PM Advance

Introduction

Particulate Matter (PM) Advance is a collaborative effort by EPA, states, tribes, and local governments to encourage emission reductions in $PM_{2.5}$ attainment areas to help them maintain the 2012 annual $PM_{2.5}$ NAAQS, the 2006 24-hour $PM_{2.5}$ NAAQS, and any future revised $PM_{2.5}$ NAAQS. The goals of the program are to (1) help attainment areas ensure continued health protection for their citizens, (2) better position areas to remain in attainment, and (3) efficiently direct available resources toward actions to address PM problems quickly. See www.epa.gov/PMAdvance.

The PM Advance program offers participating states, tribes, and local governments the opportunity to work in partnership with EPA and each other within a framework that can help focus participants' efforts to keep their air clean. While participation in the program is not a guarantee that an area will avoid a future nonattainment designation or other Clean Air Act requirements, it can better position the area to comply with the requirements associated with such a designation. For example, emission reduction actions undertaken as part of the program could potentially receive "credit" in State/Tribal Implementation Plans (SIPs/TIPs) in the event an area is eventually designated nonattainment, either in terms of reflecting a lower baseline from which additional reductions are needed or, if they occur after the baseline year, as a measure that shows progress toward attainment.[1]

PM Advance is similar to the Ozone Advance program, which EPA announced on April 4, 2012. A number of areas are currently participating in Ozone Advance (for the current list of areas, see http://www.epa.gov/airquality/advance/participants.html). Information on the Ozone Advance program which may be helpful to potential PM Advance participants can be found at www.epa.gov/ozoneadvance. Areas that choose to participate in both Ozone and PM Advance should combine their efforts into one multi-pollutant strategy that addresses both PM and ozone.

This document provides guidance on PM Advance, including general applicability, regulatory issues, program participation, and timelines. This program guidance has been developed with the input of state and local governments and governmental organizations, tribes and tribal organizations, and environmental and health groups, transportation organizations, and industry representatives.

[1] To receive emission reduction credit as a measure in a SIP, the measure would need to be quantifiable, surplus (in terms of not being double counted both as part of the baseline and as a control measure in the SIP), federally enforceable, and permanent. It would also need to meet any other relevant requirement in Clean Air Act section 110 and/or 172, and if the measure is voluntary, the state would need to make an enforceable commitment to ensure that the estimated emissions reductions are achieved.

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This guidance document provides information about (1) the types of areas and entities that are eligible to participate in PM Advance and how to get started, (2) regulatory issues related to the program, and (3) what participation in the program involves. In addition, three attachments offer additional details about (1) what an action plan might contain, (2) emissions inventory development/refinement, modeling and controls, and (3) relevant EPA guidance. Please visit the program website (www.epa.gov/PMAdvance) or contact Laura Bunte, EPA Office of Air Quality Planning and Standards, at (919) 541-0889 or ADVANCE@epa.gov if you would like more information about PM Advance.

General Applicability

1. What is PM Advance?

PM Advance is intended to preserve or improve the air quality in $PM_{2.5}$ attainment areas, particularly in those that are at greatest risk of violating the $PM_{2.5}$ NAAQS because they have ambient $PM_{2.5}$ levels that are close to the standard. The program provides a structure for local actions that reduce pollutant emissions, thus helping areas maintain air quality that meets the 2012 annual $PM_{2.5}$ NAAQS and the 2006 24-hour $PM_{2.5}$ NAAQS as well as any future revised $PM_{2.5}$ NAAQS. The program offers a means for states, tribes, and local governments to take the initiative in maintaining and improving their air quality.

Local areas may take steps to reduce PM emissions without participating in the PM Advance program. However, for some areas we believe there are important benefits and advantages to pursuing reductions within the PM Advance program framework with closer involvement and support from EPA. Representatives from participating areas will work with EPA to get help to quickly evaluate, select, and implement control measures and programs. EPA can identify available tools and resources that may be used to resolve their issues, provide technical advice and other support, and, where appropriate, may recognize areas that have been especially proactive and successful in pursuing emission reductions.

The PM Advance program may assist an area with efforts aimed at (1) reducing air pollution, (2) ensuring continued healthy air quality levels, (3) avoiding violations of the NAAQS that could potentially lead to a nonattainment designation and associated requirements, and (4) increasing public awareness about $PM_{2.5}$ as an air pollutant, and why PM reductions are important for public health.

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2. Why would an area want to take action now to reduce emissions of $PM_{2.5}$ and its precursors if it is not currently required to do so?

Taking steps to reduce emissions of $PM_{2.5}$ and its precursors[2] now will help improve air quality for citizens and may also help avoid future violations of the $PM_{2.5}$ NAAQS, which have been established to protect human health. In addition, if the $PM_{2.5}$ NAAQS are lowered in the future or population and/or industrial growth occurs in an area, reductions now could position the area to achieve air quality that enables it to avoid a nonattainment designation or, if eventually designated nonattainment, to achieve attainment earlier.

Many measures that a local government, tribe or state may choose to implement could result in multi-pollutant benefits. For example, reductions of nitrogen oxides (NO_x) can lead to lower ambient ozone levels as well as reduced $PM_{2.5}$ levels, and reductions in greenhouse gases may be an additional co-benefit. An area interested in taking proactive steps to address $PM_{2.5}$ has the opportunity to choose control measures that could result in co-benefits per the area's unique situation.

3. Is this program multi-pollutant?

PM Advance is a component of a broader, multi-pollutant Advance program that also encompasses Ozone Advance. EPA will encourage and provide tools for areas that opt to participate in either Ozone or PM Advance to maximize multi-pollutant reductions when selecting measures and programs to further reduce ozone/$PM_{2.5}$. EPA also encourages areas that choose to participate in both Ozone and PM Advance to combine their efforts into one multi-pollutant strategy that addresses both ozone and PM (the current list of areas participating in Ozone Advance is available at: http://www.epa.gov/airquality/advance/participants.html). In addition, EPA will work with participants to provide information on the multi-pollutant benefits associated with transportation, land use, energy efficiency, and climate change programs.

The National Research Council of the National Academy of Sciences recommended that an integrated, multi-pollutant approach to managing air quality would be more effective than the current pollutant by pollutant approach. The Advance program provides an opportunity for participating areas to begin or expand local planning efforts in a way that maximizes multi-pollutant benefits.

[2] $PM_{2.5}$ precursors include NO_x, sulfur dioxide (SO_2), volatile organic compounds (VOC), and ammonia (NH_3). PM Advance participants are likely to focus their efforts primarily on reducing emissions of $PM_{2.5}$, NO_x, and SO_2. Participants that consider reducing VOC and/or NH_3 may wish to consult with EPA.

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4. Who can sign up to participate in PM Advance?

States, tribes, and/or local governments that want to sign up to participate in PM Advance must meet the basic program eligibility criteria in A, B, C, and D below.

A. The area should not currently be designated nonattainment for:
   (1) the 1997 and/or 2012 annual $PM_{2.5}$ NAAQS,
   (2) the 2006 24-hour $PM_{2.5}$ NAAQS, and/or
   (3) any future revised $PM_{2.5}$ NAAQS.[3]

B. The geographic area should be identified (e.g., specify the participating counties/parishes/tribal lands).

C. The air monitor(s) that reflect or best represent the air quality in the area(s) should be identified; this may require consultation with the state to determine what monitor(s) the state has reported to EPA as being indicative of air quality in the area(s). Some areas may need to use data from outside the given area to track progress. These areas should discuss their situation with EPA prior to signing up for PM Advance.

D. States must meet their reporting obligations for the National Emissions Inventory prior to participating in PM Advance. Some local agencies' emissions reporting take precedence over the state-submitted emissions in building a national emissions inventory; where this is the case, the prospective participant(s) should consult EPA prior to signing up for the program.

We encourage small local governments to discuss their interest in participation with EPA prior to signing up. While EPA does not necessarily intend for small local governments such as townships to participate on their own in PM Advance, we are available to consult with them as needed.

Areas that have been redesignated to attainment with an approved maintenance plan may participate in PM Advance. These areas must continue to implement their maintenance plans as approved. Participation in PM Advance would not relieve any area from any requirements to which they are otherwise subject under the Clean Air Act or EPA's regulations, including any interstate transport regulations issued pursuant to Clean Air Act section 110(a)(2)(D)(i)(I), or from any requirement in an approved SIP. Measures and programs undertaken as part of PM

[3] Areas projected to be designated nonattainment for the 2012 $PM_{2.5}$ NAAQS are encouraged to participate in PM Advance until such time as they may be designated nonattainment. Designations for the 2012 NAAQS would not occur until 2014, by which time projected nonattainment areas could have implemented emission reduction measures that could potentially be transitioned/incorporated into eventual required planning efforts.

