

MEMORANDUM

TO: Members of the Chartered SAB and SAB Liaisons

FROM: Alison Cullen, Chair, SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science */signed/*

DATE: May 18, 2018

SUBJECT: Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Agency Actions and their Supporting Science in the Fall 2017 Regulatory Agenda

The Chartered SAB will discuss whether to review the adequacy of the science supporting planned regulatory actions identified by the EPA as major actions in the Fall 2017 semi-annual regulatory agenda at its May 31, 2018 meeting. To support this discussion a SAB Work Group was charged with identifying actions for further consideration by the Chartered SAB. This memorandum provides background on this activity, a short description of the process for identifying actions for SAB consideration, a summary of the process used by the Work Group and Work Group recommendations on the planned actions.

Background

The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA) requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment, together with relevant scientific 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.

EPA's current process (Attachment A) is to provide the SAB with information about the publication of the semi-annual regulatory agenda and to provide descriptions of major planned actions that are not yet proposed. Identifying actions that are not yet proposed provides the SAB and the Agency with sufficient time to provide a review. The agency process for submitting information on planned actions includes any major actions whether or not they are listed in the Regulatory Agenda. These descriptions provide available information regarding the science informing agency actions. This process for engaging the SAB supplements the EPA's process for program and regional offices to request science advice from the SAB.

Summary of the Process Used by the SAB Work Group

The SAB Work Group followed the [process adopted by the Chartered SAB](#) in 2013¹ to initiate its review of major planned actions identified in the Unified Regulatory Agenda by EPA. The current SAB review began when the EPA Office of Policy informed the SAB Staff Office that the Fall 2017 Unified (Regulatory) Agenda and Regulatory Plan had been published on December 14, 2017. This semi-annual regulatory agenda is available at <https://www.reginfo.gov/public/do/eAgendaHistory>. This SAB Work Group was formed in January 2018 and includes SAB members with broad expertise in scientific and

¹ Available at [http://yosemite.epa.gov/sab/sabproduct.nsf/WebSABSO/ProcScreen2017/\\$File/SABProtocol2017.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/WebSABSO/ProcScreen2017/$File/SABProtocol2017.pdf)

technological issues related to the proposed actions. The Work Group consists of Drs. Alison Cullen (chair), Robert Blanz, Otto Doering, H. Christopher Frey, John Graham, Merle Lindstrom, and Jay Turner, and Messrs. Robert Merritt and Richard Poirot.

The Work Group considered actions in the Fall 2017 semi-annual regulatory agenda that were identified by the EPA as “major actions.” The Work Group considered several factors when assessing each proposed major action, i.e., whether the action:

- already had a planned review by the SAB or some other high level external peer review [e.g., National Academy of Sciences, Clean Air Scientific Advisory Committee, Federal Insecticide, Fungicide and Rodenticide (FIFRA) Scientific Advisory Panel];
- was primarily administrative (i.e., involved reporting or record keeping);
- was an extension of an existing initiative;
- was characterized by EPA as an influential scientific or technical work product having a major impact, or involved precedential, novel, and/or controversial issues;
- considered scientific approaches new to the agency;
- addressed an area of substantial uncertainty;
- involved major environmental risks;
- was related to an emerging environmental issue; or
- exhibited a long-term outlook.

On March 30, 2018, the Work Group received information and short descriptions from the EPA Program Offices on the major planned actions that are listed in the Fall 2017 semi-annual regulatory agenda but not yet proposed. Work Group members concurred on the recommendations presented in this memorandum after discussions on April 20, 2018, May 3, 2018 and subsequently via email. A compiled set of the EPA descriptions of the actions and the Work Group recommendations are provided in Attachment B. The Work Group submitted requests for additional information on several planned actions and held a fact-finding teleconference on April 20, 2018. A summary of the teleconference is provided in Attachment C.

Work Group Recommendations Regarding Planned EPA Actions of Interest to the SAB

The SAB Work Group based the recommendations below on information received from the EPA and the Group’s independent research. Of the nine major planned actions considered, the Work Group recommends that two of the actions merit further SAB consideration, and the underpinnings of a third action merit further SAB consideration. A brief summary of the Work Group findings is provided and further information on each action is available in Attachment B.

Table 1 identifies the nine planned actions reviewed and summarizes the SAB Work Group’s recommendations. Attachment B provides the EPA’s descriptions of the planned actions, and the recommendation for each of the planned actions with the supporting rationales.

Table 1: Summary of Proposed Actions that the SAB Work Group Considered for Additional SAB Comment on the Supporting Science		
RIN¹	Planned Action Title	Workgroup Recommendation
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	Defer SAB consideration of the planned action until more information is available
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	Does not merit further SAB review
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	Merits SAB Review
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	Does not merit further SAB review
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	Does not merit further SAB review
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	Merits SAB Review
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	Does not merit further SAB review
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	Does not merit further SAB review
2060-AT31	Fuels Regulation Modernization - Phase 1	Does not merit further SAB review

¹The Regulatory Identification Number provides a hyperlink to the Office of Management and Budget’s webpage and information on the planned action provided in the Unified Regulatory Agenda on the OMB website <http://www.reginfo.gov/>

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12):
 The SAB Work Group recommends that the SAB review the scientific and technical basis for this planned action when more information is available and at that time determine if it is appropriate to provide advice and comment to the Administrator. From information the EPA staff provided, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science at this time. The current language indicates that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. Depending upon how the action proceeds, it may ultimately involve precedential issues and become an influential scientific or technical work product. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units (RIN 2060-AT67): This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying “Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal” (RIA) dated October 2017. Specifically, the SAB is advised to consider reviewing: i) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; ii) RIA calculations of climate change benefits on a US-only basis rather than a global scale; and iii) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the “social cost of carbon” (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77): The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions to the EPA. EPA staff noted that the Work Group identified analyses that “could be considered to inform the forthcoming Notice of Proposed Rule Making (NPRM)” and that they would assess these issues as they develop the proposed rule. EPA staff responded that the schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards has not yet been announced. The Work Group notes that EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation (MTE), including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. Key questions to address in such an SAB review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant “rebound” effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected. The Work Group provides a detailed rationale in Attachment B and the fact finding effort is summarized in Attachment C.

Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68) and Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35): These actions do not merit further SAB consideration. These actions undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Panels. CASAC is a FACA committee and has statutory mandate under the Clean Air Act to advise the Administrator regarding the National Ambient Air Quality Standards (NAAQS). The SO_x Review Panel and the Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur were specifically constituted, in terms of independent scientific expertise, to review the proposed actions, respectively. CASAC completed its review of the Sulfur Oxides NAAQS on April 30, 2018.

National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74): The Work Group finds that this action does not merit further SAB consideration. While the details of each Residual Risk and Technology Review (RTR) are unique to the sources and pollutants being evaluated, the general approaches and methodologies employed in EPA RTRs have become standardized, have been employed in numerous previous RTRs, and have been subject to multiple peer reviews over the past 17 years, most recently in 2009. As EPA's RTR methodologies are refined and revised over time, there is a need for periodic peer reviews of the changing methods. The SAB is currently conducting a review of recent revisions to the screening methodologies used to support RTR reviews. A final SAB report on this review is anticipated in 2018. Given the extensive past and ongoing peer reviews that have been conducted on RTR methodologies, the Work Group recommends that no additional SAB review is warranted for these specific RTRs at this time.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79): The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA stated that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?

- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a “new” glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

The Work Group recommends that the SAB conduct a review of the technical and scientific issues pertaining to this proposed action. In developing this recommendation, the Work Group considered the following: i) the proposed rule is in part based on a study that has been withdrawn by its authoring institution, ii) pertinent technical content is omitted, iii) the rule lacks clear attribution of the information that EPA cites, iv) the rule implies a potential rollback of reductions in emissions of pollutants that are harmful to public health, and v) there are myriad technical issues related to life cycle emissions.

Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements (RIN 2070-AK43): This action does not merit any further SAB consideration. Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31): The planned action does not merit further review by the SAB. This long-term action to “streamline and modernize EPA’s existing fuels regulations under 40 CFR part 80” is described as “an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones”. No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Work Group Recommendations Regarding Improvements to the Process for Identifying EPA Planned Actions for SAB Consideration

The Work Group thanks the EPA for providing information for consideration but emphasizes that the SAB requires more complete and timely information from the agency to make recommendations and decisions regarding the science supporting planned actions. The Work Group is noticing a trend of less information to describe the planned actions being made available over the last three regulatory review cycles. In reviewing the Fall 2017 Regulatory Agenda, there were several cases where key information about the planned action, supporting science and peer review were provided only after specific Work Group requests.

To improve the process for future review of planned actions, the SAB Work Group strongly recommends that EPA enhance descriptions of future planned actions by providing more description of the scientific and technological basis for actions and specific information on the peer review associated with the scientific basis for actions. For both the Spring and Fall 2017 reviews the Work Group finds that the responses to fact finding questions were not comprehensive and participation in the scheduled teleconference was limited. EPA should provide such information in the initial descriptions provided to the Work Group. The Work Group requests improved agency responsiveness for efficiency in the fact finding step.

The Work Group is aware that a recently proposed action, Strengthening Transparency in Regulatory Science (RIN 2080-AA14), was not included in the Fall 2017, nor identified as a major planned action by the EPA. The Work Group also notes that the EPA process to meet ERDDAA requirements, described in Attachment A of this memorandum, directs EPA program offices to include major actions that are not in the regulatory agenda and to provide descriptions of those actions. The Work Group finds that RIN 2080-AA14 is a major action and merits further review by the SAB. The Work Group provided a separate [memorandum](#) on this action. The proposed rule deals with issues of scientific practice and proposes constraints that the agency may apply to the use of scientific studies in particular contexts. As such, this rule deals with myriad scientific issues about which the Agency should seek expert advice from the Science Advisory Board.

Effective SAB evaluation of planned actions requires the agency to characterize:

- All relevant key information associated with the planned action;

- The science supporting the regulatory action. Clearly describe the science supporting the regulatory action and whether it is influential scientific information or highly influential scientific information. If there is new science to be used, provide a description of what is being developed. If the agency is relying on existing science, provide a short description.
- The nature of planned or completed peer review. To the extent possible, provide information about the type of peer review, the charge questions provided to the reviewers, how relevant peer review comments were integrated into the planned action, and information about the qualifications of the reviewer(s).

The SAB made several of these recommendations in previous reviews, as well as noting a trend toward less information being made available for actions listed in the Regulatory Agenda. We request that the chartered SAB highlight to the Administrator the need for the Agency to provide more complete information to support future SAB decisions about the adequacy of the science supporting actions in future regulatory agendas.

Attachments

- Attachment A: Implementation Process for Identifying EPA Planned Actions for SAB Consideration
Attachment B: SAB Work Group Recommendations on Major EPA Planned Actions Identified in the Fall 2017 Semi-Annual Regulatory Agenda.
Attachment C: Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda

Attachment A

Implementation Process for Identifying EPA Planned Actions for SAB Consideration

Background on the EPA Process

- ◆ The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA, see p. 4)
 - ◆ Requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment together with relevant scientific and technical information in the possession of the agency on which the proposed action is based.
 - ◆ States that the Board may 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 actions.
- ◆ In January 2012, Office of Policy Associate Administrator Michael Goo issued a memorandum to strengthen coordination with the SAB by providing the Board with information about *proposed* agency actions. (see page p. 9)
- ◆ In February 2012, SAB Staff developed an initial proposal to provide the SAB with information about *proposed* agency actions.
 - ◆ EPA Senior Leadership concluded that providing information to the SAB for consideration at the proposal stage was *too late* in the process for meaningful involvement.
- ◆ In March 2012, the SAB held a public meeting and discussed the Goo memo and a pilot to consider the science underlying four proposed rules identified by OAR (standards for air toxics from boilers and incinerators and greenhouse gas emissions and fuel economy standards for light-duty vehicles).
 - ◆ The SAB:
 - ◆ Did not identify any science topics related to the four proposed rules warranting SAB comment.
 - ◆ Noted that the proposal stage was *too late* in the process for meaningful input.
 - ◆ Discussed the need for adequate information on the underlying science for agency actions early in the process. Information beyond the information presented in the Semiannual Regulatory Agenda is needed for this purpose.
- ◆ On January 2, 2013, Associate Administrator Michael Goo, the Administrator’s Science Advisor Glenn Paulson, and the SAB Office Director Vanessa Vu issued a memorandum (see p. 10) “Identifying EPA Planned Actions for Science Advisory Board (SAB) Consideration of the Underlying Science – Semi-annual Process” requiring EPA to provide short descriptions of *major planned actions that are not yet proposed* appearing in the semi-annual regulatory agenda

