



# SCIENCE ADVISORY BOARD

A Federal Advisory Committee to the U.S. Environmental Protection Agency

July 12, 2022

EPA-SAB-22-006

The Honorable Michael S. Regan  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Subject: Science Advisory Board (SAB) Consideration of Six EPA Planned  
Regulatory Actions Listed on EPA's 2021 Fall Regulatory Agenda  
and Discussed During the Chartered SAB May 2022 Meeting

Dear Administrator Regan,

The Environmental Protection Agency's (EPA) Science Advisory Board (SAB) met on May 31 and June 2, 2022, and discussed whether to review the adequacy of the scientific and technical basis of six planned EPA regulatory actions which were shared by the Agency as required by statute. The SAB found that two of the proposed actions rely on new scientific approaches related to emerging environmental issues, thus peer review by the SAB is warranted.

Standards of Performance for New, Reconstructed, Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review (RIN 2060-AV16): This proposed action represents a substantive expansion of the scope of the New Source Performance Standards (NSPS) for the Greenhouse Gas (GHG) initiative and addresses distinct issues. The SAB concluded that the scientific basis supporting this action does include approaches that are new to the agency and involve significant precedents and uncertainties that merit a full SAB review.

Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards (RIN 2060-AU41): This proposed action builds on and improves the existing emission control program for on-highway heavy-duty engines and vehicles. SAB review of the science supporting this action is warranted due to the development and application of improved analytical tools necessary to support this rulemaking. SAB recommendations may also be beneficial in strengthening future analysis related to this area (see description in Attachment A).

## **SAB's Screening Review of Science Supporting EPA Decisions**

The Environmental Research, Development, and Demonstration Authorization Act (ERDDAA) requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, and technical information on which the proposed action is based. The SAB may then make available to the Administrator, within the time specified by the Administrator, its advice,

and comments on the adequacy of the scientific and technical basis of the proposed action. To fulfill ERDDAA requirements the Associate Administrator for the Office of Policy, the Deputy Assistant Administrator for Science Policy in the Office of Research and Development, and the Director of the Science Advisory Board Staff Office on February 28, 2022, clarified the process for Review of Science Supporting EPA Decisions. Under the process outlined, the SAB Work Group for the Review of Science Supporting EPA Decisions holds monthly meetings to examine planned actions sent to the SAB Office.

On February 25, March 25, and April 29, 2022, the SAB Work Group for the Review of Science Supporting EPA Decisions met to review planned actions listed on EPA's 2021 Fall Regulatory Agenda, as well as other proposed actions that the EPA sent to the Office of Management and Budget for review. The EPA provided additional information on these actions. The Work Group recommended that the Chartered SAB review the science supporting two planned EPA actions. The Work Group recommended that the SAB not review four planned actions due to the procedural nature of these rules.<sup>1</sup>

The Chartered SAB met on May 31st and June 2<sup>nd</sup>, 2022, to discuss whether to undertake SAB peer reviews as recommended by the SAB Work Group. A detailed summary of the six planned EPA actions reviewed by the SAB is included in Attachment A. The Chartered SAB agreed that two of the proposed actions involve new scientific approaches related to emerging environmental issues, and that for those proposed actions peer review by the SAB is warranted. During the meeting, the SAB also agreed that the following four planned actions do not merit further review by the SAB.

- 1) National Emission Standards for Hazardous Air Pollutants (NESHAP): Coal- and Oil-Fired Electric Utility Steam Generating Units-Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding (RIN 2060-AV12);
- 2) National Emission Standards for Hazardous Air Pollutants: Ethylene Oxide Commercial Sterilization and Fumigation Operations (RIN 2060-AU37);
- 3) Clean Water Act Section 401 Water Quality Certification Improvement (RIN 2040-AG12);
- 4) Review of Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations (RIN 2060-AV30).

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<sup>1</sup> Recommendations of the SAB Work Group for Review of Science Supporting EPA Decisions Regarding Planned EPA Regulatory Actions [Memorandum], May 9, 2022. Available at: [https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19\\_ID:973](https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19_ID:973).

On behalf of the SAB, thank you for this opportunity to support the EPA through consideration of the science supporting EPA's regulatory actions.

Sincerely,

/s/

Alison C. Cullen, Sc.D.  
Chair, EPA Science Advisory Board

Enclosures

## NOTICE

This report has been written as part of the activities of the EPA Science Advisory Board, a public advisory committee providing extramural scientific information and advice to the Administrator and other officials of the Environmental Protection Agency. The Board is structured to provide balanced, expert assessment of scientific matters related to problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not represent the views and policies of the Environmental Protection Agency, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names or commercial products constitute a recommendation for use. Reports of the EPA Science Advisory Board are posted on the EPA website at <http://www.epa.gov/sab>.