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Advance would be in addition to those included in the approved SIP, and may provide the area with a buffer against future violations of the $PM_{2.5}$ NAAQS.

Nonattainment areas may not sign up for or participate in PM Advance even if the areas are currently attaining the NAAQS. Prior to joining the program, these areas must be redesignated to attainment with an approved maintenance plan. However, early progress may still be made. If a state has submitted a maintenance plan to EPA, EPA could consult with the area pending EPA approval of the plan. Full participation in PM Advance would not occur until the area has been redesignated to attainment with an approved maintenance plan, and has met the other program eligibility criteria (i.e., ensure that emissions inventory reporting requirements are met and, where possible, identify the monitor(s) that reflect the area's air quality).

A state, tribe, or local government that intends to sign up for PM Advance should discuss the prospect with the other potentially affected government entities, EPA, and area stakeholders. Regional, multi-state, or local councils of governments (COGs) and regional or metropolitan planning organizations (RPOs/MPOs) are also eligible to sign up to participate in PM Advance. All of the parties interested in participating should sign up jointly. If a government entity signs up for the program, but other potentially affected government entities choose not to participate, the applicant should provide a copy of the sign-up letter to the other potentially affected government entities.

Once EPA acknowledges an area's acceptance into the program in writing (i.e., an e-mail or letter), the participant(s) should coordinate with other potentially affected governmental entities and stakeholders to provide them with an opportunity for input and to keep them informed about efforts undertaken within the program.

5. Who may not sign up for PM Advance?

States, tribes, and local governments may not sign up for the program if the area is designated nonattainment (at the time of signup) for the 1997, 2006, 2012 $PM_{2.5}$ NAAQS or any future revised $PM_{2.5}$ NAAQS. Nonattainment areas may not sign up for PM Advance until the area has been redesignated to attainment with an approved maintenance plan. If a state has submitted a maintenance plan to EPA, then pending EPA approval of the plan, EPA could begin consulting with the state or local government. Full participation in PM Advance would not occur until the area has been redesignated to attainment with an approved maintenance plan.

Applicants must also meet the basic program eligibility criteria described in Question 4 above.

6. What is the timing for participation in PM Advance?

We encourage states, tribes and local governments to participate in PM Advance as early as possible, but there is no requirement that an area commit to the program by a specific date as long as they sign up prior to being designated nonattainment (designations for the 2012 PM2.5 NAAQS are expected to be finalized in December 2014). There is currently no expiration date for enrollment. We recommend that an area commit to PM Advance for a five-year term, with the option to renew at the end of the first term and each successive term. An area may choose to end its participation in the program at any time, with notice to EPA.

Comment [E1]: We will confirm whether this wording is still correct after 2012 NAAQS are finalized.

7. How do I join PM Advance?

We encourage interested states, tribes, and local governments to carefully consider participation by reviewing pertinent issues including, but not limited to, projected industrial, transportation and population growth, trends and concerns regarding air quality, and support of such a program by the state, tribes, local governments, and stakeholders.

To sign up for the program, submit a brief **"sign-up letter"** to Laura Bunte of the EPA Office of Air Quality Planning and Standards (OAQPS) at ADVANCE@epa.gov and/or to the following address:

PM Advance
c/o Laura Bunte, Mail Code C304-01
109 TW Alexander Drive
RTP, NC 27711

A template sign-up letter is available for reference at www.epa.gov/airquality/____. The sign-up letter should be signed by the appropriate state, tribal, and/or local government official(s) with the authority to implement the program and to assist in leveraging staff and other resources as needed. A copy should also be sent to the relevant EPA Regional Office. EPA will review to determine that the applicant(s) has/have met the basic program eligibility requirements as identified in Question 4 above, and will then indicate by e-mail and/or letter whether the applicant(s) has/have been accepted into the program.

Comment [E2]: The PM Advance website will be available at the time the program is rolled out in January 2013. It is currently under development.

8. Must a Memorandum of Agreement/Memorandum of Understanding (MOA/MOU) be developed and signed in order to participate in PM Advance?

No. However, to the extent a participating state, tribe, or local government would benefit from having a more formal agreement in place, EPA would be willing to work with them to develop an MOA/MOU.

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9. What else does a participant need to submit?

As a first step toward minimizing the potential for $PM_{2.5}$ levels to exceed the NAAQS, a participating area should evaluate a variety of voluntary and mandatory control options and other programs. EPA can provide advice during this evaluation. No later than one year after signing up for the program, the area should submit a **"path forward"** to the EPA program contact at the mail and e-mail addresses provided in Question 7 above, with a copy to the relevant EPA Regional Office. The path forward should fully describe the measures and/or programs the area will implement and provide a schedule for the implementation of each one. Information from the path forward and/or the path forward itself may be posted on the EPA PM Advance website.

Unlike a formal SIP submission, EPA will not approve or disapprove the commitments made by the state, tribe, and/or local government, and the input provided by EPA during the course of PM Advance will not serve as an approval for purposes of any eventual SIP. However, EPA may provide feedback to the area regarding whether commitments are likely to result in emission reductions and/or other public health benefits.

The path forward developed for the area can be submitted by a state and/or a tribe and/or a local government, although preferably it would be submitted jointly by all of the program participants. The letter should specify actions the signatories have agreed to implement to reduce $PM_{2.5}$ concentrations and thereby improve local air quality. The path forward is not a federally enforceable document and does not institute any legal or financial obligations on any entity.

10. What happens after a path forward is submitted?

The area should begin or continue implementing the selected measures and programs expeditiously. In order to most quickly impact ambient $PM_{2.5}$ levels, implementation should occur to the extent possible immediately following submission of the path forward, recognizing that some measures/programs may take longer to implement or may have longer lead times until emission reductions are realized.

11. How often should participants communicate with EPA?

Participants should communicate with EPA throughout the program, and should alert EPA to upcoming planning and stakeholder meetings. In addition, at least once a year from the time the path forward is sent to EPA, a participating area should briefly and informally summarize the status of each of the area's measures and programs undertaken under PM Advance (including a comparison of current status for each measure/program as compared with the schedule laid out in the path forward), current air quality, stakeholder meetings/events, and

any other information the area would like to highlight. The information should be sent to the EPA program contact via mail or e-mail, using the addresses provided in Question 7 above. Information from the annual check-ins may be made available on the program website, www.epa.gov/PMAdvance .

Regulatory Issues

12. Does PM Advance establish new or avoid existing regulatory requirements?

No, the program does not create or avoid any regulatory requirements. As noted previously, participation in PM Advance does not allow the participant(s) or regulated entities in those communities to avoid applicable requirements under the Clean Air Act, EPA regulations, or an approved SIP. The program itself does not establish any regulatory requirements for state, tribal, or local government participants; however, if state or local authorities choose to adopt regulations as part of the program, such regulations likely would establish enforceable requirements on the regulated entities (i.e. enforceable by the state or local government; state and local regulations may even become Federally enforceable if they are incorporated into the SIP).

13. What happens if violations of the $PM_{2.5}$ NAAQS occur despite an area's participation in the program?

The area can choose to quickly evaluate, select, and implement additional measures and programs to mitigate its $PM_{2.5}$ problem. It is important to note that PM Advance does not shield an area from being redesignated to nonattainment if the area eventually violates the $PM_{2.5}$ NAAQS. Should a violation occur, EPA would consider the factors in section 107(d)(3)(A) of the Clean Air Act, i.e. "air quality data, planning and control considerations, or any other air quality-related considerations the Administrator deems appropriate." Where control measures are actively being implemented by program participants, EPA may allow time to determine whether such measures bring the area back into attainment. This is not meant to suggest that participation in PM Advance will result in special treatment by EPA should an area begin to measure NAAQS violations. It is meant to acknowledge that EPA may include an area's active pursuit of control measures and programs as one factor among the set of factors it considers when exercising its discretion to revise the area's designation to nonattainment, and this would equally be the case whether the area is a participant in PM Advance or not.

14. What happens if a participating area is eventually designated nonattainment for $PM_{2.5}$?

Participating areas that are designated nonattainment for the $PM_{2.5}$ NAAQS in the future would not continue participating in PM Advance, however their early efforts to reduce $PM_{2.5}$ would transition into required planning efforts.

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15. Will the area selected to participate in PM Advance affect future nonattainment boundaries? For example, might it result in the eventual designation of partial counties/cities or non-contiguous nonattainment areas?