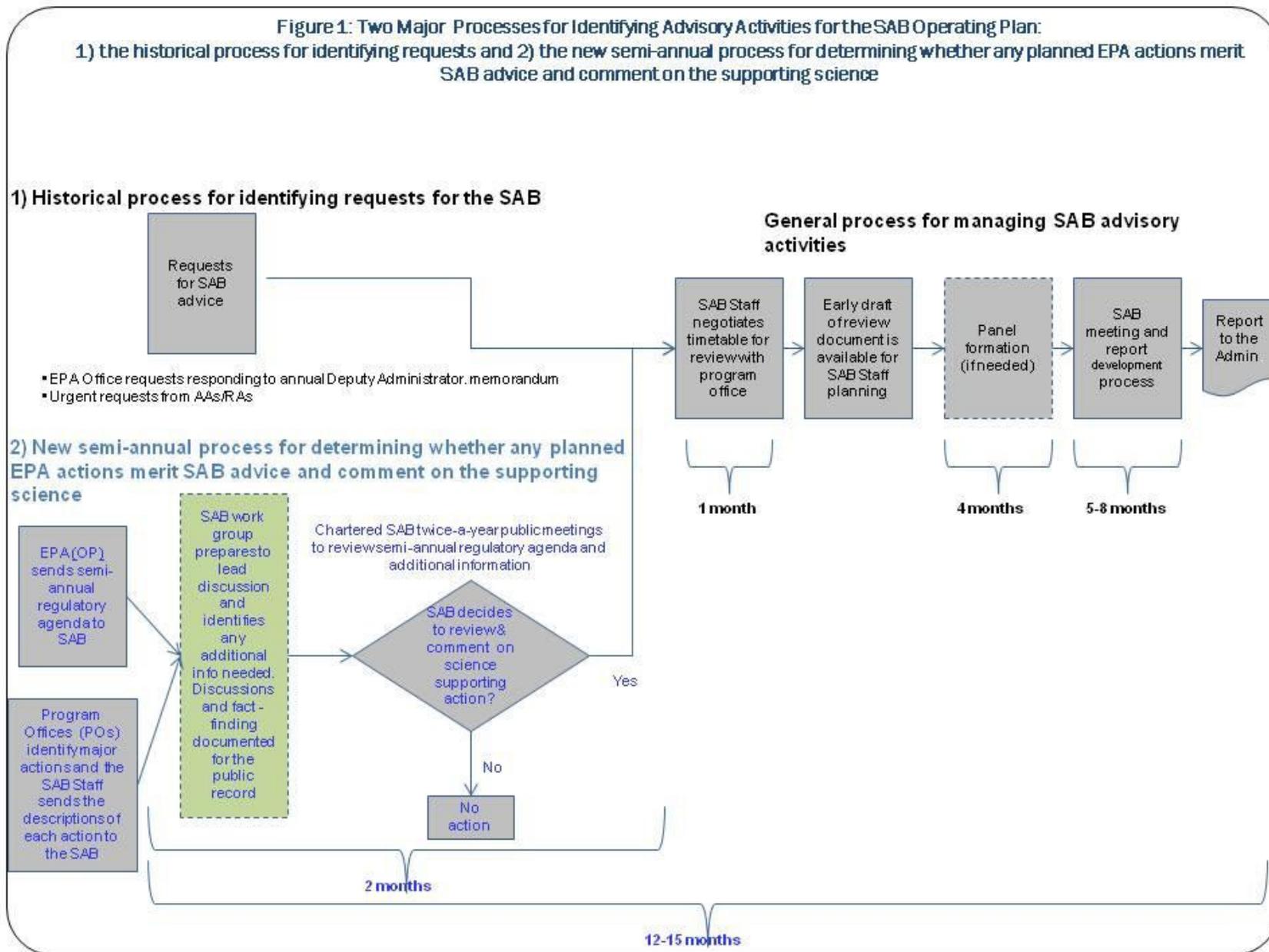
Attachment A: Identifying EPA Planned Actions for SAB Consideration

- ◆ This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices to identify scientific issues that might be appropriate for SAB consideration.

SAB Process

- ◆ The SAB Staff manages the semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science as part of the entire SAB operating plan (see Figure 1).

Attachment A: Identifying EPA Planned Actions for SAB Consideration



**Environmental Research, Development, and Demonstration Authorization Act
[(ERDDAA), 42 U.S.C. 4365]**

TITLE 42--THE PUBLIC HEALTH AND WELFARE

CHAPTER 55--NATIONAL ENVIRONMENTAL POLICY

SUBCHAPTER III--MISCELLANEOUS PROVISIONS

Sec. 4365. Science Advisory Board

(a) Establishment; requests for advice by Administrator of Environmental Protection Agency and Congressional committees

The Administrator of the Environmental Protection Agency shall establish a Science Advisory Board which shall provide such scientific advice as may be requested by the Administrator, the Committee on Environment and Public Works of the United States Senate, or the Committee on Science, Space, and Technology, on Energy and Commerce, or on Public Works and Transportation of the House of Representatives.

(b) Membership; Chairman; meetings; qualifications of members

Such Board shall be composed of at least nine members, one of whom shall be designated Chairman, and shall meet at such times and places as may be designated by the Chairman of the Board in consultation with the Administrator. Each member of the Board shall be qualified by education, training, and experience to evaluate scientific and technical information on matters referred to the Board under this section.

(c) Proposed environmental criteria document, standard, limitation, or regulation; functions respecting in conjunction with Administrator

(1) The Administrator, at the time any proposed criteria document, standard, limitation, or regulation under the Clean Air Act [42 U.S.C. 7401 et seq.], the Federal

Attachment A: Identifying EPA Planned Actions for SAB Consideration

Water Pollution Control Act [33 U.S.C. 1251 et seq.], the Resource Conservation and Recovery Act of 1976 [42 U.S.C. 6901 et seq.], the Noise Control Act [42 U.S.C. 4901 et seq.], the Toxic Substances Control Act [15 U.S.C. 2601 et seq.], or the Safe Drinking Water Act [42 U.S.C. 300f et seq.], or under any other authority of the Administrator, is provided to any other Federal agency for formal review and comment, shall make available to the Board such proposed criteria document, standard, limitation, or regulation, together with relevant scientific and technical information in the possession of the Environmental Protection Agency on which the proposed action is based.

(2) The Board may 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 criteria document, standard, limitation, or regulation, together with any pertinent information in the Board's possession.

(d) Utilization of technical and scientific capabilities of Federal agencies and national environmental laboratories for determining adequacy of scientific and technical basis of proposed criteria document, etc.

In preparing such advice and comments, the Board shall avail itself of the technical and scientific capabilities of any Federal agency, including the Environmental Protection Agency and any national environmental laboratories.

(e) Member committees and investigative panels; establishment; chairmanship

The Board is authorized to constitute such member committees and investigative panels as the Administrator and the Board find necessary to carry out this section. Each such member committee or investigative panel shall be chaired by a member of the Board.

(f) appointment and compensation of secretary and other personnel; compensation of members

Attachment A: Identifying EPA Planned Actions for SAB Consideration

(1) Upon the recommendation of the Board, the Administrator shall appoint a secretary, and such other employees as deemed necessary to exercise and fulfill the Board's powers and responsibilities. The compensation of all employees appointed under this paragraph shall be fixed in accordance with chapter 51 and subchapter III of chapter 53 of title 5.

(2) Members of the Board may be compensated at a rate to be fixed by the President but not in excess of the maximum rate of pay for grade GS-18, as provided in the General Schedule under section 5332 of title 5.

(g) Consultation and coordination with Scientific Advisory Panel

In carrying out the functions assigned by this section, the Board shall consult and coordinate its activities with the Scientific Advisory Panel established by the Administrator pursuant to section 136w(d) of title 7.

(Pub. L. 95-155, Sec. 8, Nov. 8, 1977, 91 Stat. 1260; Pub. L. 96-569, Sec. 3, Dec. 22, 1980, 94 Stat. 3337; Pub. L. 103-437, Sec. 15(o), Nov. 2, 1994, 108 Stat. 4593; Pub. L. 104-66, title II, Sec. 2021(k)(3), Dec. 21, 1995, 109 Stat. 728.)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460**

2

OFFICE OF THE ADMINISTRATOR

MEMORANDUM

SUBJECT: Identifying EPA Planned Actions for Science Advisory Board (SAB)
Consideration of the Underlying Science- Semi-annual Process

FROM: Michael Goo, Associate Administrator
Office of Policy

Glenn Paulson
Science Advisor

Vanessa Vu, Director
SAB Staff Office

TO: General Counsel
Assistant Administrators
Associate Administrators
Regional Administrators

The purpose of this memorandum is to provide guidance for implementing improved coordination with the SAB, the goal of the memorandum dated January 19, 2012 on that topic (Attachment A).

We ask that you work with the Office of Policy to provide the SAB Staff Office with information about the science supporting major planned agency actions (Tier 1 and Tier 2 actions) that are in the pre-proposal stage. The *2012 Unified (Regulatory) Agenda and Regulatory Plan* was published on December 21, 2012 on the Office of Management and Budget web site <http://www.reginfo.gov/public/>.

Please provide the SAB Staff Office (contact: Angela Nugent) by January 30, 2013, a brief description of each action along with its supporting science, following the format provided in Attachment B. Please ensure that these submissions to the SAB are consistent with information developed in the action development process.

This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices- to identify scientific issues that might be appropriate for SAB consideration.

Attachment A: Identifying EPA Planned Actions for SAB Consideration

We look forward to working with you on this new process to strengthen science supporting EPA's decisions. Please contact us or Caryn Muellerleile (202-564-2855) in the Office of Policy or Angela Nugent (202-564-2218) in the SAB Staff Office, should there be questions.

Attachments

cc: Administrator
Deputy Administrator
Chief of Staff
Deputy Chief of Staff

Attachment A: January 19, 2012 Memorandum from Michal L. Goo



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 19 2012

OFFICE OF
POLICY

MEMORANDUM

SUBJECT: Coordination with the Science Advisory Board Regarding Proposed Criteria Documents, Standards, Limitations and Regulations

FROM: Michael L. Goo, Associate Administrator *MLG*
Office of Policy

TO: Assistant Administrators
General Counsel
Chief of Staff
Associate Administrators
Regional Administrators

This is to confirm the procedures that we have discussed regarding coordination with the Science Advisory Board (SAB) on the science and technical information underlying the EPA's proposed criteria documents, standards, limitations and regulations.

In addition to the current process by which program offices identify actions on which they plan to seek advice from the SAB on scientific and technical issues, OP will semiannually inform the SAB, through the SAB Staff Office, of upcoming proposed actions. This process will focus on those proposed regulations, criteria documents, standards or limitations that undergo interagency review and will operate as follows:

1. OP will submit to the SAB staff office a list, based on the Agency's *Semiannual Regulatory Agenda (Regulatory Agenda)*, augmented as necessary, of upcoming proposed regulations, criteria documents, standards or limitations that are expected to undergo interagency review. OP will work with program and regional offices to ensure that any actions not listed in the *Regulatory Agenda* that nevertheless are expected to be submitted for interagency review are included in this submission. For any of these additional actions, offices should provide a description similar to that provided for actions included in the *Regulatory Agenda*.

Attachment A: Identifying EPA Planned Actions for SAB Consideration

2. Program and Regional offices will notify the SAB staff office when proposed Agency actions that undergo interagency review become formally available for public review and comment. EPA programs are also expected to provide additional information as requested by the SAB Staff Office to facilitate the SAB's consideration of this information.

If the SAB decides to review and, as appropriate, comment on the scientific and technical basis for a proposed action, OP will work with the SAB Staff Office and the relevant program or regional office to establish the appropriate time frame for SAB review and comment.

Thank you for your assistance in adhering to this process. If you have any questions or concerns, please contact me, or your staff can contact Nicole Owens owens.nicole@epa.gov, at 202 (564-1550).

cc: Bob Perciasepe
Bob Sussman
Deputy Assistant Administrators
Deputy Associate Administrators
Deputy Regional Administrators
Assistant Regional Administrators
Alex Cristofaro
Nicole Owens
Vanessa Wu
Thomas Brennan

**Attachment B - Sample Description of Major Planned EPA Action-
Information to be Provided to the SAB**

Name of action: Development of Best Management Practices for Recreational Boats Under Section 312(o) of the Clean Water Act

EPA Office originating action: OW

Brief description of action and statement of need for the action:

This action is for the development of regulations by EPA to implement the Clean Boating Act (Public Law 110-288), which was signed by the President on July 29, 2008. The Clean Boating Act amends section 402 of the Clean Water Act (CWA) to exclude recreational vessels from National Pollutant Discharge Elimination System permitting requirements. In addition, it adds a new CWA section 312(o) directing EPA to develop regulations that identify the discharges incidental to the normal operation of recreational vessels (other than a discharge of sewage) for which it is reasonable and practicable to develop management practices to mitigate adverse impacts on waters of the United States. The regulations also need to include those management practices, including performance standards for each such practice. Following promulgation of the EPA performance standards, new CWA section 312(o) directs the Coast Guard to promulgate regulations governing the design, construction, installation, and use of the management practices. Following promulgation of the Coast Guard regulations, the Clean Boating Act prohibits the operation of a recreational vessel or any discharge incidental to their normal operation in waters of the United States and waters of the contiguous zone (i.e., 12 miles into the ocean), unless the vessel owner or operator is using an applicable management practice meeting the EPA-developed performance standards.

Timetable:

Statutory: Phase 1 - 2009, Phase 2 - 2010, and Phase 3 – 2011
Regulatory Agenda: Phase 1 NPRM - 2013, Phase 1FR - 2014

Does the action rely on science that meets the EPA *Peer Review Handbook* definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

No

Scientific questions to be addressed and approach:

Recreational boating activities can contribute to the spread of aquatic nuisance species, primarily through the secondary transport of organisms introduced to U.S. waters via other vectors. For example, recreational boating has been linked to the spread of Zebra and Quagga mussels from their initial introduction into the Great Lakes to other U.S. waters. Consequently, the Agency is considering the development of regulations designed to reduce the spread of such organisms by reducing propagule pressure from the recreational vessel vectors. Propagule pressure is a measure

Attachment A: Identifying EPA Planned Actions for SAB Consideration

of the number of individual organisms released as well as the number of discrete release events. While there is a general consensus that an increase in propagule pressure increases the probability of establishing a self-sustaining population of an aquatic nuisance species, the probability is a complex function of a wide range of variables. These variables include species traits (e.g., viability, reproductive capability, and environmental compatibility) and environmental traits (e.g., retention of propagules, and interactions with resident species). When addressing secondary transport via recreational vessels, as this project is designed to specifically do, additional variables such as vessel characteristics, voyage type, and propagule exposure need to be considered. Due to the complexity of this issue, the Agency is seeking expert scientific opinions on management practices that can reduce propagule pressure that results from recreational boating activities.

