate mobile source air toxics?

Yes, MOVES2014 estimates emissions for mobile source air toxics (MSATs) such as benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, naphthalene, and ethanol.¹⁵ MOVES2014 is EPA's best available tool for quantifying emissions of these MSATs. State and local agencies, academic institutions, and other interested parties who are interested in analyzing MSAT emissions from transportation projects should consider using the latest version of MOVES in the future

EPA notes that there are no SIP and transportation conformity requirements for air toxics. Regarding the analysis of MSAT emissions in the National Environmental Policy Act (NEPA) process, DOT has responsibility for implementing NEPA for federally-funded or approved transportation projects.

¹⁵ A complete list of pollutants is in the MOVES User Guide, available on the web at <http://www.epa.gov/otaq/models/moves/#user>