No. Regulatory decisions regarding nonattainment boundaries will not be impacted by PM Advance participants' definition of areas included in the PM Advance program.

16. Will states receive SIP "credit" for emission reduction measures undertaken as part of PM Advance?

EPA will not, as part of PM Advance, review commitments made under PM Advance for purposes of approval or disapproval into a SIP. However, if an area participating in PM Advance is subsequently designated as nonattainment for any $PM_{2.5}$ NAAQS, emission reductions achieved from measures implemented as part of the program could be accounted for in future SIP planning. We describe two ways in which they could potentially be accounted for in Question 16 below.

EPA encourages participating states, tribes, and/or local governments to adopt proven, effective control measures to reduce PM expeditiously. We also recognize that some of the measures states, tribes, and localities may choose to adopt under the program may be innovative measures. EPA supports flexible approaches that account for reducing $PM_{2.5}$ or ozone and in various previous SIP approvals has provided SIP credit for innovative measures that meet SIP approval criteria.[4] EPA is interested in helping participating areas to identify innovative measures that suit the areas' unique needs.[5]

17. How can early reductions achieved as part of PM Advance be recognized in any future SIP that the area may need if designated nonattainment for the $PM_{2.5}$ NAAQS or any future revised $PM_{2.5}$ NAAQS?[6]

If emission reductions occur through PM Advance **prior to** the baseline year[7] for purposes of attainment demonstration modeling, then the reductions would lower the emissions

[4] EPA encourages states to seek SIP credit for voluntary emission reductions. A variety of guidance materials are available to states considering voluntary measures for adoption into a SIP. See Attachment C for some examples; this list is not exhaustive of all guidance on SIP credit.

[5] In order to receive emission reduction credit as a measure in a SIP, the measure would need to be quantifiable, surplus (in terms of not being double counted both as part of the baseline and as a control measure in the SIP), federally enforceable, and permanent. It would also need to meet any other relevant requirement in Clean Air Act section 110 and/or 172, and if the measure is voluntary, the state would need to make an enforceable commitment to ensure that the estimated emissions reductions are achieved.

[6] See also Question 4 above regarding eligibility to participate in PM Advance.

baseline. A lower baseline means that the area would need fewer future emission reductions in order to demonstrate attainment and/or proportionally fewer emission reductions would be needed to show reasonable further progress.

If emission reductions occur through PM Advance **after** the baseline year, the area may take credit for those reductions subject to Clean Air Act requirements, such as demonstrating that the reductions are surplus, quantifiable, enforceable, and permanent. Credit earned in this way means that fewer additional emission reductions will be needed to demonstrate attainment and meet reasonable further progress goals, thereby bringing the finish line of attainment with any $PM_{2.5}$ NAAQS closer.

EPA will address the issue of SIP baselines in the proposed $PM_{2.5}$ implementation rule for the 2012 $PM_{2.5}$ NAAQS. It is possible that the approach as proposed will be modified for the final rule in order to reflect changes needed as a result of public comments. EPA expects to issue the proposed rule in [INSERT DATE] and the final rule in [INSERT DATE]. The overall framework and policy approach for implementation of the PM NAAQS is located in the 2007 $PM_{2.5}$ Implementation Rule (72 FR 20586) and in a Memorandum signed by Stephen D. Page on March 2, 2012, "Implementation Guidance for the 2006 24-hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS)." In the past, EPA has allowed some flexibility in determining the appropriate baseline year.

18. Can EPA guarantee that participating in PM Advance will cause an area to remain in attainment?

EPA can provide no guarantees. For example, factors outside the area's control (such as transported air pollution) often influence local air quality. A participating state, tribe, and/or local government's success in achieving emission reductions and reductions in ambient concentrations depends largely on its/their level of commitment and the effectiveness of the actions taken under PM Advance. Evaluating, choosing, and expeditiously implementing a robust set of measures and programs that result in actual emission reductions will be critical, and in many cases essential, to success. One of the benefits of participating in the program is that by becoming more aware of emission sources and what may cause $PM_{2.5}$ levels to increase, governmental entities and citizens may be able to initiate solutions to potential issues before $PM_{2.5}$ NAAQS levels are exceeded. Proactive work to address these issues should lead to a greater chance of success in keeping ambient $PM_{2.5}$ concentrations below the level of the NAAQS.

[7] "Baseline year" refers to a snapshot of emissions for a given year. Future year emission projections are extrapolated from the baseline. Projections attempt to account for the effects of future growth and emissions control.

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19. If Federal measures are likely to provide the reductions needed in order to bring many eventual nonattainment areas back into attainment, why should these areas pursue local reductions?

EPA will continue to promulgate Federal measures that reduce emissions of $PM_{2.5}$ and its precursors and that will lead to improved air quality in many areas; however, local action is still needed in some areas in order to attain. Some areas are expected to attain as a result of a variety of Federal and state emission reduction actions that have already been adopted, such as more stringent emission standards for on-road and non-road vehicles and equipment (with associated fleet turnover), and regional reductions in power plant emissions. While Federal measures are likely to bring some areas back into attainment, these areas should consider taking steps to better ensure that once they return to attainment, they will remain in attainment. PM Advance can facilitate actions that reduce emissions to provide an improved buffer against future nonattainment.

$PM_{2.5}$ concentrations in many cities are affected by a combination of regional emissions (from sources like power plants) and local emissions (from sources like local industry, on-road motor vehicles, non-road equipment, and/or residential wood combustion). Some western areas have elevated levels of organic carbon in the winter, which can lead to an increase in $PM_{2.5}$ levels.[8] Sources of these emissions include the combustion of wood and other types of biomass in stoves, hydronic heaters, fireplaces, and other residential and institutional heating devices. In certain areas, a heavier reliance on local emission reductions will be appropriate to maintain the $PM_{2.5}$ NAAQS.

20. How should transported air pollution be accounted for in PM Advance?

PM Advance is not intended to address transport obligations pursuant to Clean Air Act section 110(a)(2)(D)(i)(I). However, PM Advance participants should be aware of their area's potential to adversely affect downwind air quality, as well as the potential impact of upwind air quality on the area.

21. Can a state incorporate measures into its SIP even if it is not currently subject to nonattainment area planning requirements?

Yes. A state can consider submitting adopted measures as a SIP revision at any time, even if there are no Clean Air Act requirements to do so. Assuming EPA approves the SIP revision, it will strengthen the SIP, ensure that control measures are Federally enforceable, and

[8] Frank, N. The Chemical Composition of PM2.5 to Support PM2.5 Implementation. http://www.epa.gov/ttn/naaqs/pm/presents/current_pm_monitoring_data_for_speciation-neil_frank.ppt, presented at "The PM2.5 Implementation Program and the Area Designation Process for the 2006 PM2.5 Standards Training Workshop Presentations," Chicago, IL, June 20-21, 2007.

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provide the mechanism to allow credit for the emission reductions associated with the measures for any future attainment plan requirements, assuming they are not counted in the baseline.

22. Would any new, distinct secondary standard for $PM_{2.5}$[9] to address PM-related visibility impairment be a focus of PM Advance?

No. The focus of PM Advance is on maintaining the primary $PM_{2.5}$ standards. However, measures to reduce $PM_{2.5}$ can help in meeting a $PM_{2.5}$ secondary standard.

Comment [E3]: We will revisit this paragraph in December, once the PM NAAQS are final.

23. Will the standard for PM_{10}[10] be a focus of PM Advance?

No. Again, the focus of PM Advance is on maintaining the primary $PM_{2.5}$ standards. However, measures to reduce fine particles can help in meeting the PM_{10} standard for coarse particles. If, however, an area wishes to address PM_{10} in its PM planning efforts, then EPA will provide whatever assistance is appropriate.

Comment [E4]: Question for reviewers: should maintenance of the PM10 standard be an additional focus of the PM Advance program?

Program Participation

24. What are the steps for participating in PM Advance?

Step 1 – Send a Sign-Up Letter to EPA

The state, tribe, and/or local government will send a sign-up letter to EPA. A template sign-up letter is available for reference at www.epa.gov/airquality/____. EPA will review the letter to ensure the eligibility criteria described in Question 4 above are met; if so, EPA will accept them into the program. The sign-up letter should express the willingness of all of the signatories to coordinate with each other and with EPA and to quickly implement measures and other programs to reduce $PM_{2.5}$. Specific measures do not need to be identified in the sign-up letter, although if the applicant would like to highlight any existing or planned measures and programs, it is welcome to do so. The letter should be signed by the appropriate local, state, and/or tribal official(s) with the authority to implement the program and to assist in leveraging staff and program funds as needed.