Plans for scientific analyses and peer review:

The Agency is planning to convene a workshop on secondary transport of aquatic nuisance species via recreational vessels. Invited participants will have expertise in the field of invasion biology and each participant will be charged to provide their expert scientific opinion on management practices that the Agency should consider as part of this rule making.

Attachment B
SAB Work Group Recommendations on
Major EPA Planned Actions in the
Fall 2017 Semi-Annual Regulatory Agenda
May 18, 2018

<u>RIN</u>	<u>Title</u>	<u>EPA Office</u>	<u>Agenda Stage of Rulemaking</u>	<u>Additional Available Information*</u>	<u>Page</u>
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	OP	Pre-rule Stage	Submitted questions**	2
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	OAR	Pre-rule Stage	Submitted questions**	6
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	OAR	Pre-rule Stage	Withdrawal of January 12, 2017 final determination FR Notice 4/13/2018 Submitted questions**	11
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	OAR	Proposed Rule Stage		28
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	OAR	Proposed Rule Stage		31
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	OAR	Proposed Rule Stage	NPRM 11/16/17 Submitted questions**	36
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	OCSP P	Proposed Rule Stage		44
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	OAR	Long-Term Actions		47
2060-AT31	Fuels Regulation Modernization - Phase 1	OAR	Long-Term Actions		50

*Includes publicly available information published in the *Federal Register* (i.e., *Advanced Notice of Public Rule Making, Notice of Data Availability, Proposed Rules*) in addition to the Regulatory agenda and EPA description of the planned action

** A summary of the Work Group's submitted questions and agency responses may be found in Attachment C

Description of Planned EPA Action

- 1. Name of action:** Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (ANPRM)
- 2. RIN Number:** 2010-AA12
- 3. EPA Office originating action:** Office of the Administrator / Office of Policy
- 4. Brief description of action and statement of need for the action:**

EPA is considering developing implementing regulations that would increase consistency across EPA divisions and offices, increase reliability to affected stakeholders, and increase transparency during the development of regulatory actions. Many EPA statutes, including the Clean Air Act and the Clean Water Act, provide language on the consideration of costs, but costs have historically been interpreted differently by the EPA depending on the office promulgating the regulatory action. This has led to EPA choosing different standards under the same provision of the statute, the regulatory community not being able to rely on consistent application of the statute, and EPA developing internal policies on the consideration of costs through non-transparent actions. By developing implementing regulations through a notice-and-comment rulemaking process, it will provide the public with a better understanding on how EPA is evaluating costs when developing a regulatory action and allow the public to provide better feedback to EPA on potential future proposed rules.

In an Advanced Notice of Proposed Rulemaking (ANPRM) EPA will solicit comments and recommendations on how it can make regulatory cost considerations more consistent, reliable, and transparent. The ANPRM is expected to illustrate how EPA considered costs in recent rulemakings and pose questions to help identify opportunities for improvement. Potential areas of inquiry may include:

- How EPA should define cost metrics and thresholds for specific terms such as reasonable and practicable
- How EPA could increase the consistency and reliability of cost considerations within particular statutes (e.g., CAA, CWA) and across statutes
- How might EPA improve the transparency of how it considers regulatory costs in a consistent, reliable manner.

Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM).

- 5. Timetable:**

The current EPA Regulatory Agenda reports a target date of February 2018 for publication of the ANPRM.

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

None at this time. The EPA is early in the process of developing the ANPRM. Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM), at which time the Agency will determine the specific scientific products needed and the nature of the peer review intended.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

Not applicable at this time, per answer to 6(a).

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

Not applicable at this time, per answer to 6(a).

6(d). Peer review:

Not applicable at this time, per answer to 6(a).

Recommendation from the SAB Work Group

Name of planned action: Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks		X	
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB Work Group recommends that the SAB review the scientific and technical basis for the Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12) when more information on the planned action is available and at that time determine if advice and comment is appropriate to provide to the Administrator.

Rationale: From the discussion with the EPA staff, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science. There also was the indication that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

We would propose to defer consideration of this action until the next review when more information may be available. Depending upon how the action proceeds, it may well involve precedential issues and become an influential scientific or technical work product.

With respect to the consistency and transparency goals, EPA staff may find the National Research Council's 2012 *Review of the EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida* helpful – especially the chapter on “A Framework for Incremental Cost Analysis of a Rule Change.”

Description of Planned EPA Action

1. Name of action: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units

2. RIN Number: 2060-AT67

3. EPA Office originating action:

Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division

4. Brief description of action and statement of need for the action:

On October 23, 2015, the Environmental Protection Agency (EPA) finalized the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule (aka the Clean Power Plan). On March 28, 2017, President Trump signed Executive Order 13783 to initiate reconsideration proceedings to suspend, revise or rescind this regulation (among others). On October 16, 2017, the EPA proposed to repeal the Clean Power Plan; the comment period for this repeal is scheduled to be open until April 26, 2018. In a separate but related action, the EPA issued an Advance Notice of Proposed Rulemaking (ANPRM) to solicit information from the public about a potential future rulemaking to replace the Clean Power Plan on December 28, 2017; the comment period for this ANPRM is scheduled to be open until February 26, 2018. The ANPRM has specifically focused on measures that electric generating units can take at the facility to reduce carbon emissions.

Clean Power Plan Repeal Hot Link: <https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-repealing-clean-power-plan-0>

Clean Power Plan replacement ANPRM Hot Link: <https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-advance-notice-proposed>

5. Timetable:

The administrator has publicly announced a proposed and final version of this regulation in 2018. There are no judicial or more delineated time frames at this stage of the rule-making.

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

The EPA is early in the process of developing a proposal, and has not yet determined the specific scientific products needed. The EPA is also still waiting for input from the public from the ANPRM on this subject that will influence what products are needed.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

See related response in 6(a) above.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

The EPA is early in the process of developing a proposal, and has not yet determined the specific nature of the peer review intended. We do not envision this action relying on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product."

6(d). Peer review:

See related response in 6(a) above.

Recommendation from the SAB Work Group

Name of planned action: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency	X		
Addresses areas of substantial uncertainties	X		
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying “Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal” (RIA) dated October 2017. Specifically, the SAB may wish to review: 1.) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; 2.) RIA calculation of climate change benefits on a US-only rather than global scale; and 3.) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the “social cost of carbon” (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Rationale: Planned Action 2060-AT67 is an ANPRM seeking information on systems to reduce carbon dioxide emissions from existing fossil-fueled EGUs. If enacted, the new rule would

essentially serve as a replacement of the Clean Power Plan (CPP), which the Agency has previously proposed to repeal via action 2060-AT55. This ANPR is also intended to solicit information on the proper respective roles of the states and federal government, compliance measures, and state planning requirements associated with emissions of GHG from existing EGUs. The ANPRM seeks comments on a broad range of regulatory scenarios and technical approaches, while considering the overarching environmental objectives of GHG reductions.

The draft SAB recommendations of the Spring 2017 EPA regulatory agenda recommended further SAB review of action 2060-AT55 (CPP repeal). Since a potential replacement rule is in the early information-gathering stage, there do not currently appear to be unique science questions that would not also be addressed in a SAB review of 2060-AT55 (although some may be identified as and if the replacement rule-making proceeds). It is also noted that the stated justification for the CPP replacement is based on a revised legal interpretation, rather than any new science or technology. For these reasons, a separate SAB review of Action 2060-AT67 is not recommended at the present time (an alternative recommendation might be to review the proposed repeal and replacement actions together?).

However, it should be noted that the proposed repeal and replacement of the CPP are both dependent on an October 2017 “Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal” ([RIA](#)) which includes a number of critically important scientific and technical assumptions and approaches that differ substantially from those employed in many past RIAs, and which may also influence other current or future Agency actions relating to GHG emissions, but which have not been subject to external peer review. Among the most influential and controversial assumptions is that there is no reduction in PM mortality at concentrations below the NAAQS (employed in a “sensitivity analysis”, but otherwise not supported by the current science). The SAB CASAC has concurred that PM mortality has no discernible threshold in the past several PM NAAQS reviews, and the SAB Council on Clean Air Compliance Analysis, has expressed similar concurrence in its past several reviews of CAAA Section 812 cost/benefit studies of the CAAA. Several recent Harvard studies (Di et al. [2017a, b](#)) clearly indicate PM mortality at concentrations well below the current daily and annual PM NAAQS respectively.

Other key assumptions in the RIA include a substantial downward revision (87% to 97% lower) to the previously accepted estimates of the “Social Cost of Carbon” (SCC). The previous SCC had been developed and revised over many years by a multi-agency workgroup of scientists and economists, and was recently subject to extensive reviews by the National Research Council. The [Phase 1 NRC report](#) reviewed the current (as of 2016) SCC and recommended no short term changes, while the [Phase 2 NRC report](#) recommended longer-term approaches and research needs for future revisions. The revised SCC used in the 2017 RIA is not consistent with the NRC recommendations.

Two important changes from previous SCC estimates include limiting assumed benefits from US GHG reductions to the US only rather than considering the global nature of the problem, and using discount rates of 3% and 7% (compared to 2.5%, 3% and 5% used in previous SCC estimates) to project future costs & benefits in current dollars. If each country considered only local climate-related benefits of reducing its local GHG emissions, none would act. Conversely, inaction on US GHG emissions may result in other nations renegeing on their emissions reduction commitments. The 3% to 7% discount rates were taken from a 2003 OMB circular A4 - which

also indicated that lower rates might be appropriate for considering long-term intergenerational effects. A 7% discount rate essentially drives assumed benefits towards zero for the future generations which will be most heavily impacted by current GHG emissions. A recent [2017 report](#) from the Council of Economic Advisors recommends that both the high and low bounds of this range should be lowered. Richard Newell, who co-chaired the NRC SCC Review panel recently indicated that “the [3% to 7%] range of discount rates used is not appropriate under standard economics, leading to much weaker policy than would otherwise be the case.”

Since the assumptions and methods employed in the 2017 RIA are critical to both the proposed repeal and replacement of the CPP, as well as to other current or future actions pertaining to GHG emissions, it is important that they be subject to external peer review. How, when and by whom such review(s) should be conducted are difficult questions - for which further input and discussion from the entire SAB would be desirable. The issue of PM mortality effects at levels below current NAAQS should be thoroughly considered (again) in the currently ongoing PM NAAQS ISA development and associated CASAC review. Since the NRC Committee has recently completed extensive reviews of the SCC, it could be presumptuous to assume that an SAB committee could improve upon those efforts. However, those NRC reviews were very specifically focused on the previous (pre-2017) SCC estimates. One approach might be to recommend reconvening the NRC Committee and ask them to review just the changes to SCC estimation methods since their last review.

Description of Planned EPA Action

- 1. Name of action:** Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles
- 2. RIN Number:** 2060-AT77
- 3. EPA Office originating action:** Office of Air and Radiation/Office of Transportation and Air Quality
- 4. Brief description of action and statement of need for the action:**

On March 22, 2017, EPA announced its intention to reconsider the Final Determination of the Mid-Term Evaluation (MTE) of greenhouse gas (GHG) standards for model year (MY) 2022–2025 light-duty vehicles and to coordinate its reconsideration with the parallel process to be undertaken by the Department of Transportation (DOT)/National Highway Traffic Safety Administration (NHTSA) regarding Corporate Average Fuel Economy (CAFE) standards for cars and light trucks for the same model years. EPA is authorized to establish GHG standards for light-duty vehicles under section 202(a) of the Clean Air Act.

This reconsideration follows a January 2017 determination signed by the former Administrator to maintain the current GHG emissions standards for MY 2022-2025 vehicles. The previous determination was preceded by an EPA Proposed Determination in November 2016 and a Draft Technical Assessment Report released jointly by EPA, NHTSA, and the California Air Resources Board in July 2016.

EPA made a regulatory commitment as part of the 2012 rulemaking establishing the MY 2017-2025 light-duty vehicle greenhouse gas (GHG) standards to conduct a Mid-term Evaluation of the standards for MYs 2022-2025 to determine whether the standards remain appropriate. As a part of the Mid-term Evaluation process, EPA has examined and continues to examine a wide range of factors, such as developments in powertrain technology, vehicle electrification, the penetration of fuel efficient technologies in the marketplace, consumer acceptance of fuel efficient technologies, trends in fuel prices and the vehicle fleet, employment impacts, and many others.

Additional background and documents related to the Mid-Term Evaluation are available at:

<https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas>.

Rulemaking documents for the model year 2017-2025 standards are available at:

<https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle>.

5. Timetable:

EPA plans to issue a new Final Determination no later than April 1, 2018.

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

The EPA has developed a wide range of technical and scientific work products to inform the Midterm Evaluation. EPA utilizes two key models: 1) the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) model is a full vehicle simulation model which estimates the GHG emission reduction potential of various combinations of vehicle and powertrain technologies. 2) the Optimization Model for reducing Emissions of Greenhouse Gases from Automobiles (OMEGA) estimates the most cost-effective technology pathways for automobile manufacturers to achieve fleet-wide levels of GHG emissions, by using vehicle effectiveness estimates from the ALPHA model combined with cost estimates for various combinations of fuel efficient technologies. Both the ALPHA and OMEGA model have been peer reviewed and are publicly available.