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## **Attachment A. Summary of Proposed Actions that the Chartered SAB Considered for Additional Review of the Supporting Science**

### **A. Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review (RIN 2060-AV16) Does Merit SAB Review**

On November 15, 2021, the EPA proposed new source performance standards (NSPS) and emission guidelines (EG) for crude oil and natural gas facilities ([86 FR 63110](#)). This action was proposed in response to the January 20, 2021, Executive Order titled ‘Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis,’ which, among other things, directs the EPA to consider proposing new regulations to establish comprehensive NSPS for methane and volatile organic carbon (VOC) emissions from the exploration and production, transmission, processing, and storage segments, and establish EG for existing sources of methane emissions from the same industry segment.

The SAB Work Group for Science Supporting EPA Decisions received a briefing from EPA’s Office of Air and Radiation on this proposed action on March 25, 2022, and also reviewed additional information. The Work Group noted that this is an influential rule likely to have a major impact. The preamble of the proposed rule states that “the rulemaking takes a significant step forward in mitigating climate-destabilizing pollution and protecting human health by reducing greenhouse gas (GHG) and VOC emissions from the Oil and Natural Gas Industry, specifically the Crude Oil and Natural Gas source category. The Oil and Natural Gas Industry is the United States’ largest industrial emitter of methane, a highly potent greenhouse gas (GHG).”

The Work Group also noted that part of the proposed action is a revision of the NSPS for GHGs and VOCs for the Crude Oil and Natural Gas source category under the Clean Air Act (CAA) to reflect the agency’s most recent review of the feasibility and cost of reducing emissions from these sources. However, the EPA is also proposing emissions guidelines under the CAA for states to follow when developing, submitting, and implementing plans to establish performance standards to limit GHGs from existing sources (designated facilities) in the Crude Oil and Natural Gas source category. This represents a substantive expansion of the scope of the initiative and addresses related but distinct issues. As explained below, some elements of the Proposed Rule involve significant precedents and uncertainties and would benefit from a rapid scientific review. In addition, the Proposed Rule addresses emerging environmental issues and major environmental risks. Other elements of the proposed rule that revise the NSPS for this sector are based on well-established science and should proceed without further review.

The Work Group provided the SAB with a memorandum<sup>2</sup> documenting the discussion and Work Group findings. The Work Group recommended that the Chartered SAB review the science supporting the proposed rule.

During the Chartered SAB meeting on May 31st and June 2<sup>nd</sup>, 2022, the SAB agreed with the Work Group findings that (1) there are important emerging environmental issues that should be

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<sup>2</sup> Recommendations of the SAB Work Group for Review of Science Supporting EPA Decisions Regarding Planned EPA Regulatory Actions [Memorandum], May 9, 2022. Available at: [https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19\\_ID:973](https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19_ID:973).

considered in developing the proposed rule, and (2) the SAB should review the science supporting the *Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review*. In particular, the SAB finds that it is important to provide comments and recommendations regarding the following issues.

- The SAB should review the proposed rule because this action would be precedent setting in applying novel remote sensing technologies in routine regulatory compliance. Specifically, the proposed rule could allow new approaches to monitoring methane emissions from oil and gas operations that include sensors deployed on ground vehicles, drones, aircraft, and even satellites. While these sensing platforms have been employed in advancing scientific understanding in other air quality applications, these types of measurements have not been previously deployed to determine regulatory compliance. These technologies are evolving rapidly and may offer more efficient and effective assessments of regulatory compliance than what is currently possible.
- The SAB should review information provided by the EPA on the proposed rule to describe the emission inventory estimates for the oil and natural gas source category. While there is a high degree of certainty that the revisions to the NSPS would reduce emissions, the magnitude and percentage reduction is not well understood. Most of the infrastructure affected by this action is old (e.g., marginal wells) with fundamentally different characteristics.
- The SAB should review the economic analysis to determine whether EPA appropriately accounted for costs and benefits at the national level as well as those accruing across sub-populations and regions of the United States.
- The SAB should review the technical support documents for the proposed rule and provide recommendations regarding new approaches to account for the impacts of this action on people of color and low income and overburdened communities including, but not limited to, the analysis of legacy environmental justice (EJ) issues associated with the life cycle of fossil fuels.