Comment [E5]: The PM Advance website will be available at the time the program is rolled out in January 2013. It is currently under development.

Areas that are already participating in Ozone Advance can indicate in their PM Advance sign-up letter that they will build on the work done to date under Ozone Advance to incorporate

[9] In 2012, EPA proposed a new, distinct secondary standard for $PM_{2.5}$ to address PM-related visibility impairment. 77 FR 38890, June 29, 2012. [INSERT statement on final rule, with cite]

[10] The current 24-hour standard for PM_{10} was established in 1987 (52 FR 24634, July 1, 1987), and has been retained in subsequent reviews. In 2012, EPA again proposed to retain the current 24-hour PM_{10} standard to continue to provide protection against effects associated with short-term exposure to inhalable coarse particles. 77 FR 38890, June 29, 2012. [INSERT statement on final rule, with cite]

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measures and programs that may achieve PM emission reductions. EPA encourages these areas to combine their efforts into one multi-pollutant path forward or action plan that addresses both ozone and PM.

Step 2 – Identify Available Information Regarding the Area's $PM_{2.5}$ Issues

This information could relate to the sources of direct $PM_{2.5}$ or secondary $PM_{2.5}$, the degree of the local contribution to $PM_{2.5}$ based on available modeling by EPA or others, the appropriate area from which emissions reductions should occur, and existing or upcoming control measures and programs affecting sources in the area.[11] It would be helpful if this information were shared informally with EPA.

Step 3 – Secure Stakeholder Participation

It is important to identify, contact, and secure the participation of key stakeholders. This is commonly accomplished by the formation of a local air quality committee consisting of representatives from local government, industry, environmental and citizens groups (such as environmental justice organizations), and other interested parties. Stakeholders may need to be added as emissions sources and control measures are identified.

Step 4 – Coordinate Control Strategy Development

PM Advance participants should consider a variety of emission reduction measures and programs, which may include traditional control measures as well as other measures, policies, and programs related to, for example, energy efficiency and mobile sources. PM Advance also provides an opportunity to test new environmental technologies. EPA is available to assist areas that are interested in exploring their options for potential measures and programs that could be included in their PM Advance path forward/action plan.

The participating state, tribe, and/or local government will lead coordination efforts with stakeholders and with EPA. EPA will work with the participant(s) early in the process as needed to identify and help them resolve technical and other issues and provide information about emission reduction and public awareness/education options. EPA's technical assistance will generally be in the form of directional advice; EPA does not anticipate, for example, conducting new modeling on behalf of a particular PM Advance area. The participant(s) will be the lead on any technical efforts they decide are appropriate, with EPA's guidance. The state should be included in these discussions to ensure technical consistency.

[11] One source of information on the emissions sources in the area is the National Emissions Inventory. National Emissions Inventory data can be found at www.epa.gov/ttn/chief/.

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The control measures an area chooses to implement may require businesses, industries, and citizens to comply with ordinances, codes, or other binding state or local regulations, or may encourage voluntary actions that reduce $PM_{2.5}$. The geographic area covered by such measures should be based on the location and nature of sources, or other factors important to the area and related to achieving emission reductions of $PM_{2.5}$ and its precursors. Public education and awareness programs may be considered as well. The process for determining the measures and programs to be selected should offer opportunities for discussion and debate among stakeholders; these opportunities should be provided and led by the participating state, tribe, and/or local government(s), and should include EPA.

States, tribes and EPA can provide valuable information for local governments. It may be helpful to meet with the state/tribal and EPA representatives to discuss issues and options before the path forward is submitted. EPA will review and provide comments on the area's preliminary decisions and will work with local technical or policy committees and the state/tribe(s). Local plans should complement current or potential future state/tribal or Federal efforts for the area. Local governments participating in PM Advance should identify the state-level controls and programs that may impact local $PM_{2.5}$ levels, and, similarly, participating states should identify any local controls and programs that may have an effect in the local area.

PM Advance participants will develop, at a minimum, a basic "path forward," i.e. a full description of the measures and/or programs the area will implement along with a schedule for the implementation of each one. EPA encourages participating areas to consider developing a broader, more robust "action plan" (in lieu of a basic path forward) that would provide the area's path forward along with background on the area's $PM_{2.5}$ issues and additional detail about the area's plans for addressing it. An action plan should include, at a minimum, a summary section, list of measures/programs to be implemented and a detailed implementation schedule, discussion of roles and responsibilities, and provisions for public/stakeholder involvement. It can also provide information about air quality trends in the area as well as a summary of any technical analyses conducted. Although an action plan is not a requirement for participation in PM Advance, it could serve as a useful blueprint for the area to reference in working with stakeholders and as a focal point for public recognition of the area's efforts to improve air quality. See Attachment A for further information regarding action plans.

Some participating areas may also consider technical work (e.g., emissions inventory development/refinement, air quality modeling, evaluation of intrastate transport and the effect of planned new sources outside the PM Advance area) to support their work to address $PM_{2.5}$. Although the development of technical analyses is not a requirement of the program, to the extent a program participant elects to pursue appropriate technical work, EPA encourages these efforts and will be available to provide advice to the program participant(s) who wish to develop

these analyses. The development of technical support should be of particular interest to areas that are very close to, or that are already violating the $PM_{2.5}$ NAAQS, in order to best align their efforts under PM Advance with any eventual SIP requirements. Appropriate data and analyses will be needed for measures to be credited in a SIP.

Participating areas may want to consider working with technology developers to test new emission reduction technologies. New promising technologies could result in improved emission control, increase the effectiveness of voluntary efforts, or encourage individuals or businesses to change behavior in ways that reduce emissions. Similarly, participating areas have the opportunity to try a variety of voluntary measures that may affect local $PM_{2.5}$ levels. Because specific emission reduction estimates are not required for participating in PM Advance, as they would be for a SIP, PM Advance provides an opportunity for experimentation.

Step 5 – Submit a Path Forward to EPA

Once the area has sought stakeholder involvement and input, the area should send a path forward to EPA that describes the measures/programs the area will implement and provides a schedule for the implementation of each measure/program selected. The area may also describe any measures/programs already in place in order to provide a fuller view of the efforts underway. If the area developed an action plan (see Attachment A), the area can submit the plan to EPA in lieu of a path forward.

Step 6 – Implement Control Strategy Per Schedule and Provide Annual Status Updates

Program participants should begin implementing the measures and programs specified in the path forward immediately, per the schedule laid out in the path forward. Participants should stay in communication with EPA periodically throughout the program. In addition, each year from the time the path forward is sent to EPA, a participating area should briefly summarize the status of each of the area's measures and programs undertaken under PM Advance (including a comparison between current status for each measure/program as compared with the schedule laid out in the path forward letter), current air quality, stakeholder meetings/events, and any other information the area would like to highlight. These status updates should be provided via letter or e-mail to the EPA contact noted in Question 7 above.

Step 7 – Apply for Federal Grants, if Desired

The Federal grants website http://www.grants/gov may be of interest to program participants. The website enables agencies and organizations to electronically find and apply for competitive grant opportunities from all Federal grant-making agencies. Over 1,000 grant programs offered by the 26 Federal grant-making agencies can be accessed from the website, and

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some of these may be useful in the context of this program. EPA will also highlight open grants opportunities that may be of interest to PM Advance participants on the program website www.epa.gov/PMAdvance.

There is currently no funding associated specifically with the PM Advance program, however where appropriate EPA may provide preferred status to PM Advance participants when applying for existing EPA grants programs.

25. How will EPA assist participants?

EPA is available to support participants' efforts to quickly identify, evaluate, select, and implement measures and programs that can help reduce $PM_{2.5}$ and $PM_{2.5}$ precursor emissions. Participants are encouraged to include EPA in discussions with local workgroups and stakeholders. The types of support EPA provides will depend on each area's unique needs. EPA will share information regarding control measures and programs, technical resources and tools, Federal grant opportunities that may be of interest to PM Advance participants, and nonattainment area SIP requirements. Much of this information will be made available on the program website, www.epa.gov/PMAdvance. EPA will also facilitate information sharing between participants and with other areas that have experience with implementing local air quality programs.

26. If the participating area elects to develop an action plan, what should the plan contain?

Attachment A provides suggestions regarding the content of an action plan.

27. Must a participating area undertake emissions inventory refinement or modeling as part of participation in PM Advance?