<https://www.epa.gov/regulations-emissions-vehicles-and-engines/advanced-light-duty-powertrain-and-hybrid-analysis-alpha>

<https://www.epa.gov/regulations-emissions-vehicles-and-engines/optimization-model-reducing-emissions-greenhouse-gases>

The EPA assesses advancements in fuel efficient technologies in the vehicle market through an in-house powertrain benchmarking program at its National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Through this effort, the EPA has benchmarked more than 30 vehicles to gather detailed data on the emissions and fuel consumption performance of advanced gasoline engines and transmissions. Over the past five years, the EPA has published about 30 peer-reviewed technical papers regarding the development of the EPA ALPHA model, EPA's benchmarking work, EPA's investigation of advanced automotive technologies, and other technical elements that can help to inform the EPA Mid-term Evaluation. These papers and the data is made publicly available.

<https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#publication>

<https://www.epa.gov/vehicle-and-fuel-emissions-testing/test-data-light-duty-greenhouse-gas-ghg-technology>

The EPA continues to assess, with a contractor, FEV, the costs of fuel efficient technologies through a detailed process referred to as cost teardown analysis. The EPA has also assessed both the feasibility and costs of reducing GHG emissions through vehicle light-weighting; the most recent of these studies assessed light-weighting

potential for full-size pickups.

<https://nepis.epa.gov/Exe/ZyPDF.cgi/P100MS0E.PDF?Dockey=P100MS0E.PDF>

In further investigation of auto manufacturer costs impacts, the EPA commissioned a study on cost reduction through learning in manufacturing. The final report and peer review report can be found at

<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100PUSX.PDF>

The EPA has conducted research on several fronts relating to consumer and market impacts of the vehicle GHG standards. The EPA assessed consumer satisfaction with fuel efficient technologies through a content analysis study of professional automotive reviews. The EPA is currently continuing to assess consumer issues through a review of consumer survey data, has commissioned research into consumer willingness to pay for various vehicle attributes, and is also exploring the evolving relationship between vehicle performance and fuel economy.

The EPA commissioned research on the vehicle miles traveled rebound effect. The final report and peer review report can be found at

<https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N11T.PDF?Dockey=P100N11T.PDF>

<https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N141.PDF?Dockey=P100N141.PDF>

Numerous EPA technical reports and publications informing the MTE can be found on the EPA Science Inventory:

[Benchmarking and Hardware-In-The-Loop Operation of a 2014 MAZDA SkyActiv \(SAE 2016-01-1007\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309373&simpleSearch=0&showCriteria=2&searchAll=otag&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Characterizing SI Engine Transient Fuel Consumption in ALPHA \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328376&simpleSearch=0&showCriteria=2&searchAll=otag&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Consideration of Real World Factors Influencing Greenhouse Gas Emissions in ALPHA \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328377&simpleSearch=0&showCriteria=2&searchAll=otag&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[EPA ALPHA Modeling of a Conventional Mid-Size Car with CVT and Comparable Powertrain Technologies \(SAE 2016-01-1141\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309576&simpleSearch=0&showCriteria=2&searchAll=otag&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Estimating GHG Reduction from Combinations of Current Best-Available and Future Powertrain and Vehicle Technologies for a Midsized Car Using EPA's ALPHA Model \(SAE 2016-01-0910\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309574&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Fuel Efficiency Mapping of a 2014 6-Cylinder GM EcoTec 4.3L Engine with Cylinder Deactivation \(SAE 2016-01-0662\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309578&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Investigating the Effect of Advanced Automatic Transmissions of Fuel Consumption Using Vehicle Testing and Modeling \(SAE 2016-01-1142\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309575&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Modeling and Validation of 12V Lead-acid Battery for Start-Stop technology \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=336334&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Modeling the Effects of Transmission Type, Gear Count and Ratio Spread on Fuel Economy and Performance Using ALPHA \(SAE 2016-01-1143\) \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309611&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Peer Review of ALPHA Full Vehicle Simulation Model \(PUBLISHED REPORT\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=337970&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Potential Fuel Economy Improvements from the Implementation of cEGR and CDA on an Atkinson Cycle Engine \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328379&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

[Testing and Benchmarking a 2014 GM Silverado 6L80 Six Speed Automatic Transmission \(JOURNAL\)](#)

https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328378&simpleSearch=0&showCriteria=2&searchAll=office+of+transportation&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

The EPA's technical work to inform the MTE is conducted through approaches including in-house testing and model development, commissioning work with experts via contracts, collaborations with other agencies (NHTSA, California Air Resources Board, Department of Energy, Canadian government agencies), stakeholder outreach, peer-review, and review of public comments.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

The work products described above to inform the reconsideration of the MTE final determination meet the definition of influential scientific or technical work products.

6(d). Peer review:

Each of the technical work products conducted to inform the MTE either has been or will be peer reviewed. See 6(a) for the peer reviews that have already been completed and are contained in the EPA Science Inventory or posted to the EPA's Midterm Evaluation web site.

In addition, the EPA has several work products currently undergoing peer review, including:

- EPA's ALPHA model response surface equation report: EPA developed a method of deriving vehicle effectiveness values using an industry standard statistical methodology known as a Response Surface Model, which computationally synthesizes a large set of vehicle simulation outputs from the ALPHA model. This letter peer review was conducted through a contractor, RTI International. EPA is in the process of reviewing the draft peer review report.
- Consumer Willingness to Pay for Vehicle Attributes: EPA commissioned RTI International to work with a subject matter expert in reviewing the academic literature regarding consumer willingness to pay (WTP) for a variety of vehicle attributes (e.g., fuel economy, performance, comfort, range) and to assess the ranges of WTP values in the literature. A letter peer review, conducted through a contractor, of this research report has been completed and EPA is currently reviewing the peer review report.
- Content Analysis of Professional Auto Reviews: EPA commissioned research with a contractor, RTI International, to investigate satisfaction with vehicle fuel efficiency

technologies, through a content analysis of professional automotive reviews. EPA is conducting peer review through submission of journal articles for publication. A journal article has been published on EPA's study of auto reviews for model year 2014 vehicles (Helfand et al. (2016), "Searching for Hidden Costs: A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles," Energy Policy 98: 590-606). EPA has submitted for publication a second paper on our analysis of auto reviews for model year 2014 and 2015 vehicles.

Recommendation from the SAB Work Group

Name of planned action: Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN: 2060-AT77)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		x
Is the action primarily administrative (i.e., involve reporting or record keeping)?		x
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	x	
Is the action an extension of an existing initiative?	x	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		x	
Addresses areas of substantial uncertainties		x	
Involves major environmental risks	x		
Relates to emerging environmental issues	x		
Exhibits a long-term outlook	x		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions¹ to the EPA. They noted that the Work Group identified analyses that "could be considered to inform the forthcoming NPRM" and they will assess these issues as they develop the proposed rule. They also noted the schedule for the rulemaking addressing standards for model years 2022-2025

¹ Attachment C of this memorandum provides submitted questions and EPA's responses

light-duty vehicle greenhouse gas standards has not yet been announced. Key questions to address in such a review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant “rebound” effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: Additional details are given below regarding the workgroup evaluation of the proposed action. In addition, fact-finding questions submitted to EPA and the EPA responses are given in an appendix.

- On April 2, 2018, the Administrator issued a revised final determination of the Mid-Term Evaluation (MTE) which “initiate[s] a rulemaking process whose outcome will be a final agency action.” As such, these recommendations focus on the ongoing rulemaking process that results from the MTE. The ongoing rulemaking process pertains to revision of the now in-effect Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles, hereby after referred to as “the standards”. The Administrator finds that the standards are “not appropriate and should be revised.”
- The April 2, 2018 final determination relied extensively on public comment without peer review or independent evaluation or validation of claims made by public commenters. The specific ISI or HISI to be used by EPA in the forthcoming proposal is not specified in the announcement of the final determination for the MTE.
- Reconsideration of the MTE did not identify or account for the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impacts of the standard on other pollutants from vehicles, including life cycle emissions from the transport system. These would seem to be logical and necessary areas for scientific and technical assessment, for which Influential Scientific Information (ISI) or

Highly Influential Scientific Information (HISI) would be needed to inform the forthcoming proposal. Such information must be transparent, accessible to the public, and appropriately peer-reviewed.

- EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation, including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. The Administrator argues that the 2022-2025 standards are based on “outdated information” and that new information should be considered, including gas prices, consumer acceptance of advanced technology vehicles, the social cost of carbon, the rebound effect, energy security valuation, technology effectiveness, technology cost, vehicle affordability, and vehicle safety. This implies a significant scope of data and methods which might constitute HISI or ISI and, therefore, which might require appropriate peer review. However, EPA has not provided any information on what HISI or ISI would be developed or used in the forthcoming rulemaking or how such information would be appropriately reviewed.
- The Administrator argues that manufacturers are having difficulty meeting the current standards because they are using banked credits. However, the use of banked credits might be a short term phenomenon that permits manufacturers to account for product development cycles in new vehicle offerings. The expected or possible functions of the credit banking system may be a relevant issue to the review of the standards for which no particular methodology has been articulated by the EPA.
- The Administrator argues that electric vehicle sales are necessary to compliance with the standards. This projection can be evaluated via quantitative analysis that is subject to peer review. The peer-reviewed literature includes some studies that do not support this assumption. Others, such as the National Research Council, have indicated that a variety of approaches could be employed to meet the requirements for the 2025 model year. However, the National Research Council simulations and some of the peer-reviewed literature were focused on mid-sized cars and did not account for the rapid growth of the light truck fleet.
- The Administrator stated, based on a public comment, that “electrified light vehicle” (ELV) sales have decreased. The public comment was based on incomplete information that did not take into account full year sales data for 2016, nor data for 2017, and did not differentiate among vehicle types. ELVs are defined in EPA’s draft Technical Assessment Report for the MTE to include hybrid electric vehicles (HEVs), plug-in electric vehicles (PHEVs), and battery electric vehicles (BEVs). Total ELV sales peaked in 2013 and bottomed out in 2015. HEV sales bottomed out in 2016. ELV sales in 2017 are 11 percent lower than in 2013 because the decline in HEV sales has outweighed the steady rise in sales of PHEVs and BEVs. The rise in sales of plug-in electric vehicles may not be entirely encouraging because it is concentrated in mid-price to high-price models, coupled with tax credits, rather than the more affordable models that may be needed to achieve mass commercialization.
- Any revision of the standards is likely to be highly controversial. California has an EPA waiver issued under the Clean Air Act to develop its own vehicle emissions regulations. One of the key goals of the 2017-2025 standards was to harmonize the federal standard

and the California GHG standard into a Joint National Program. However, state zero emission vehicle (ZEV) standards were not harmonized with the EPA and NHTSA standards. California completed its own MTE and found that the California standards – both its GHG and ZEV standards -- were appropriate. Other states on the West Coast and in the Northeast region of the US have chosen to adopt California standards. If the EPA revises the federal standards such that they differ from those of California, and if EPA grants California a waiver for separate standards, the U.S. will have disparate standards in different parts of the country, thereby creating compliance complications for automakers. If EPA revises the federal standards but does not grant a waiver to California, that would also be highly controversial. Revisions to the standards are likely to be controversial for other reasons as well. For example, reductions in GHG emissions are critical to mitigation of climate change, which has long-term public health, safety, and ecological implications.

- Other details are as noted below.
- Some of the issues identified here, such as the social cost of carbon, cut across multiple planned actions, including 2060-AT55, 2060-AT56, and 2060-AT67. Other issues are unique to the standards.

Detailed Assessment

On April 2, 2018, the EPA Administrator determined that the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles “are not appropriate”. This concludes the Reconsideration of the Final Determination of the Mid-Term Evaluation of these standards. However, the effect of the April 2, 2018 decision is to “initiate a rulemaking process whose outcome will be a final agency action.” The final agency action is expected to be a revision of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles. Until such time as these standards are revised, replaced, or rescinded, they remain in effect. As justification for the MTE decision that the standards are “not appropriate,” the Administrator cites the following key factors:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers
5. The impact of the standards on the automobile industry
6. The impacts of the standards on automobile safety
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

Not mentioned among the key factors is the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impact of the standards with regard to co-benefits of reduced emissions of other pollutants and reduced life cycle emissions for vehicles.

Modification of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (referred to hereafter as “the standards”) will entail review and interpretation of a substantial amount of information and data. The rulemaking process will involve the use of influential scientific information (ISI) or highly influential scientific information (HISI). The April 2, 2018 notice relies extensively on public comments. The specific ISI or HISI to be used by EPA in the forthcoming rulemaking is not specified in the announcement of the final determination for the MTE. Thus, at this time, the SAB Regulatory Review Working Group should conduct fact-finding or request more information from EPA regarding the planned action to revise the standards.

Mid-Term Evaluation – Version 1

According to EPA, “the Mid-Term Evaluation was established to review standards set in a 2012 joint rulemaking by the EPA and NHTSA, which set federal GHG emissions and CAFE standards for MY 2017 and beyond for light-duty vehicles. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, Final Rule, 77 FR 62624 (Oct. 15, 2012).” “These standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles (i.e., sport utility vehicles, cross-over utility vehicles and light trucks), collectively referred to as light-duty vehicles. EPA set GHG standards (including standards for emissions of carbon dioxide (CO₂), nitrous oxide, methane and air conditioning refrigerants) for MY 2017–2025 passenger cars and light-trucks under section 202(a) of the CAA. NHTSA sets national CAFE standards under the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA) of 2007.”