#### **B. Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards (RIN 2060-AU41) Does Merit SAB Review**

On March 28, 2022, the EPA proposed a multipollutant rule ([87 FR 17414](#)) to further reduce air pollution from highway heavy-duty vehicles and engines across the United States, including ozone (O<sub>3</sub>) and particulate matter (PM), and greenhouse gases. In addition, as part of this rulemaking EPA is proposing targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program (HD GHG Phase 2). This proposed rulemaking builds on and improves the existing emission control program for on-highway heavy-duty engines and vehicles. This proposal is pursuant to EPA's authority under the Clean Air Act to regulate air pollutants emitted from mobile sources. The proposal is also consistent with Executive Order 14037 ([86 FR 43583](#); August 10,

2021), which directed EPA to consider setting new oxides of nitrogen (NO<sub>x</sub>) emission standards and updating the existing GHG emissions standards for heavy-duty engines and vehicles.

On April 29, 2022, the SAB Work Group for Science Supporting EPA Decisions reviewed information provided by the Office of Air and Radiation. The Work Group noted that the proposed rule is an economically significant regulatory action supported by influential scientific information. Five peer-reviewed analyses were conducted for this rulemaking. The results from the five peer reviews were generally positive but some specific concerns were raised related to the need for additional detail or clarification. Therefore, the Work Group recommended<sup>3</sup> that the Chartered SAB receive a briefing from the EPA on this proposed action to provide additional information about environmental justice (EJ) issues and the assessment of the impact of the proposed rule on communities, as well as the multi-pollutant and benefit-cost analyses.

During the Chartered SAB meeting on May 31st and June 2<sup>nd</sup>, 2022, the SAB received a briefing from the EPA and agreed that the SAB should review the science supporting the *Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards*. Due to EPA's time constraints, the SAB decided to provide a commentary to the EPA with recommendations on the current proposed rule. The SAB also agreed to engage in an additional advisory activity, developing a report providing broader recommendations on how the EPA might approach future analyses. In particular, the SAB finds that it is important to provide comments and recommendations regarding the following issues.

- The SAB should review the technical support document for the proposed rule and provide recommendations to the EPA to improve the distributional analysis of health impacts from reduced NO<sub>2</sub> emissions on communities, in addition to O<sub>3</sub> and PM. The SAB noted that EPA's Regulatory Impact Analysis (RIA) for the proposed rule included impacts from reduced PM and O<sub>3</sub> and a distributional analysis of concentrations at a 12-kilometer spatial resolution. The SAB further noted that this scale of spatial resolution may not enable consideration of community-level impacts of NO<sub>2</sub> and that chemical transport modelling with appropriate spatial resolution should be considered.
- The SAB should review technical information for the proposed rule and provide recommendations to EPA on how to advance (1) the assessment of complex exposures, (2) computational tools to quantify the multi-pollutant impacts/effects, and (3) satellite and mobile monitoring data to assess cumulative impacts on local communities.
- The SAB should review the cost-benefit analysis approach, as there are multiple health benefits of the proposed rule on low income and overburdened communities (e.g., reduced asthma development, reduced expenditures on health care, among others). The SAB noted that the NO<sub>2</sub> reductions expected to result from the proposed rule are an opportunity to capture EJ benefits in this rulemaking.

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<sup>3</sup> Recommendations of the SAB Work Group for Review of Science Supporting EPA Decisions Regarding Planned EPA Regulatory Actions [Memorandum], May 9, 2022. Available at: [https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19\\_ID:973](https://sab.epa.gov/ords/sab/f?p=114:19:9707071076986:::RP,19:P19_ID:973).

- The SAB should review the technical support document for the proposed rule and provide recommendations to the EPA regarding the multi-pollutant analysis in the context of climate change benefits given that several pollutants would be reduced simultaneously.
- The SAB should review the economic analysis as well as the quantification of differential impacts across sectors including, but not limited to, how sales influence different types of operators (individual operators vs. large fleet operators).

### C. Summary of Proposed EPA Actions that Do Not Merit SAB Review

RIN	Proposed Action Title	SAB Determination
<a href="#">RIN 2060-AV12</a>	NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units-Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding	This planned action does not warrant further review because previous SAB recommendations received EPA consideration, and current analyses are not precedential and do not need separate peer review beyond those already conducted.
<a href="#">RIN 2060-AU37</a>	National Emission Standards for Hazardous Air Pollutants: Ethylene Oxide Commercial Sterilization and Fumigation Operations	This planned action does not warrant further review by the SAB because no new science is being applied and the methods are well-established.
<a href="#">RIN 2040-AG12</a>	Clean Water Act Section 401 Water Quality Certification Improvement Rule	This planned action does not warrant further review by the SAB because it is largely procedural and does not involve scientific approaches that are new to the agency.
<a href="#">RIN 2060-AV30</a>	Review of Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations	This planned action does not warrant further review by the SAB because it has been classified by the EPA as a “substantive, nonsignificant” action and does not involve scientific approaches that are new to the agency.