No. Compliance with existing emissions inventory requirements must have occurred prior to acceptance into the program. Further emissions inventory refinement and modeling are not otherwise necessary prerequisites to participation in PM Advance, however these efforts might be helpful in directing resources to the most cost-effective reductions as well as providing support for the quantification of emission reductions if the area is eventually designated as nonattainment. EPA encourages participating areas to (1) consider existing emissions inventories and modeling information and/or develop new analyses as necessary in order to characterize the nature of the $PM_{2.5}$ issue in the area (e.g., Are the emissions predominantly from mobile sources, residential wood combustion, or other sources? Is the participating area upwind of a nonattainment area? Might the area be considered to affect $PM_{2.5}$ levels downwind in any future revised $PM_{2.5}$ NAAQS?), (2) provide a technical foundation for control selections and schedules, and (3) ensure that available resources are used efficiently and effectively.

Attachment B provides a general discussion of emissions inventories, modeling, and controls. In addition, the March 2, 2012 "Implementation Guidance for the 2006 Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS)" has an extensive section regarding the use of emissions inventories (including seasonal inventories, for some areas).

28. What happens if the $PM_{2.5}$ concentrations in an area violate any $PM_{2.5}$ NAAQS?

The success of PM Advance for a given area will lie in the area's willingness to undertake new measures that result in real emission reductions. As soon as an area determines that the air quality is deteriorating, the area should act quickly to supplement the measures and programs as listed in its path forward/action plan with additional measures and/or programs. If the air quality in the area deteriorates and a violation occurs, EPA may revise the area's designation to nonattainment. Pending any decision, EPA will continue working with the area to see what additional measures can be taken to help improve the air quality.

29. Must a participating area commit to contingency measures?

No. PM Advance does not require that areas commit to adopt and implement specific contingency measures in the event the area violates any $PM_{2.5}$ NAAQS. EPA has attempted to streamline the program to the extent possible in order to encourage areas to keep their focus on actually taking proactive steps to improve their air quality. The goal is to encourage areas to take action to reduce $PM_{2.5}$ concentrations even though they are not currently required to do so. However, PM Advance participants should consider quickly implementing additional measures should the quality of the air in their area begin to deteriorate. Options regarding such additional measures should be considered well before they are needed. Preferably, measures undertaken would not be discontinued even if the area continues to remain in attainment, so that protection from increases in emissions is maintained for local air quality and for downwind areas as well.

30. What implementation schedule will participating areas follow?

EPA recommends that an area commit to PM Advance for a five-year term, with an option to renew at the end of the term and each successive term. An area's ambient air quality over the next several years would potentially affect designations following any possible revisions to the NAAQS in the future. Therefore, it is important that the area work to improve air quality for a sustained period in order to best ensure it remains in attainment. The path forward should provide a schedule for implementation of the indicated measures. Significant actions that are necessary or may affect control measure implementation, such as required reviews/approvals, acquisition of equipment, etc., should be included in the schedule.

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Your implementation schedule should address the regular information sharing that will be needed to ensure that all parties are kept informed about program progress. In addition to regular informal discussions to facilitate the participant's efforts in selecting and implementing measures, the intention is that the participant will submit informal status updates to EPA each year (e.g., in the form of a check-in e-mail or letter) and will provide a brief, general summary of the status of each of the area's measures and programs undertaken under PM Advance (including a comparison of current status for each measure/program with the schedule laid out in the path forward), current air quality, stakeholder meetings/events, and any other information the area would like to highlight.

31. What provisions should be made for public and stakeholder involvement?

Support for the proposed measures in the area's list of PM Advance commitments from the public and stakeholders in the area is vital. Local officials can determine the best means to seek and respond to input from groups or individuals interested in or affected by the measures. We recommend that the emission reduction measures and/or programs in the path forward be developed by or in consultation with a local air quality committee that includes environmental, health, and citizens groups, and representatives from local government and industry. Input on appropriate measures from stakeholders, the general public, states, tribes, and EPA should be given thoughtful consideration by the committee. Consideration should be given to providing opportunities for stakeholder discussions/public workshops to collaborate on potential emission reduction strategies.

32. How long should an area plan on participating in PM Advance?

Participation should last for a period of five years or longer as needed/desired. Participants may terminate their involvement in PM Advance at any time, with notice to EPA. Similarly, EPA may end a state's, tribe's or local government's participation in the program at any time, such as where a participant does not demonstrate an effort to make air quality improvements during the course of the program.

33. How does the PM Advance timeline compare with EPA's current schedules for implementation of the current (2012 annual and 2006 24-hour) $PM_{2.5}$ NAAQS?

PM Advance participants should keep the NAAQS implementation dates in mind when deciding upon the extent and timing of the measures and programs to be put in place.

Sample $PM_{2.5}$ NAAQS Timeline
Current as of January 2013; Dates After January 2013 Are Tentative
June 2012 Proposal of 2012 $PM_{2.5}$ NAAQS

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Dec. 2012	SIPs due for 2006 24-hour $PM_{2.5}$ NAAQS; final 2012 $PM_{2.5}$ NAAQS, including any revision of the NAAQS determined necessary
Jan. 2013	PM Advance program begins
Mar. 2013	PM NAAQS effective date
Early 2013	PM Advance sign-up letters submitted
Late 2013 – early 2014	PM Advance participants decide on measures/programs, finalize paths forward/action plans , begin implementation
Dec. 2013	State recommendations for 2012 $PM_{2.5}$ NAAQS designations
Dec. 2014 (effective early 2015)	Final designations for 2012 $PM_{2.5}$ NAAQS (possibly based on 2011-13 or 2012-14 data)
Dec. 2014-19	Attainment dates for 2006 $PM_{2.5}$ NAAQS
Early 2016	State Infrastructure SIPs due for 2012 $PM_{2.5}$ NAAQS
2018	Attainment SIPs due for 2012 $PM_{2.5}$ NAAQS
2020-2025	Attainment dates for 2012 $PM_{2.5}$ NAAQS

Comment [E6]: These dates will be updated as necessary prior to program rollout in January 2013.

34. Who did EPA coordinate with prior to beginning the PM Advance program?

Comment [E7]: This paragraph will be updated prior to program rollout in January 2013.

OAQPS asked the EPA Regional Offices to talk with their states about our plans to offer PM Advance. We briefed the National Association of Clean Air Agencies (NACAA) criteria pollutants committee and the National Tribal Air Association, and described our plans to multijurisdictional organizations such as CenSARA and WESTAR. We also discussed the program with EPA's Clean Air Act Advisory Committee.

The draft guidance was distributed to states, tribes, and local governments; state, tribal, and local organizations; environmental, health, and transportation organizations; and industry representatives for review and comment. During the review period we provided a webinar to summarize the draft guidance and respond to questions; a link to the recording for this webinar is posted on the program website: www.epa.gov/PMAdvance. We also spoke directly with several individual states and local areas that had questions about the program as it was developed.

The draft guidance was modified to reflect the input from these discussions, and this final guidance may be clarified via supplemental questions and answers which we would provide on the program website.

35. EPA Contacts

Questions about PM Advance may be referred to Laura Bunte, Office of Air Quality Planning and Standards (OAQPS), (919) 541-0889 or ADVANCE@epa.gov, or to the appropriate EPA Regional Office.

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EPA Regional Office contacts include:

Region 1	Alison Simcox	(617) 918-1684
Region 2	Kenneth Fradkin	(212) 637-3702
Region 3	Maria Pino	(215) 814-2181
Region 4	Joel Huey	(404) 562-9104
Region 5	John Summerhays	(312) 886-6067
Region 6	Joe Kordzi	(214) 665-7186
Region 7	Amy Bhesania	(913) 551-7147
Region 8	Catherine Roberts	(303) 312-6025
Region 9	Wienke Tax	(415) 947-4192
Region 10	Jeff Hunt	(206) 553-0256

The EPA Regional Offices will serve as the main EPA point of contact for participating areas within each Region; they will work with participating states, tribes, and local governments directly, in coordination with OAQPS. The Regional Offices will seek the assistance of OAQPS, the Office of Transportation and Air Quality (OTAQ; OTAQ's primary point of contact is Rudy Kapichak, kapichak.rudolph@epa.gov or (734) 214-4574), the Office of Atmospheric Programs (OAP), the Office of Radiation and Indoor Air (ORIA), or others as appropriate given the unique needs of each participating area.