In November, 2016, EPA issued a proposed determination for the Mid-Term Evaluation. 81 FR 87927 (Dec. 6, 2016). On January 12, 2017, the EPA Administrator signed the Final Determination of the Mid-Term Evaluation of light-duty vehicle GHG emissions standards for MYs 2022–2025.” In a letter to stakeholders announcing the final determination of the MTE, the Administrator stated “the standards adopted in 2012 by the EPA remain feasible, practical and appropriate under section 202(a) and do not need to be revised, after considering the factors laid out in the 2012 rule.” Furthermore, the Administrator noted “the success of the industry to date in achieving seven years of record sales while producing a large variety of vehicles that meet or exceed the standards reflects the fact that the development and deployment of advanced technology conventional gasoline engines has happened consistent with a robust vehicle market, more rapidly than we predicted, and at costs that are comparable or slightly lower than we predicted.”

Scientific and Technical Analyses for the 2012 Rule and the MTE

The technical analyses that were the basis of the 2012 rule making and that informed the final determination for the MTE was extensive. They included, but were not limited to, EPA staff reports on a consumer vehicle choice model (2012), Testing a Model of Consumer Vehicle Purchases (2015), Mass Reduction and Cost Analysis— Light-Duty Pickup Truck Model Years 2020-2025 (2015), evaluation of The Rebound Effect from Fuel Efficiency Standards (2015) (including external peer review that “expressed overall support for the methodology”), A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles (2015), Cost Reduction through Learning in Manufacturing Industries and in the Manufacture of Mobile

Sources (2016), draft Technical Assessment Report for the MTE (1217 pages, 2016, jointly with CARB and NHTSA), and a Final Determination of Appropriateness under the MTE (2017). Furthermore, EPA staff authored or co-authored a series of reports submitted for peer review and publication on topics such as development of an efficiency test for air conditioners, cost effectiveness of lightweight design for a crossover SUV, development of an advanced light duty power train and hybrid analysis tool, modeling and validation of power-split and parallel hybrid electric vehicles, and others. Moreover, EPA developed new modeling tools including the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) Tool and Optimization Model for reducing Emissions of Greenhouse gases from Automobiles (OMEGA).

In a 2015 report, the National Research Council issued its review and recommendations regarding the methodology used by EPA and NHTSA in developing the 2017-2025 MY GHG and CAFÉ standards. “The committee found the analysis conducted by NHTSA and EPA in their development of the 2017-2025 standards to be thorough and of high caliber on the whole. In particular, the committee notes that the use of full vehicle simulation modeling in combination with lumped parameter modeling has improved the Agencies’ estimation of fuel economy impacts. Increased vehicle testing has also provided input and calibration data for these models. Similarly, the use of teardown studies has improved the Agencies’ estimates of costs.” The NRC recommended updating some of the cost estimates during the MTE process. The committee estimated that downsized turbocharged engines would provide fuel consumption “close to that estimated by NHTSA” but with up to 15 percent higher manufacturing cost. NRC’s simulations of multiple technologies for mid-sized cars found that NHTSA’s 2012 analysis had underestimated technology costs by 11% or 56%, depending on the specification of updated cost inputs. However, the NRC committee further noted that “There are also new technologies not considered by EPA and NHTSA that might provide additional fuel consumption reductions for SI engines, or provide alternative approaches by 2025 and beyond. These technologies include higher compression ratio, exhaust scavenging, lean burn, and electrically assisted supercharger approaches and alternative fuels such as compressed natural gas-gasoline bi-fuel engines and ethanol-boosted direct injection engines.” The NRC also found that continuously variable transmissions (CVTs) will experience more market penetration than assumed by the agencies, that more attention should be given to lightweighting, that more attention should be given to understanding why consumers undervalue fuel economy relative to its discounted expected present value, and to monitoring the effects of the standards on fuel efficiency, vehicle footprint, fleet size mix, safety, and the price of new vehicles to understand the impact of the rules on consumers’ choices and manufacturers’ products offered.

With regard to the latter, EPA has issued Manufacturer Performance Reports for the 2015 and 2016 model years that documents the status of auto manufacturer compliance with the GHG standards since the standards took effect in the 2012 model year. EPA has also published The Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends Report annually to summarize trends in EPA’s best estimate of real world tailpipe carbon dioxide (CO₂) emissions and fuel economy, and associated technologies. These reports quantify that manufacturers have responded to the GHG emission and fuel economy standards by adopting a range of technologies such as gasoline direct injection.

Mid-Term Evaluation – Version 2

On March 22, 2017, EPA announced its intent to reconsider the Final Determination of the Mid-Term Evaluation of greenhouse gas (GHG) standards for model year (MY) 2022-2025 light duty vehicles and to coordinate this reconsideration with the US DOT's NHTSA regarding Corporate Average Fuel Economy (CAFE) Standards for cars and light trucks for the same model years [Federal Register, Vol. 82, No. 54, page 14671]. "EPA has concluded that it is appropriate to reconsider its Final Determination in order to allow additional consultation and coordination with NHTSA in support of a national harmonized program." Under the original timeline for the MTE, EPA was required to determine no later than April 1, 2018 whether the standards for model years 2022 to 2025 are appropriate.

On August 21, 2017, EPA requested comment on "the separate question of whether the light-duty vehicle greenhouse gas standards established for model year 2021 remain appropriate, regardless of the agency's decision on the MTE," with comments to be received by October 5, 2017.

On August 23, 2017, EPA announced a hearing to be held on September 6, 2017 in Washington DC on "Reconsideration of the Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Years 2022–2025 Light-Duty Vehicles."

Notice of Final Determination for the Mid-Term Evaluation

On April 2, 2018, the EPA Administrator announced that the finding of the reconsideration of the final MTE is "the current standards are not appropriate and should be revised" and that a joint process would be starting with the NHTSA "to develop a notice and comment rulemaking to set more appropriate GHG emissions standards and Corporate Average Fuel Economy (CAFE) standards."

In an April 2, 2018 announcement of the reconsideration of the final determination of the MTE, EPA states that "the current standards are based on outdated information, and that more recent information suggests that the current standards may be too stringent." EPA mentions that gas prices and "consumer acceptance of advanced technology vehicles" differ from assumptions made in support of its January 2017 MTE determination. EPA also states that "Economic inputs such as the social cost of carbon, the rebound effect, and energy security valuation should also be updated to be consistent with the literature and empirical evidence." Furthermore, "EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration." The EPA also states that "the reach and success of the program established in the 2012 rulemaking is significantly limited when consumers cannot afford new cars. New information and data provided show the potential significant negative effects of higher vehicle costs." The Administrator said the current standards present "challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers, especially low-income consumers."

As an example of challenges to auto manufacturers, the Administrator states that manufacturers are "relying on banked credits which suggests that it may be increasingly difficult for them to

comply going forward as they use up their supply of credits.” This interpretation may be inaccurate. Another interpretation is that the banked credits have economic value to the manufacturers, and that manufacturers consume banked credits periodically in order to respond to compliance deadlines while respecting normal product life cycles. For example, when a more fuel efficient new generation of a model is introduced, credits would be banked early in the generation life cycle but might be consumed later in the generation life cycle, to allow manufacturers flexibility and lead time to design the subsequent more efficient generation to follow. The use of a credit banking system provides manufacturers with flexibility to account for the lead time necessary to introduce new technology without shortening the payback period on investment in existing technology.

EPA contends, based on a public comment, that electrified vehicle sales have decreased in total and as a percentage of light vehicle sales. Although annual sales of HEVs in recent years are much lower than their peak in 2013, the trend in sales for PHEVs and BEVs has generally been positive (except for a slight decline in 2015). Total ELV sales in 2013 were 624,610 vehicles, including 536,383 HEVs, 41,376 PHEVs, and 46,832 BEVs. Total ELV sales in 2017 were 555,167 vehicles, including 365,320 HEVs, 91,724 PHEVs, and 96,261 BEVs. Sales of all three types of electrified vehicles are higher in 2017 than in 2016. Gasoline prices collapsed in the US in 2014 and HEVs were no longer permitted on California’s HOV lanes. These factors contributed to the recent decreases in HEV sales. The net decline in HEV sales from 2013 to 2017 has more than offset the rise in plug-in electric vehicle sales over the same period. Thus, consumer acceptance of fuel efficient vehicles is a major challenge.

The current U.S. fuel economy standard requires average LDV fuel economy of 40.3 to 41.0 mpg by 2021 and 48.7 mpg to 49.7 mpg by 2025. The current U.S. LDV CO₂ emission standard of 163 g/mile is equivalent to 54.5 mpg if it were to be met only by fuel economy improvement of gasoline-fueled vehicles, but can be met with vehicles powered by other fuels or electricity. Furthermore, the standard is based on FTP and HFET test results, not the downward adjusted fuel economy rating (EPA, 2018). The NRC found that a likely option for further improving LDV fuel economy is to replace naturally aspirated engines with downsized (smaller displacement) turbocharged engines, though NRC focused more on mid-sized sedans than light trucks in their simulation modeling (NRC, 2015). The market share of new LDGVs with turbocharged engines has grown from less than 5 percent in 2010 to over 20 percent in 2016. Effective strategies for meeting the current 2025 model year U.S. fuel economy target of 54.5 mpg could include either increased hybridization, increase in the 0 mph to 60 mph acceleration time, a decrease in interior volume, or combinations of these (Luk et al., 2016, Whitefoot et al., 2017). Lightweighting of vehicles is another possible strategy that agencies predict will be used to reduce fuel consumption and GHG emissions.

There are numerous other potential opportunities for increasing fuel efficiency of vehicles. For example, use of higher ethanol blends, which lead to higher octane, could lead to the development of higher compression ratio engines that are more fuel efficient. On the other hand, ethanol has less energy value than gasoline and therefore ethanol blending reduces fuel economy compared to 100% gasoline. However, on an energy basis, engine operation on ethanol is typically at least as energy efficient compared to operation on neat gasoline. EPA reports that automakers agree that higher octane is a possible path forward but a separate rulemaking on

fuels, which also would likely trigger controversy, would be required to compel higher octane levels.

The California Air Resources Board completed its own mid-term evaluation in March 2017 and found that both the California GHG and zero-emission vehicle standards were appropriate. California performed supporting analyses from California's perspective. California historically has had a waiver under the Clean Air Act to set its own vehicle emission standards. When the EPA set fuel economy and GHG emission standards in 2012, it did so to harmonize the Federal standard with the California GHG standard. State zero-emission vehicle requirements were not included in the harmonization effort.

In identifying various factors that might argue for or against revising the existing standard, EPA states that there "is significant uncertainty" in the pace of development and degree of efficiency improvements of new technologies, and that "this uncertainty further supports its determination to reconsider the current standards through a subsequent rulemaking." Consumers of cars (but not SUVs) are more likely to adopt electric drive vehicles if provided information on the total cost of owning the vehicle over its lifetime rather than information regarding the five year cost of ownership contained on EPA's label (Dumortier et al, 2015). Given that auto manufacturers and dealers spend substantial resources on advertising, and can also implement pricing strategies among different vehicle models, it may be feasible for automakers and dealers to encourage more consumers to adopt high fuel economy vehicles. However, previous concerted efforts by selected vehicle manufacturers to market fuel-economy innovations (e.g., Honda's Insight, Ford's Escape Hybrid, and the Nissan Leaf) have had only mixed success.

EPA expressed concern about the affordability of new vehicles to low income households, but did not express concern regarding the disproportionate impact on low income households from GHG emissions insofar as those households are less able to adapt to climate change than high-income households. EPA mentioned that a study by Synapse Energy Economics for Consumers Union found that entry level vehicle prices have been roughly the same for the last 10 years. EPA indicated that the potential of decreased adoption of newer cars should be considered in future rulemaking.

EPA states that the only MY 2017 vehicles that could comply with the MY2025 standards have a very low consumer purchase rate. Referring to an industry provided figure, EPA implies that only electric drive vehicles could be the basis for a fleet that meets the MY 2025 standard. However, the MY 2025 standard is a fleet-based standard, not a standard that applies to specific vehicle models individually. Missing from the MTE final determination is any discussion of the typical technology adoption and diffusion patterns for new technologies. A commenter conveyed that vehicle models with larger fuel economy improvements have had larger sales increases than those with lower fuel economy improvements, but the market shift from sedans to crossovers and other light-truck products is changing the compliance challenge for vehicle manufacturers.

EPA expressed concern that if consumers are less willing to adopt new technology vehicles, the reductions in fuel consumption and emissions from the program may be less than expected and should be considered as part of the planned rulemaking. The fuel price projections used in the 2012 rule are higher than current fuel prices, and current reference-case projections of the Energy Information Agency indicate that fuel prices will be much lower in future years than had

been projected by EIA at the time of EPA's in 2012 rulemaking. However, EIA energy-price projections are often inaccurate compared to future realities. It may be more fruitful to develop estimates based on an ensemble of scenarios than to fixate on EIA's reference-case scenario. In 2025, average fuel prices could be much lower or much higher than EIA is projecting in their reference scenario, and EIA supplies high and low fuel-price scenarios to inform sensitivity analyses.