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Attachment A

PM Advance
Action Plan

The focus of PM Advance is on participating areas adopting measures and programs that will achieve emission reductions to help areas remain in attainment of the 2012 annual $PM_{2.5}$ and 2006 24-hour $PM_{2.5}$ NAAQS and to increase the chances that they will be in attainment for any future revised $PM_{2.5}$ NAAQS that may be promulgated. The program does not require extensive upfront analysis and planning, such as is required as part of the SIP process. However, participating areas may have an interest in developing a plan that lays out the current status of the area's air quality issues, describes any technical analysis undertaken by the area, such as modeling to understand the area's emission sources and appropriate controls, and indicates the path the area will take to reduce PM concentrations. Although this work is not required as part of participation in the program, EPA encourages participating areas to develop such an action plan. An action plan can serve as the area's blueprint for actions into the future, and can help focus stakeholder and public understanding of the amount of pollution reduction needed in order to ensure the plan will be effective, as well as the steps the area is taking to ensure continued protection of citizens' health.

EPA suggests that the following sections be included in an action plan, at a minimum, if a participating area chooses to develop one:

- Summary
- Description of the measures and programs to be implemented, responsible parties, how the measure will be implemented
- Implementation schedule for each measure and program
- Provisions for public and stakeholder involvement

A. Summary

In the summary section, information should be provided about the area to be covered by the plan, including the rationale for choosing the geographic boundaries. At a minimum, the geographic area should include the urbanized area, where applicable.[12] A map showing the geographic boundaries would be helpful. It is important to include brief information about the participating groups/agencies and the general objectives of the plan. The summary should also identify the plan's duration.

[12] An urban area generally consists of a large central place and adjacent densely settled census blocks that together have a total population of at least 2,500 for urban clusters, or at least 50,000 for urbanized areas. An urban area can be in a metropolitan or non-metropolitan area.

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The number and location of $PM_{2.5}$ monitors and the number and extent of $PM_{2.5}$ concentrations above any $PM_{2.5}$ NAAQS should be provided, along with observed trends in emissions and $PM_{2.5}$ concentrations. If any modeling has been conducted, it should be mentioned as well.

Information on the sources (i.e., point, area, non-road, and on-road) and the total amounts of emissions should be summarized. It is important to note the extent and availability of information about direct $PM_{2.5}$ and its fine particle "speciation" (chemical composition) data for key local and regional sources. To the extent known, indicate the types of sources of these pollutants and the extent to which each type or specific source contributes to the total emissions in the area. Large sources in adjacent areas should be identified.

B. Description of Measures to be Implemented and Responsible Parties

The specific control measures or programs the local government, state, tribe, and/or community organizations commit to undertake as a result of PM Advance should be described in detail. The description for each measure should indicate how, where, when, and by whom the measure will be implemented. At a minimum, the goal should be to try to keep $PM_{2.5}$ levels below the current NAAQS and build an improved cushion against future nonattainment, though the area may choose to develop more ambitious air quality targets. Reductions should be achieved as expeditiously as practicable to provide maximum benefits.

The measures and programs may be mandatory or voluntary, and may be existing/established or emerging/new. The plan should include details about the means of ensuring the implementation of any measures and programs selected by the area, such as regulations, agreed orders, and verification mechanisms. It should also discuss how the effectiveness of voluntary measures might be assessed. The effectiveness of these measures may vary depending on the extent of participation or other circumstances.

Any existing background explaining how the list of measures was selected, such as any technical analysis conducted, would be helpful as support for the choices made. Areas should consider developing or refining emissions inventories, assessing what type of emission controls are most needed, and, in some circumstances, conducting photochemical modeling. While this work is not required in order to participate in the program, it could be helpful; EPA and multijurisdictional organizations can provide assistance in the direction and scope of these efforts, such that available resources can be used most effectively. If existing modeling is unavailable for reference and new analyses are not conducted by the area, the action plan should explain what means were used to select the measures in the plan. These technical efforts provide a foundation for an area's plan and can be used to identify and analyze the sources of emissions in the area. Such information will suggest which control strategies may be most effective in

reducing $PM_{2.5}$ emissions and could help the area most efficiently use its limited resources. Attachment B contains more detailed information about emissions inventories, modeling, and control measures.

EPA encourages use of the latest planning assumptions and emissions models available to evaluate and accurately estimate the benefits that control measures provide. Examples of assumptions include estimates of current and future population, employment, activity, projections and growth factors, and vehicle age and fleet mix. For on-road mobile source emission estimations, the current emissions model is MOVES (Motor Vehicle Emissions Simulator) (http://www.epa.gov/otaq/models/moves/index.htm). The most current version should be used. For non-road mobile sources, the current model is NONROAD2008a (http://www.epa.gov/otaq/nonrdmdl.htm). Areas focused on reducing diesel emissions from mobile sources can also use EPA's Diesel Emissions Quantifier.[13] Areas in California would generate emissions inventory information through use of the latest Emission Factors (EMFAC) model for on-road sources and the OFFROAD model for non-road sources.

The measures and programs in the plan should, as a group, achieve emission reductions beyond those already being achieved in the area, given that the program is aimed at taking action to keep $PM_{2.5}$ levels below the level of the NAAQS. However, participants are encouraged to highlight existing, ongoing measures along with new, planned measures in order to fully represent the proactive work being done to maintain/improve air quality in the area. To the extent possible, the amount of emission reduction anticipated from each measure or combination of measures should be estimated. The plan should not include measures that are required under state/tribal or Federal law, such as the measures included in approved maintenance plans.

The state, tribe, and/or local government should commit to adjusting the list of measures and programs as appropriate in order to speed up progress in achieving reductions and to ensure continued attainment in light of any future revised $PM_{2.5}$ NAAQS.

C. Implementation Schedule

EPA recommends that an area commit to PM Advance for a five-year term, with an option to renew at the end of the term and each successive term. The path forward letter should provide a schedule for implementation of the indicated measures. Significant actions that are necessary or that may affect control measure implementation, such as required reviews/approvals, acquisition of equipment, etc., should be included in the schedule.

[13] Participants should be aware that should an area be designated as nonattainment and be required to submit a SIP, the Diesel Emissions Quantifier is not approved for use in SIPs.

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D. Provisions for Public/Stakeholder Involvement

Public and private support for the proposed measures in PM Advance commitments is vital. Local officials can determine the best means to seek and respond to input from groups or individuals interested in or affected by the selected measures and programs. Again, we recommend that the commitments be developed by a local air quality committee that includes public health, environmental, and citizens groups, and representatives from local government and industry. Input on appropriate measures from public health and environmental groups, citizens groups, industry representatives, the general public, states, tribes, local governments, and EPA should be given thoughtful consideration by the committee.

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Attachment B
PM Advance
Emissions Inventory, Modeling, and Controls

Emissions inventory work and source apportionment, dispersion, or other modeling are not required as part of PM Advance. However, the use of an emissions inventory and technical support for the selection of control measures can be useful in identifying effective measures and building support for the plan. EPA encourages it where possible, and will provide technical advice to participating areas who seek it. The state should be included in these discussions to ensure technical consistency. Areas with well-developed emissions inventories and technical support are better positioned to target and select control measures that maximize emission reductions that will result in air quality improvements given local conditions and characteristics.

Emissions Inventory

One of the first steps in determining how to improve air quality in an area is to gather information on the sources and amounts of emissions. In many cases, existing state, multijurisdictional organization (MJO), and Federal emissions inventories may provide a guide in targeting sources of interest in a particular local area to enable appropriate control selections. PM Advance participants are not required to develop a baseline emissions inventory for direct $PM_{2.5}$ and pollutants contributing to secondary formation, including nitrogen oxides (NO_x), sulfur dioxide (SO_2), ammonia (NH_3), and volatile organic compounds (VOC). However, they are encouraged to do so in order to identify the level of emissions that would represent continued attainment for the area and to monitor growth.

The extent of the geographic area inventoried will vary by community. The EPA recommends evaluating the Metropolitan Statistical Area/Consolidated Metropolitan Statistical Area (MSA/CMSA) (or the county or parish if there is no MSA) and enlarging the area if necessary. Local emissions inventories can help an area identify, target, and obtain emission reductions that are feasible and that are most likely to lead to reduced $PM_{2.5}$ in the area. EPA's protocol for developing an emissions inventory and additional information on emissions inventories are available at http://www.epa.gov/ttn/chief/eiinformation.html. In particular, information regarding EPA's Emission Inventory Improvement Program (EIIP) can be found at http://www.epa.gov/ttn/chief/eiip. While some aspects of this website, such as mobile source information, are out of date, much of the information provided may be useful to participating states, tribes, and local governments that want basic information about how to further develop and refine their emissions inventories.

Some $PM_{2.5}$ emissions are emitted directly from a source, such as diesel vehicles, wood burning appliances, construction sites, unpaved roads, fields, smokestacks, and fires. However,

$PM_{2.5}$ levels are often dominated by secondary particles formed via complex atmospheric reactions involving the precursors NO_x, SO_2, NH_3 and VOCs that are emitted from power plants, industrial processes, motor vehicles, and non-road sources. Emissions inventory development and refinement should consider both direct $PM_{2.5}$ and $PM_{2.5}$ precursor emissions.

Information should be gathered on the number and types of emission sources in the area and the types and amounts of pollutants emitted. It is important to summarize the extent and availability of information on $PM_{2.5}$, NO_x, SO_2, NH_3, VOC, and organic and elemental carbon emissions that contribute to an increase in $PM_{2.5}$ concentrations in the area. To the degree it is known, the extent to which each type of source or specific source contributes to the release of the total emissions in the area should be specified.

Expected emission reductions from planned efforts or controls should be identified and should be quantifiable, to the extent possible. Emission reductions from some measures may be difficult to quantify (e.g., voluntary measures due to unknown levels of participation), but it may be possible to specify a percentage, range, or time-adjusted sequence of anticipated emission reductions from each or a combination of these "hard to estimate" measures.

The following steps outline the process for emissions inventory development:

Step 1: Identify the sources of existing inventory information
The state/tribe may have information on the sources and emissions in the area. EPA and MPOs/RPOs may have additional information. EPA compiles the National Emissions Inventory every three years. The most recent National Emissions Inventory includes 2008 emissions. States are required by the Air Emissions Reporting Requirements (AERR) rule to submit emissions inventory information every three years. The 2011 National Emissions Inventory will be compiled from data reported to the Emissions Inventory System by December 31, 2012, and EPA plans to produce a first version of the 2011 National Emissions Inventory by summer 2013. PM Advance participants should identify information sources and compile the information relevant to their area.

Step 2: Determine the extent of available information
The extent of available emissions inventory information varies from area to area. The state/tribe or EPA can provide guidance on the types of emissions inventory information that has been collected for your area and which may be useful for your local efforts.

Step 3: Gather additional information as necessary
In addition to specific emissions inventory data from the state/tribe or EPA, the following information may be of use to local emissions inventory development:

Information about $PM_{2.5}$, as well as NO_x, SO_2, NH_3, and VOC sources in an area:

- Most recent National Emissions Inventory; the 2008 National Emissions Inventory is available at www.epa.gov/ttn/chief/net/2008inventory.html

Stationary source data:

- $PM_{2.5}$, SO_2, NO_x, NH_3, and VOC sources/emissions not included in the state/tribal emissions inventory. Sources of this information include the National Emissions Inventory (see www.epa.gov/ttn/chief/net/2008inventory.html) and Regional Modeling Center inventories.
- If available inventories do not fully reflect more recent emissions, it may be helpful to estimate emissions for key sources for a more current year.

Mobile source data:

- Useful mobile source information that could improve estimates available from other sources such as the National Emissions Inventory
- Non-road vehicle, engine and equipment types, numbers, emissions, hours/frequency of operation
- On-road vehicle types, numbers, emissions, vehicle miles traveled (possible data sources include local metropolitan planning organizations and the state or local Department of Transportation)
- For additional information on the use of MOVES for estimating on-road emissions and NONROAD for estimating emissions from most types of non-road equipment please see: http://www.epa.gov/otaq/models.htm.
- For additional information on the Diesel Emissions Quantifier see: http://www.epa.gov/cleandiesel/quantifier/.

Additional useful information regarding emissions inventories is available electronically through http://www.epa.gov/ttn/chief/.

Modeling and Data Analysis

Photochemical air quality modeling that can predict the effectiveness of a proposed control strategy or a proposed control measure in reducing the local $PM_{2.5}$ concentration, and other modeling or data analyses are not required for participation in PM Advance. However, these types of analyses could be used as a tool in the program to help areas identify which emissions may be the most beneficial to reduce. Before beginning any modeling effort, an area should contact the state/tribe or EPA Regional Office for suggestions regarding whether sufficient relevant modeling information for the area already exists, and, if not, what types of analyses are appropriate. A review of any existing modeling could add credence to the selection of control measures and could conserve both time and money. If the area intends to perform

modeling, it should follow EPA or state-approved modeling protocols; see the EPA modeling information at http://www.epa.gov/scram/.

Other considerations include:

A. Photochemical Grid Modeling

If used, photochemical grid modeling should be developed according to current EPA $PM_{2.5}$ modeling guidance. This modeling can help answer questions such as:

- Is it more effective for PM Advance efforts to concentrate on reducing emissions of direct or secondary $PM_{2.5}$ emissions?
- If a combination of $PM_{2.5}$ and SO_2, NO_x, NH_3, and VOC reductions appears to be called for, what percentage of each would be appropriate?
- What amounts of reductions are necessary to make a difference in $PM_{2.5}$ concentrations?
- Which control measures will result in emission reductions that would be most effective at reducing $PM_{2.5}$ concentrations in the area?

Photochemical grid modeling may also be used to assess the effectiveness of a control strategy in helping to reduce ambient $PM_{2.5}$ levels. In such a demonstration, there may be a need for assessing some future year(s) and for developing future emissions inventories.

B. Air Quality Data Analysis

In some cases, it may be possible to conduct a statistical analysis of monitored ambient $PM_{2.5}$ and $PM_{2.5}$ component information. Data analysis efforts designed to answer the questions listed below can also be used to support and confirm photochemical grid modeling results.

- Which components of $PM_{2.5}$ are the largest fraction of $PM_{2.5}$ concentrations in the area?
- Do $PM_{2.5}$ concentrations or the component fractions of $PM_{2.5}$ vary by season?
- Which meteorological conditions are most often associated with elevated $PM_{2.5}$ concentrations in the area?
- Has there been a relationship in the recent past between local $PM_{2.5}$ precursor emissions reductions and recent trends?

C. Data and Time Periods of the Assessment

If a participating state, tribal, or local government decides, in consultation with EPA, that analyses are needed in order to understand the area's air quality issues, decisions will need to be

made regarding which data will be used and the period(s) to be modeled. The following questions are among those that would need to be answered:

- How many and which sources should be modeled?
- What types of pollutants and amounts of emissions from each source should be evaluated?
- Are the emissions inventory and other necessary data (i.e., meteorological data) available?
- Should modeling be done for an extended period such as five years or for shorter periods, such as each year?

D. Use of an Appropriate Model

Different models are available to predict air quality impacts. Participating local governments should consult with the state/tribe and EPA regarding which models would be appropriate for the purpose intended as well as the area, pollutants and sources to be evaluated. As stated earlier, a review of existing modeling analyses, if they exist, could simplify the selection of control measures and conserve resources.

Pollution Reduction Measures and Programs

Once the sources and types and amount of emissions are generally known, a list of potential air quality improvement and/or emission pollution reduction options can be developed. These options need to be different from actions required by state/tribal or Federal law prior to or during the agreement term. These options may include, for example, public awareness, notification, and participation in local programs; requiring the installation of control devices or implementation of procedures by stationary sources; or mobile source control options. Other options may include voluntarily adopting state/tribal measures. New technologies should be considered for their potential to reduce emissions. To the extent that it is possible, these measures could be implemented on a voluntary basis and adapted as necessary. Consideration of multi-pollutant benefits (such as measures that would also reduce ozone or SO_2 concentrations) should be incorporated into any selection of measures and programs.

Emission reduction measures are specific emission reduction commitments from specific facilities or industrial sources, broader measures applicable to an entire area, measures that address a specific group of emission sources or category of emissions, or voluntary programs such as those that encourage behavior change in order to achieve reductions (e.g., transportation programs that reduce vehicle miles traveled). Public notification and education programs include activities to inform and educate the public of the impact of their daily activities and to encourage them to participate in efforts to improve local air quality and to take actions to protect their health when exposed to poor air quality. For example, new sources of information such as

phone apps have the potential to provide real time data that can encourage actions that reduce emissions.

New state/tribal or Federal requirements may impact the emissions in an area. In order to enhance success in continued attainment of the $PM_{2.5}$ NAAQS, PM Advance participants may need to consider going beyond Federal and state/tribal requirements that are already in place or that are anticipated in the near term. Consequently, in order to effectively evaluate potential control measures to adopt, local governments should become informed of requirements that already apply or are scheduled to apply within the area. Even where Federal, state, and tribal controls are generally expected to be sufficient to keep an area in attainment, local measures may provide an extra buffer against future violations and will help to ensure continued public health benefits.[14]

A variety of sources provide information about air quality improvement options that areas may want to explore. These include, for example, the Menu of Control Measures for NAAQS Implementation (www.epa.gov/air/criteria.html), Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate (RACT/BACT/LAER) Clearinghouse (http://cfpub.epa.gov/RBLC/), the Ozone Reduction Strategies website (www.epa.gov/airquality/ozonestrategy/), the National Clean Diesel Campaign and Diesel Emissions Reduction program (DERA) grants (www.epa.gov/cleandiesel), and the State and Local Transportation Resources website, www.epa.gov/otaq/stateresources/index.htm. EPA will be available to provide assistance in identifying options that may best suit an area's unique needs and priorities.