EPA raised the issue of rebound effect based solely on public comment but did not offer any assessment of this issue. Although EPA agrees that there are co-benefits of the GHG vehicle emission standards with respect to reduction of emissions and ambient concentrations of criteria pollutants regulated under the NAAQS, EPA states "those issues are already handled through the NAAQS implementation process." The NAAQS implementation process does not involve setting fuel economy standards or GHG emission standards for new vehicles. However, if vehicle standards make it easier for states and localities to comply with NAAQS, then states and localities may permit greater levels of emissions from stationary sources than might otherwise be the case. Thus, the net effect of GHG-standard co-benefits on concentrations of criteria air pollutants requires assumptions about the policy decisions of state and local regulatory bodies and emission-control decisions by stationary sources.

EPA claims that the MY 2022-2025 standards would reduce vehicle sales over those four years by 1.3 million vehicles due to higher vehicle prices, based on a study submitted as part of public comments. However, the validity of the study, who funded it, and whether it was peer-reviewed was not mentioned. EPA cites Carley et al (2017), funded by the Alliance of Automobile Manufacturers, that estimates short-term macroeconomic effects of the standards (including the state zero emission vehicle regulations as well as the federal standards) that are negative but become positive sometime between 2022 and 2035 as a result of fuel savings and stimulus of the automotive supply chain. In the long run, the positive macroeconomic effects of the federal and state standards were much larger than the near-term negative effects.

EPA states that it intends to further assess the scope of safety analyses related to fleet turnover.

EPA summarized auto manufacturer public comments that seek a national harmonized standard between federal and California standards.

Although acknowledging that regulatory certainty and sufficient lead time is important, the EPA nonetheless proposes to reconsider standards effective with the 2022 model year which is less than four years away from the current 2018 model year. EPA argues that because NHTSA did not undertake their required rulemaking process related to the corporate average fuel economy standard, EPA should reconsider its already established rule.

The effect of the revised determination is not a final regulatory action: the effect of this determination is to initiate a rulemaking process, during which time the current standards remain in effect.

Clearly, any proposed reconsideration of the existing 2022-2025 MY GHG and CAFÉ standards will entail the use of influential scientific information (ISI) and highly influential scientific

information (HISI). There may also be revised interpretations of previously developed ISI and HISI.

Several of the EPA contractor or staff reports appear to have had letter reviews conducted by contractors using a limited number of reviewers, while other technical reports were said to be reviewed by virtue of having them published in peer reviewed publications. However, it would be helpful to obtain more information from EPA staff regarding the nature and specifics of these review activities. There was no comprehensive SAB review of the technical assessment report prepared jointly by EPA, NHTSA and CARB.

EPA continues to collect data that are published in annual reports, including a trends report and a manufacturer performance report, but it is unclear if these annual reports have had appropriate review.

Furthermore, it is unclear as to what additional information will be considered in a revised rule-making process. For example, there have been numerous peer-reviewed journal papers and other studies that pertain to this topic area. EPA has cited public comments and reports submitted by stakeholders. If the Agency intends to make use of such information as part of the reconsideration of the MY2022-2025 standard, whether such information is ISI or HISI should be determined and, as needed, subject to appropriate peer review.

EPA did not mention in its MTE final determination updated information regarding the effect of GHG emissions on climate change, or updated information that would enable improved estimates of other benefits of the standard.

Description of Planned EPA Action

- 1. Name of action:** Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides
- 2. RIN Number:** 2060-AT68
- 3. EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards
- 4. Brief description of action and statement of need for the action:** Under the Clean Air Act Amendments of 1977, EPA is required to review and if appropriate revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On June 22, 2010, EPA published a final rule to revise the primary (health-based) NAAQS for Sulfur Oxides to provide increased protection for public health. This review includes the preparation by EPA of an Integrated Review Plan, an Integrated Science Assessment, and, if warranted, a Risk/Exposure Assessment, and also a Policy Assessment Document, with opportunities for review by EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the current standard. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.
- 5. Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle for the NAAQS. EPA is currently on a court-ordered schedule to issue a proposed determination/rule in May 2018 and a final determination/rule in January 2019.
- 6. Scientific products that will inform the action and plans for peer review:**
 - 6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.** For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).
 - 6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).** Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP,

ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Review of the NAAQS rely on assessment documents that are designated as "highly influential scientific assessments."

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information: <https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC>

Recommendation from the SAB Work Group

Name of planned action: Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action has undergone a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Sulfur Oxides Review Panel. CASAC is a FACA committee. The SOx Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS. On April 30, 2018, CASAC submitted its comments on EPA’s Policy Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides (External Review Draft - August 2017) and regarding its advice on this standard. Thus, the scientific review by CASAC for this review cycle has concluded. EPA finalized the Policy Assessment on May 9, 2018.

Description of Planned EPA Tier 1 or Tier 2 Action

- 1. Name of action:** National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review
- 2. RIN Number:** 2060-AT74
- 3. EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division
- 4. Brief description of action and statement of need for the action:**

The Clean Air Act (CAA) establishes a two-stage regulatory process for addressing emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, the CAA requires the EPA to develop technology-based standards for categories of industrial sources. In the second stage of the regulatory process, the EPA must review each maximum achievable control technology (MACT) standard at least every 8 years and revise them as necessary, “taking into account developments in practices, processes and control technologies.” We call this requirement the “technology review.” The EPA is also required to complete a one-time assessment of the health and environmental risks that remain after sources come into compliance with the MACT standards. If additional risk reductions are necessary to protect public health with an ample margin of safety or to prevent adverse environmental effects, the EPA must develop standards to address these remaining risks. For each source category for which the EPA issued MACT standards, the residual risk stage must be completed within 8 years of promulgation of the initial MACT standard. Since the initial technology review requirement deadline coincides with the risk review requirement deadline, the EPA generally combines these two requirements into one rulemaking activity, calling this the “risk and technology review” process, or simply RTR. In this way, results of the risk review can be potentially informative to the technology review process, and vice versa.

For the first stage, the EPA issued national emission standards to control hazardous air pollutants (NESHAP) emitted from hydrochloric acid production in April 2003 (68 FR 19076). Amendments to the NESHAP were made after promulgation, resulting in final amendments on April 7, 2006 (71 FR 17738).

For this action, as the second stage of the regulatory process, and as we have done for more than 50 source categories to date, we plan to conduct the residual risk review and initial technology review concurrently.

Hot Link: [Hydrochloric Acid Production: National Emission Standards for Hazardous Air Pollutants \(NESHAP\) | Stationary Sources of Air Pollution | US EPA](#)

- 5. Timetable:**

Pursuant to a court order related to the review of 20 source categories, the EPA must complete 20 RTR final rules by March 13, 2020, including this action (*i.e.*, the RTR final

rule for Hydrochloric Acid Production). The EPA currently plans to complete this action by June 30, 2019. Tentative schedule:

Proposed RTR Rule: June 2018

Final RTR Rule: June 2019

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

It is the risk analysis methodologies associated with the RTR process that have undergone scientific peer reviews. There are no other scientific work products that have been or will be developed to inform this planned action.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

Because RTR assessments are used for regulatory purposes, and because components of our risk analyses have evolved over time, we have, over the course of the program, conducted scientific peer reviews of the methodologies through the Science Advisory Board (SAB). Through peer review of the RTR process as a whole, rather than each individual rulemaking effort, the agency is able to conduct consistent risk characterizations across all categories of industrial sources.

As described above, the EPA also conducts a technology review to account for developments in practices, processes and control technologies.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

While the overall RTR risk assessment methods meet the definition as "an influential scientific or technical work product," each individual RTR analysis does not fit this definition.

6(d). Peer review:

Each RTR analysis follows a consistent risk characterization approach using methodologies that have undergone numerous peer reviews. Previous peer reviews have covered elements associated with the RTR process or assessments with similar scopes or contexts. A brief summary of each peer review is provided:

(1) The Residual Risk Report to Congress, a document describing the agency's overall analytical and policy approach to setting residual risk standards, was issued to Congress in 1999 following an SAB peer review. Many of the design features of the RTR

assessment methodology were described in this report, although individual elements have been improved over time.

Hot Link to the final SAB advisory: https://www3.epa.gov/ttn/atw/rrisk/risk_rep.pdf.

(2) A peer review of multi-pathway risk assessment methodologies for RTR was conducted by the EPA's SAB in 2000.

Hot Link to the final SAB advisory:

[http://yosemite.epa.gov/sab/sabproduct.nsf/1F1893E27059DB55852571B9004730F7/\\$File/ecadv05.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/1F1893E27059DB55852571B9004730F7/$File/ecadv05.pdf).

(3) A consultation on the EPA's updated methods for developing emissions inventories and characterizing human exposure was conducted by SAB in December 2006. The SAB provided its formal consultation in a letter to the Administrator in June 2007.

Hot Link to the final SAB advisory:

[https://yosemite.epa.gov/sab/sabproduct.nsf/33152C83D29530F08525730D006C3ABF/\\$File/sab-07-009.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/33152C83D29530F08525730D006C3ABF/$File/sab-07-009.pdf).

(4) A review of the updated and expanded risk assessment approaches and methods used in the RTR program was completed in 2009. This methodology was highlighted to the SAB utilizing two RTR source categories: Petroleum Refining Sources MACT I and Portland Cement Manufacturing.

Hot Link to the final SAB advisory:

<https://yosemite.epa.gov/sab/sabproduct.nsf/0/b031ddf79cffded38525734f00649caf!OpenDocument&TableRow=2.3#2>.

(5) The individual dose-response assessment values used in the RTR assessment have themselves been the subject of peer reviews through the agencies that developed them (including the EPA through its Integrated Risk Information System, or IRIS; the California Environmental Protection Agency, or CalEPA; and the Agency for Toxic Substances and Disease Registry, or ATSDR).

(6) The EPA is currently seeking SAB input on specific enhancements made to our risk assessment methodologies, particularly with respect to screening methodologies, since the last SAB review was completed in 2009 (see #4 above). In May 2017, the EPA submitted a report describing the updated risk screening methodologies to the SAB for review. In June 2017 the SAB expert panel met to discuss the new methodologies. SAB's findings for this review are expected in the Spring of 2018.

Recommendation from the SAB Work Group

Name of planned action: National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues			X
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further review by the SAB.

Background: The EPA uses a standard process to conduct risk and technology reviews for National Emissions Standards for Hazardous Air Pollutants. This process is explained in the Background section on pages B-31-B33.

Rationale: In 2003, EPA promulgated a final rule to reduce toxic air pollutant emissions from new and existing hydrochloric acid plants. This Hydrochloric Acid Production NESHAP

established emission limitations and work practice requirements based on maximum achievable control technology (MACT) for control of hazardous air pollutants (HAP). The pollutants emitted from hydrochloric acid production include hydrochloric acid and chlorine. These pollutants predominantly originate from process vents, storage tanks, transfer operations, and equipment leaks. EPA standards are required to provide an ample margin of safety to protect public health or an adverse environmental effect. EPA is required to review and revise the MACT standards as necessary, taking into account developments in practices, processes and control technologies no less often than every 8 years. As part of the technology review, EPA will need to identify whether new approaches to hydrochloric acid production have emerged that can more effectively prevent or control the emission of these and other pollutants. Cost must also be considered when setting a MACT standard. Therefore, a cost analysis must also be conducted.

The Work Group finds that the RTR risk assessment screening methodology is broadly applicable to many source categories, prior aspects of the data and methods identified have been subject to review by the SAB and others. The unique details of each RTR can include recommendations for new monitoring and MACTs. In general, these technologies are based on established scientific knowledge that has undergone extensive peer review. However, there can be exceptions, and the SAB encourages to EPA to continually assess and identify for SAB review any such technology recommendations that are based on new scientific knowledge. This planned RTR does not merit further review by the SAB.

Description of Planned EPA Tier 1 or Tier 2 Action

- 1. Name of action:** Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits
- 2. RIN Number:** 2060-AT79
- 3. EPA Office originating action:** Office of Air and Radiation
- 4. Brief description of action and statement of need for the action:**

EPA is proposing to repeal the emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits based on a proposed interpretation of the Clean Air Act (CAA) under which glider vehicles would be found not to constitute new motor vehicles within the meaning of CAA section 216(3), glider engines would be found not to constitute new motor vehicle engines within the meaning of CAA section 216(3), and glider kits would not be treated as incomplete new motor vehicles. Under this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

5. Timetable:

NPRM Publication: 11/16/2017
NPRM Comment Period End: 01/05/2018
Final Rule: To Be Determined

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

There is uncertainty about what scientific work, if any, would support the FRM.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

N/A – No approaches have been developed since there is uncertainty regarding what, if any, analysis would be done.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

N/A

6(d). Peer review:

N/A

Recommendation from the SAB Work Group

Name of planned action: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	[---]	--]
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		X	
Addresses areas of substantial uncertainties			X
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA states that there is “uncertainty about what scientific work, if any, would support” this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?
- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a “new” glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet

level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?

- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: The main reasons for this recommendation are briefly listed followed by more detailed explanation.

- The proposed rule lacks transparency regarding the sources of and basis for data regarding costs, emissions, life cycle implications, and safety.
- The proposed rule lacks rigorous analyses of pertinent technical and scientific issues, instead relying on summaries of comments submitted by the public that have not been independently assessed or validated.
- Health effects of the proposed action are not quantified. EPA does, however, acknowledge that ““Some of the benefits for children’s health ... would be lost as a result of this action.”
- EPA does not characterize or quantify the effect of the proposed rule with regard to challenges it would pose for attainment of air quality standards.
- Regarding comparison of emissions of glider trucks with conventional trucks, EPA relies on a study conducted by Tennessee Tech University (TTU). The TTU study was not peer-reviewed. Since the rule was proposed, the study has been withdrawn by the president of TTU as a result of TTU faculty senate concerns regarding lack of validity of the study. On February 26, 2018, Fitzgerald Glider Kits, which sponsored the TTU study, wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from disclosure. Thus, EPA cannot use this study as a basis for rule-making.
- EPA failed to take into account its own study, published 4 days after the proposed rule, that shows that glider truck emissions can be substantially higher than those from conventionally manufactured trucks.
- Although EPA indicates that “the Agency views the glider issue as one of legal authority,” the proposed rule relies on technical information on issues alluded to above. The SAB has no comment on the issue of legal authority. However, the proposed rule argues that there are cost, energy, emissions and safety benefits of glider trucks, and thus in appearance is not relying solely on an interpretation of legal authority as the basis for the proposed rule. It is in the best interests of the EPA to use credible technical information in a proposed rule.
- This proposed action is highly controversial in that, if it were to be promulgated as proposed (with no apparent cap on maximum allowable glider truck sales), it would create a market for glider trucks that would remain in the vehicle fleet for decades to

come, and displace purchases of conventionally manufactured new trucks (or recent model year conventionally manufactured used trucks of comparable price) and thereby slow the process by which fleet turn over would lead to real-world emissions reductions.

Background

On November 16, 2017, EPA published a proposed rule to Repeal Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (Federal Register, Vol 82, page 53442). The deadline for public comments was January 5, 2018. The EPA denied requests from the American Lung Association and the Northeast States for Coordinated Air Use Management (NESCAUM) for an extension of the public comment deadline. The following definitions pertain to this proposed action. A glider vehicle (or glider truck) is a truck that has new body parts but utilizes a previously owned powertrain (including the engine, transmission, and usually the rear axle). New body parts put together to form the “shell” of a truck, such as the tractor chassis with frame, front axle, brakes, and cab, are referred to collectively as a “glider kit.”

According to the EPA in its notice of the proposed rule, gliders are approximately 25% less expensive than new trucks, which is said to make them attractive to small business owners and operators. However, in public comments to EPA, Volvo stated that “our dealer network informs us that glider vehicles are often purchased at pricing similar to that of comparably configured new compliant vehicles. From this it’s evident that glider vehicle buyers do not find new compliant vehicles to be unaffordable; they do, therefore, have options other than keeping older vehicles on the road.” The basis for EPA’s claim that gliders are 25% less expensive than new trucks is not provided.

A commenter is reported by EPA to have stated that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. However, the basis for this claim is not given in the proposed rule, nor does the proposed rule include any technical analysis by EPA staff to confirm or validate this claim. The net impact of the proposed rule on greenhouse gas emissions is not estimated.

In the Phase 2 greenhouse gas emission standard for heavy duty vehicles, EPA determined that glider vehicles could be treated as “new motor vehicles” under CAA Section 216(3). Previously owned engines used in glider vehicles were also deemed to be “new motor vehicle engines” and, therefore, would be subject to emission standards applicable to new engines. EPA determined that it had authority under Section 202(a) of the CAA to subject glider vehicles and glider kits to the Phase 2 rule.

In the proposed rule, EPA states that the glider industry petitioned EPA to reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits based on three principal arguments: (1) EPA is not authorized to regulate these under Section 202(a)(1); (2) EPA relied on unsupported assumptions to arrive at the conclusion that regulation of these is warranted and necessary; and (3) reconsideration was warranted under Executive Order 13783. However, some comments on the proposed rule indicate that EPA does have authority and discretion to regulate glider vehicles, glider kits, and glider engines. The statutory authority and EPA’s discretion to regulate based on such authority pertains to legal and policy questions that are not relevant to SAB review. However, the scope of potential technical matters that would

pertain to the possible range of allowable policy options is pertinent to the scope of a potential SAB review.

In the description of this planned action, EPA states that “there is uncertainty about what scientific work, if any, would support the FRM” and responded “N/A” with regard to questions about scientific work products, controversial issues, and related questions (see EPA response to Item 6(c) of the description of the planned action). EPA also responded “N/A” regarding peer review. It is clear that this proposed rule is based on claims and assumptions about glider vehicle emissions, safety, and cost that could be assessed via rigorous technical analysis, but it appears that EPA has not attempted to undertake relevant analyses. Furthermore, there is little mention of effects on public health in the proposed rule. EPA notes “Some of the benefits for children’s health as described in that analysis [for the Phase 2 GHG emissions rule] would be lost as a result of this action.” However, EPA has not attempted to quantify the loss of these or other benefits from a repeal that would very likely lead to increases in real-world emission rates from the long-haul heavy duty truck fleet. EPA takes the unusual position that an emissions regulation does not affect the existence of air quality standards, which although true seems irrelevant to the merits of this particular proposed rule. However, in raising the relationship between this proposed rule and the NAAQS, EPA fails to point out that in non-attainment areas the presence of high-emitting glider trucks would make attainment more difficult, especially with regard to NAAQS for ozone and PM. EPA seems to rely on states enacting future unspecified countermeasures under regulatory procedures that pertain to the NAAQS to offset the disbenefits of increased glider truck operational emissions of criteria pollutants or their precursors. EPA claims that “future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking.” While there are uncertainties, EPA has over the years developed a variety of tools, methods, and data for estimating future emissions. Furthermore, uncertainty could be taken into account in emissions inventories based on scenario analysis, sensitivity analysis, quantitative uncertainty analysis or other suitable techniques. Questions regarding the life cycle implications of remanufacturing used powertrains versus manufacturing new powertrains could be assessed using a life cycle inventory analysis. EPA has made no attempt to conduct any of these analyses.

According to EPA’s proposed rule, the petitioners “took particular issue with” EPA’s assumption that NO_x and PM emissions of glider vehicles that used pre-2007 engines would be “at least ten times higher than emissions from equivalent vehicles being produced with brand new engines,” claiming that EPA relied on no actual data to support this conclusion but related simply on the emission rates of the pre-2007. In the proposed rule, EPA mentions a study conducted by Tennessee Tech University that putatively reached a different conclusion. The TTU study was funded by Fitzgerald Glider Kits (FGK). Based on concerns about the validity of the study, the TTU faculty senate approved a resolution on January 30, 2018 regarding the Fitzgerald-funded study calling for the university president to “suspend all present research activities and other associations with Fitzgerald,” and other provisions. In a letter from Tennessee Tech president Philip Oldham to EPA Administrator Scott Pruitt, dated February 19, 2018, the university advised the Administrator that the University is “actively pursuing a peer review of the report,” and is also “investigating an allegation of research misconduct related to the study,” and requested that EPA “withhold any use or reference to said study pending the conclusion of our internal investigation.” On February 26, 2018, Fitzgerald Glider Kits wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from

disclosure. Thus, the TTU study cannot, in its present form, be used as a basis for rule making. Furthermore, if EPA intends to make use of the TTU study, or any revised version of it, independent evaluation by the SAB would be strongly indicated.

The EPA's original assertion that glider trucks using pre-2007 engines would have emissions of NO_x and PM at least ten times higher than emissions from equivalent vehicles being produced with brand new engines is well-supported by numerous measurement studies of heavy duty vehicles with powertrains certified under emission standards in effect now compared to those in effect prior to 2007. In particular, prior to 2007, heavy duty truck emission standards were not sufficiently stringent to require the use of diesel particulate filters (DPFs) for PM control nor selective catalytic reduction (SCR) for NO_x control. In contrast, under standards now in place that apply to new vehicles, heavy duty trucks are typically equipped with both DPF and SCR, as well as related technologies such as diesel oxidation catalysts, exhaust gas recirculation, and ammonia slip catalysts.

On November 20, 2017, just four days after the proposed rule was announced, EPA reported results of chassis dynamometer tests of a 2016 model year Peterbilt 389 sleeper cab tractor and a 2017 MY Peterbilt 579 sleeper cab tractor that were produced as glider vehicles using pre-2002 remanufactured engines. The emissions from these two glider vehicles were compared to those from conventionally manufactured 2014 and 2015 MY tractors. The latter include cooled exhaust gas recirculation, DPF, and SCR systems. Under highway cruise conditions, the glider vehicles had NO_x emissions 43 times higher and PM emissions 55 times higher than the conventionally manufactured trucks. Under transient conditions, the NO_x and PM emissions were 4-5 times higher and 50-450 times higher, respectively. The HC and CO emissions were also significantly higher than for the conventionally manufactured trucks. The CO₂ emission rates were lower for the glider vehicles than for the conventionally manufactured trucks, with the relative difference depending on the driving cycle. There is generally a trade-off between NO_x and CO₂ emissions. However, there are also opportunities to tune 2010 and later MY newly manufactured engines for improved efficiency, which is an area that would benefit from more study.

In the proposed rule, EPA mentions that petitioners contend that glider vehicles offer environmental benefits related to the use of recycle materials and claimed that glider vehicle greenhouse gas emissions are less than those of (putatively new) OEM vehicles. This claim, while interesting, would require a more systematic assessment involving a life cycle inventory approach. Such an approach would quantify the GHG emissions of the truck life cycle, including manufacture, operation, and disposal/recycling. Such an approach would enable quantification of the difference in greenhouse gas emissions from glider vehicles versus those for a newly manufactured truck. The scope of assessment of GHG emissions should include not just CO₂ but other primary or secondary GHGs related to truck life cycle emissions. For example, VOC and NO_x emissions from trucks lead to the formation of tropospheric ozone, which is a GHG. EPA did not offer any life cycle inventory analysis or results as part of the proposed rule.

In its proposed rule, EPA stated that it "solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the

older trucks they would replace.” It is highly unusual that EPA would propose a rule related to air pollutant emissions without including a technical analysis of the impact that the proposed rule would have on air pollutant emissions. According to the International Council for Clean Transportation, EPA’s proposed regulation would lead to excess emissions of 1.5 million tons of NO_x and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage (Muncrief, 2017). These estimates are given as an example and would need to be evaluated. EPA did not offer its own assessment of the impact on public health of the proposed rule.

This proposed action is highly controversial in that it would be an end-run around new truck emission standards. If gliders are not subject to standards currently in place that apply to conventionally manufactured new vehicles, then older power trains could be rebuilt and installed in new glider kits as a substitute for purchase of new trucks. This could mitigate against the effect of fleet turnover as a factor that would lead to longer term reductions in real-world emissions and could lead to higher real world emissions, worsened air quality, greater human exposure to truck-related air pollution, and increased adverse health effects compared to no repeal. There appears to be no provision in the proposed rule that would prevent the widespread substitution of glider trucks in lieu of new trucks, such as a cap on the number of glider vehicles that could be sold in a given year. Although EPA attempts to frame the comparison as being between a glider truck and an old truck with a power train that is not rebuilt, an equally if not more pertinent comparison is between the glider truck and a new truck whose purchase was avoided, or between a glider truck and a used truck of the same purchase price. EPA did not request comments on these comparisons, but instead focused on whether a glider truck would have lower emissions than an older truck it would displace and whether a glider truck would be safer than an older truck, presumably with the same powertrain. EPA did not ask for comment on whether the use of an old powertrain in a new chassis would lead to life extension of the old power train and thus displace emission reductions that would otherwise have accrued from fleet turnover to newer trucks. At least some public comments, such as by Volvo, called into question the notion that a glider truck would offer the full safety benefits implied by EPA, especially compared to an avoided new truck.

Given that EPA has a statutory mandate to protect public health, it is noteworthy that the health benefits of existing NO_x and PM emission standards for heavy duty diesel vehicles are substantial. These are the standards to which glider vehicles would otherwise be subject in the absence of the proposed repeal rule. For example, according to a Regulatory Impact Analysis (EPA420-R-00-026), the Final HD Engine/Diesel Fuel Rule that went into effect in 2007 has annual compliance costs of \$4.2B and monetized net benefits of \$66B, largely based on avoided premature deaths related to reduced human exposure to particulate matter emitted from diesel trucks. Thus, from a scientific perspective, there are potential health benefits to reductions in operational emissions of heavy duty diesel vehicles that are significant and that should be considered, although with compliance costs.

In 2016, in response to comments on the greenhouse gas emissions and fuel efficiency standards for medium- and heavy-duty engines and vehicles, EPA estimated that each model year of glider vehicle sales would be associated with up to 1,600 premature deaths over the lifetime of the vehicles, based only on PM_{2.5} emissions and sales of 10,000 gliders per year.

In response to fact-finding questions (see Attachment C), the EPA Office of Air and Radiation provided the following response:

“We appreciate the detailed questions that the SAB has asked with regard to EPA’s recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider>), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule.”

The work group assessment of this response is the following:

- While “many of the topics” may have been “raised” during the comment period, not all of them were. For example, the withdrawal of the Tennessee Tech. University by Tennessee Tech. University did not occur until after the public comment period ended.
- A topic being “raised” may not be the same as a topic being objectively analyzed.
- The scientific and technical statements in the proposed rule, and the scope of analyses in the proposed rule, are dubious and highly questionable.
- Whether the proposed rule hinges on “legal authority” is beyond the scope of the SAB.
- Although EPA claims that the proposed rule hinges on “legal authority,” the proposed rule is clearly predicated on various scientific and technical claims that are of unknown or dubious merit, including a study cited by EPA that has since been withdrawn by its performing organization.
- Given the various scientific and technical claims in the proposed rule, which appear to be based on stakeholder comments or draft studies that lack objective analysis and peer review, it is in the best interests of EPA and prudent for the SAB to engage in a review process to assure the credibility of scientific and technical information that is put forth in the rule.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

Based on the controversy of EPA proposing a rule in part based on a study that has been withdrawn by its authoring institution, the omissions of pertinent technical content from EPA’s proposed rule, the lack of clear pedigree of information that EPA cites in its proposed rule, the broad implications of the proposed rule that could rollback reductions in emissions of pollutants that are harmful to public health, and the myriad of technical issues involved related to life cycle emissions, it is appropriate for the SAB to conduct a review of the technical and scientific issues pertaining to this proposed action.