Areas should also consider contacting other states, tribes, and/or local governments, particularly those with similar sources and air quality issues, for information on measures they have considered or implemented. A list of some general categories of control measures follows, but PM Advance participants are not limited to these categories for sources of controls. Additional information on emission control options for specific sources can be obtained from EPA. Also, see Attachment C for a list of guidance documents that apply to a wide variety of control measures for stationary, area, and mobile sources.

Control Measure Selection

Emissions, modeling, source, and control information can be analyzed to select appropriate control measures that will help achieve emission reductions to ensure continued

[14] As areas consider local controls, they should be aware that the Clean Air Act and other laws contain provisions that limit the ability of state or local governments to adopt certain types of regulations. For example, state and local governments are preempted from adopting emission standards for on-road vehicles and non-road equipment and are restricted in their ability to adopt fuel programs. However, you can consult with EPA regarding the types of mobile source options available to state and local governments.

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attainment of the $PM_{2.5}$ NAAQS. Specific PM Advance action plans can tailor the use, combination, and timing of specific measures to meet local needs. Aside from control measures/programs identified in the plans, the plans may contain public education and awareness programs. Factors which may be considered in selecting control measures include, but are not limited to:

A. Determination of amount/type of emission reductions

The type and amounts of emission reductions impacts the selection of controls. An area with air quality affected predominantly by mobile sources or residential wood smoke that needs direct $PM_{2.5}$ and/or precursor emission reductions would pursue different control measures than an area with air quality affected predominantly by large stationary sources of SO_2. Emissions inventory and modeling data may be beneficial in making these determinations. Considerations include:

- Are $PM_{2.5}$ concentrations in the area driven by $PM_{2.5}$ emissions or its precursors?
- What are the primary types of $PM_{2.5}$, NO_x, SO_2, NH_3, and VOC emissions sources in the area?
- Are there a few very large emitters of NO_x or SO_2, many smaller ones, or a combination?
- Are there additional air quality improvements, such as toxic and greenhouse gas emission reductions, that result from implementation of the controls under consideration for this program?
- Are there possible benefits to environmental justice communities?

B. Analysis of available control measures

Even if the types and amounts of emission reductions that would provide the greatest benefits are known, the availability and ease of implementation of emission control options may impact selection of a particular measure. Considerations include:

- What available control technologies/measures would be feasible to implement?
- What is the effectiveness of these control technologies/measures in achieving emission reductions?
- What are the timeframes necessary to implement the measure and see results?
- What is the cost (dollars/resources) necessary to implement the measure?
- What are the challenges to “sell” the measure to specific companies, decision makers or citizens?
- What financial incentives (tax breaks, rebates) are available for transitioning to a new technology?
- Are there emerging technologies that would be worth trying?

It is worth noting that, although local ordinances imposing mandatory control measures may or may not satisfy the requirements associated with eventual SIP "credit," these measures are certainly acceptable in terms of actions that may be taken as part of a participant's proactive work under PM Advance.

C. Selecting the proposed control measures

The state/tribe and EPA can assist in evaluating data and in reviewing the modeling for control options. Cooperative discussions with stakeholders can help determine the most appropriate control measures. Other states/tribes or local governments with similar sources and air quality issues could be contacted for additional ideas or measures to consider.

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Attachment C
PM Advance
Relevant EPA Guidance

A. Websites

1. PM Advance, www.epa.gov/PMAdvance (see also Ozone Advance website, www.epa.gov/ozoneadvance)

2. PM Reduction Strategies, www.epa.gov/airquality/particlepollution/measures.html

3. Menu of Control Measures for NAAQS Implementation, http://www.epa.gov/air/criteria.html

4. State and Local Transportation Resources, http://www.epa.gov/otaq/stateresources/index.htm
   Note: Includes information concerning a wide variety of policy and guidance, partnership programs, grants and other sources of funding, and calculators and modeling tools.

5. National Clean Diesel Campaign (NCDC), http://epa.gov/cleandiesel/

6. Burn Wise, http://www.epa.gov/burnwise

7. Emission Inventory Improvement Program, http://www.epa.gov/ttn/chief/eiip/techreport/

8. Heat Island Effect, http://www.epa.gov/heatisland/

9. Incorporating Energy Efficiency/Renewable Energy in State and Tribal Implementation Plans, http://www.epa.gov/airquality/eere/

B. Documents

1. Proposed implementation guidance for the 2012 Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS), [DATE] 2012 [WEBSITE]

2. Implementation Guidance for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS), March 2, 2012
   http://www.epa.gov/ttn/naaqs/pm/pdfs/20120302_implement_guidance_24-hr_pm2.5_naaqs.pdf

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3. Policy and Guidance Documents to Assist Areas in Developing Strategies to Reduce Emissions from On-road and Non-road Sources, http://www.epa.gov/otaq/stateresources/policy/index.htm
The web page provides access to numerous guidance documents including:

Guidance on Innovative and Voluntary Air Pollution Control Strategies:
Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs), Oct. 27, 1997

Transportation-related Documents:
- Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity, Guidance for State and Local Air and Transportation Agencies, EPA420-B-06-005, June 2006
- Guidance for Quantifying and Using Long Duration Truck Idling Emission Reductions in State Implementation Plans and Transportation Conformity, Jan. 14, 2004
- Guidance for Quantifying and Using Long Duration Switch Yard Locomotive Idling Emission Reductions in State Implementation Plans, Jan. 14, 2004
- Analyzing Emissions Reductions from Travel Efficiency Strategies
- Information on Developing and Implementing Transportation Control Measures
- Improving Air Quality Through Land Use Activities
- Methodologies for Assessing Transportation and Air Quality Impacts of Brownfields and Infill Development
- SmartWay SIP and Conformity Guidance
- Implementation of Accelerated Retirement of Vehicles Programs

4. Information on clean diesel programs, technologies, emission reduction strategies and a broad array of other related information, including tools and resources can be found at www.epa.gov/cleandiesel. Publications can be found at http://epa.gov/cleandiesel/publications.htm

The web page provides access to numerous documents on clean diesel programs that address specific types of vehicles or equipment and other related information including:

School buses	Emission Reduction Technologies
Ports	Cost Effectiveness and Incentives
Construction and Agriculture	SmartWay Transport

Information on grants for diesel emissions reduction activities can be found at www.epa.gov/cleandiesel/grantfund.htm.

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5. Strategies for Reducing Residential Wood Smoke, October 29, 2009 http://www.epa.gov/ttn/oarpg/t1/memoranda/strategies-doc-8-11-09.pdf

6. Improving Air Quality with Economic Incentive Programs, EPA-452/R-01-001, Jan. 2001, http://www.epa.gov/ttn/oarpg/t1/memoranda/eipfin.pdf

7. Incorporating Voluntary Stationary Source Emission Reduction Programs Into SIPs--Final Policy, Jan. 19, 2001, http://www.epa.gov/ttn/oarpg/t1/memoranda/coverpol.pdf Note: This guidance has been subsumed in 8, below.

8. Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP), Sept. 2004, http://www.epa.gov/ttn/oarpg/t1/memoranda/evm_ievm_g.pdf

9. Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs Into State Implementation Plans/Tribal Implementation Plans, External Review Draft, July 2012, http://www.epa.gov/airquality/eere/manual.html

10. Guidance on SIP Credits for Emission Reductions from Electric Sector Energy Efficiency and Renewable Energy Measures, Aug. 5, 2004, http://www.epa.gov/ttn/oarpg/t1/memoranda/ereseerem_gd.pdf

11. Guidance on Incorporating Bundled Measures in a State Implementation Plan, Aug. 16, 2005, http://www.epa.gov/ttn/oarpg/t1/memoranda/10885guideibminsip.pdf

12. A Toolkit for States: Using Supplemental Environmental Projects (SEPs) to Promote Energy Efficiency (EE) and Renewable Energy (RE), Jan. 27, 2005, http://www.epa.gov/statelocalclimate/documents/pdf/sep_toolkit.pdf

13. Guidance on Airport Emission Reduction Credits for Early Measures Through Voluntary Airport Low Emission Programs, Sept. 30, 2004, http://www.epa.gov/airprogm/oar/genconform/documents/aerc_040930.pdf

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