Description of Planned EPA Tier 1 or Tier 2 Action

- 1. Name of action:** Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements
- 2. RIN Number:** 2070-AK43
- 3. EPA Office originating action:** Office of Chemical Safety and Pollution Prevention, Office of Pesticide Programs (OPP)

4. Brief description of action and statement of need for the action:

EPA published a final rule to amend the Worker Protection Standard (WPS) regulations at 40 CFR 170 on November 2, 2015 (80 FR 67496). Per Executive Order 13777, EPA solicited comments this spring on regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda efforts. EPA received comments suggesting specific changes to the 2015-revised WPS requirements which are being considered within the Regulatory Agenda efforts. In consideration of those comments, EPA will solicit public input on specific revisions to the rule.

5. Timetable:

OMB review start: 5/10/2018

FR Publication for comment: 9/14/2018

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

No scientific work products have been developed to inform decisions regarding the planned action. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires EPA to provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any scientific issues that are related to these rules. The Pesticides; Agricultural Worker Protection Standard draft final rule was submitted to the FIFRA SAP. The SAP waived their review on June 24, 2015 because the proposed revisions are administrative in nature and do not contain scientific issues that require the SAP's consideration. The FIFRA SAP will be provided copies of the 2018 draft revisions to the rule.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

N/A

6(d). Peer review:

N/A

Recommendation from the SAB Work Group

Name of planned action: Name of action: Pesticides: Agricultural Worker Protection Standard: Reconsideration of Several Requirements. (RIN 2070-AK43)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues		X	
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit any further SAB consideration.

Rationale: Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

EPA Description of Planned Action

- 1. Name of action:** Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter
- 2. RIN Number:** 2060-AS35
- 3. EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards
- 4. Brief description of action and statement of need for the action:** Under the Clean Air Act, the EPA is required to review and, if appropriate, revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On April 3, 2012, the EPA published a final rule in which the Agency determined to retain the current secondary standards (welfare-based) for nitrogen oxides (NO_x) and for sulfur oxides (SO_x). On January 15, 2013, the EPA published a final rule in which the Agency retained the secondary standards for particulate matter. This review of the air quality criteria and secondary standards for ecological effects of SO_x, NO_x and particulate matter includes the preparation of an Integrated Science Assessment, Risk/Exposure Assessment, and a Policy Assessment by the EPA, with opportunities for review by the EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the standards. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.
- 5. Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle of the NAAQS. There is no court-ordered schedule for this review.
- 6. Scientific products that will inform the action and plans for peer review:**
 - 6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.** For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).
 - 6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).** Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with

opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP, ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Reviews of the NAAQS rely on assessment documents that are designated as "highly influential"

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information:

<https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC>

Recommendation from the SAB Work Group

Name of planned action: Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action will undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur. CASAC is a FACA committee. The Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS.

EPA Description of Planned EPA Action

- 1. Name of action:** Fuels Regulation Modernization - Phase 1
- 2. RIN Number:** 2060-AT31
- 3. EPA Office originating action:** Office of Air and Radiation – Office of Transportation and Air Quality

4. Brief description of action and statement of need for the action:

“Fuels Regulation Modernization” will streamline and modernize EPA’s existing fuels regulations under 40 CFR part 80. The purpose of this effort is to update EPA’s existing gasoline, diesel, and other fuels regulations to improve the clarity and efficiency of the regulations, reduce burden, and improve implementation. This action will reduce compliance costs for stakeholders as well as EPA, while helping to improve overall compliance assurance and maintaining environmental performance. In this action, EPA will streamline the existing fuels regulations under 40 CFR part 80 – by deleting expired provisions, consolidate redundant compliance provisions (e.g., duplicative registration requirements that are required by every EPA fuels program), removing unnecessary and out-of-date requirements – and replace them with a single set of provisions and definitions that will apply across all gasoline, diesel, and other fuels programs currently under 40 CFR part 80. This action will simply be an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones.

5. Timetable:

No statutory or legal deadlines apply to this action. As noted in the Regulatory Agenda (which provides anticipated rule *publication* date) and the table below, we expect to issue a proposed rule by the end of calendar year 2018, to be published by January 2019; similarly, we expect to issue a final rule by the end of calendar year 2019, to be published by January 2020.

Action	Anticipated Publication Date
NPRM	January 2019
Final Rule	January 2020

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

We do not anticipate that there will be any scientific work products developed to inform decisions regarding this planned action. This action is not proposing any new fuel standards, but merely streamlining the regulations that accompany the existing standards to reduce unnecessary implementation and compliance burden.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

This action will not involve any highly influential scientific assessment (HISA) or influential scientific information (ISI), nor will it involve precedential, novel, and/or controversial issues. There are no legal or statutory triggers for a peer review.

6(d). Peer review:

No peer review is planned for this action.

**Recommendation from the SAB Work Group on EPA Planned Actions for SAB
 Consideration of the Underlying Science**

Name of planned action: Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?	X	
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks			X
Relates to emerging environmental issues			X
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The planned action does not merit further review by the SAB.

Rationale: This long-term action to “streamline and modernize EPA’s existing fuels regulations under 40 CFR part 80” is described as “an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones”. No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Attachment C

Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda May 18, 2018

The Science Advisory Board Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science held a fact-finding teleconference on April 20, 2018. EPA offices were provided questions to clarify and seek additional information on the planned actions in the Fall 2017 Semi-annual Regulatory Agenda published on December 14, 2017. This attachment summarizes the Work Group's findings.

The Work Group submitted questions to the Office of Policy and Office of Air and Radiation. The questions and responses are provided below. Attendees were:

Dr. Al McGartland, Office of Policy
Dr. Elizabeth Kopits, Office of Policy
Ms. Caryn Muellerleile, Office of Policy
Members of the Work Group
Thomas Carpenter, DFO, SAB Staff Office

Questions for the Office of Policy

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

The SAB Work Group notes that this action is in a pre-rule stage and is months away from an anticipated Advanced Notice of Public Rule Making (ANPRM). The Work Group submits these questions to gain a better understanding of the scope that might be covered in this effort to improve consistency and transparency in analyzing costs and identify issues the agency may wish to address in its ANPRM. We do recognize that the nature and scope of one regulation, as compared to another, may result in appropriate differences in the way costs are analyzed.

Could the staff give us some more examples of cost standards that have been applied inconsistently in the past that might be a focus of this effort, and made more consistent?

What might be examples of past 'consideration of costs through non-transparent actions' that might be addressed and made more transparent?

The Work Group has some specific example areas where we would like to know whether these are the kinds of concerns that might be addressed in the planned action.

EPA program offices vary, for example, in assumptions about whether and how technology costs due to regulation will influence the market. Sometimes it is assumed (implicitly) that consumers will bear the cost and simply pay higher prices for products. In other cases, estimates are made of price elasticities, and impacts on sales in relevant markets.

Will there be concern with how new technologies to meet a regulation impact maintenance and repair expenses?

Will there be consideration of non-pecuniary vs. pecuniary costs. EPA program offices vary in the extent to which non-pecuniary costs of regulations are identified and quantified. There may also be differences between programs in how hedonic methods are used to quantify and monetize nonpecuniary costs of a regulation.

Is there concern with the Impacts of the regulation on the longevity of older products and processes. This may be when a regulation on a new product or process induces market actions to lengthen the life of an existing process or product that may have costs with respect to emissions, safety, energy consumption, or other key indicators.

Is there concern with variation in the accounting for projected cost savings from economies of scale, learning and innovation? Conversely, dealing with scale costs, where smaller firms suffer disproportionate costs?

Agency Response:

Drs. McGartland and Kopits provided an oral response to the questions and discussed the planned action with Work Group members. They noted the planned action is in the early stages of development and the scope is broad to include factors the identified by stakeholders on the methods and factors considered in rulemaking and determining the level of standards. The agency hopes to use this information to make regulatory cost considerations more consistent, reliable, and transparent. In general, the questions posed by the Work Group are somewhat specific and they can't address them in detail at this stage in the rulemaking.

The EPA staff provided an example of what considerations may be evaluated in the planned action. They noted that affordability is a metric that varies across statutes. For example, the Office of Air may evaluate affordability in terms of number of plants that may need shut down to meet a proposed standard to determine if it is practically achievable. Under the Safe Drinking Water Act, the agency evaluates affordability on a completely different context as specified in the Act and the Clean Water Act is different than the drinking water analysis. They noted the agency has not articulated the concept of affordability in a meaningful way except for perhaps in the affordability language of the drinking water program. That is, when evaluating the affordability of an action how are the cost and benefits evaluated across programs. Another example is in the water program a comparison between toxic weight and cost effectiveness number as an appropriate evaluation of the cost and benefit of a standard. The agency could consider whether this approach could be used as a decision rule or a factor to consider in decision making to be applied consistently within the program or in other programs.

A Work Group member asked if an inventory of metrics has been developed? The agency noted that some of this work is ongoing. They anticipate that the response to the ANPRM will greatly inform next steps. Some has been started but noted that the ANRPM is a tool to hear from stakeholders how this applies in different programs and consider how important providing a certainty to the regulated community.

Another Work Group member noted the Agency's responses describe the action as more in the legal, policy and judgement arena and not the identification of cost. The rule may be outside the scientific

and technical purview of the SAB. Another member noted that the EPA may take on more scientific and technical aspects of methodological cost analysis or data issues that are appropriate for the SAB to provide advice.

EPA staff noted the action is under review at the Office of Management and budget and the advanced notice proposed rulemaking (ANPRM) is not yet published. They characterized the agency as being in fact finding mode with the ANRPM and using the data and information they garner from public comments to decide on next steps for the planned action.

They noted that the development of cost in regulatory actions are outlined in OMB circular A-4¹ and the EPA's Guidelines for Preparing Economic Analyses ².

Questions for the Office of Air and Radiation

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77)

On April 2, 2018, EPA announced that it will “initiate a rulemaking process whose outcome will be a final agency action”. The April 2, 2018 final determination of the Mid Term evaluation was based primarily on public comments. Does EPA intend to use data, information, models, studies, or other information as part of the rulemaking process? If so, which of these are influential scientific information (ISI) or highly influential scientific information (HISI)? For ISI and HISI, what will the Agency do to obtain the required peer review?

In the April 2, 2018 notice, EPA identified seven key factors that motivate a finding that the current standards are “not appropriate” and that, presumably, will be explored further in reviewing and revising the standards. These factors include the following:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
5. The impact of the standards on the automobile industry;
6. The impacts of the standards on automobile safety;
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

¹ OMB circular A-4 is available at: <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>

² <https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses>

What additional data, models, studies, measurements, reports, or other information does EPA plan to develop pertaining to these factors, which of these will be ISI or HISI, and what are the plans for peer review for ISI and HISI?

Although the purpose of the standards is to protect public health and the environment based on an endangerment finding, the Administrator's final determination of the MTE does not mention the need for updated information regarding the benefits to the environment, public health, and public safety of reducing GHG emissions from light duty vehicles or how such information would be considered in reviewing and revising the standard. Will EPA develop quantitative or qualitative assessments of the effect of alternative standards on GHG emissions and their impact on public health and safety? Will EPA consider updated information regarding other benefits of the standard, such as co-benefits from reduction of emissions of criteria pollutants or their precursors? If so, which of these will be ISI or HISI? How will ISI or HISI be reviewed?

EPA indicates that the social cost of carbon has changed since the last review. How will EPA update the social cost of carbon and how will this be used in the rulemaking?

How will EPA quantify the "negative effects of higher vehicle costs"?

Has EPA considered that the use of banked credits may be part of product development cycles and an expected practice that allows manufacturers the lead time to develop new model generations?

Is EPA aware that national sales of plug-in hybrid electric vehicles and battery electric vehicles have increased from 2015 to 2016, and from 2016 to 2017, contrary to statements made in the final determination for the MTE?

In the Final Determination of the MTE, EPA did not acknowledge that the National Research Council found the analyses conducted by EPA and NHTSA "to be thorough and of high caliber". Does EPA intend to re-interpret or update any of its own reports, papers, models, and data? If so, which ones? Is EPA aware that, among other findings, the NRC found that EPA did not take full account of the range of technology options available to manufacturers that would enable compliance with the standards?

Given that new light duty vehicle sales in the last three model years have been over 17 million annually, higher than levels in the five years prior to the 2008 recession, what is the evidence that lack of affordability (relative to prior years) has deflated new car sales?

Although several automobile manufacturers submitted comments regarding lack of consumer interest in high efficiency vehicles, what have the manufacturers done to attempt to garner such interest? Is there an opportunity for automobile manufacturers to adjust their marketing campaigns to help consumers appreciate the benefits of higher efficiency cars, including reduced total cost of ownership over a five-year period? Similarly, are there opportunities for EPA to undertake synergistic initiatives that would help raise public awareness of and interest in higher efficiency vehicles?

Has EPA been able to independently verify automobile manufacturer claims regarding underestimated direct technology costs, indirect cost multipliers, and cost learning curves? If not, how will EPA independently assess such claims?

Does EPA acknowledge that the impacts of climate change and air pollution can accrue differently and typically more severely to low income households?

Many new technologies undergo several stages during diffusion and adoption that can be described as an “S” curve for market penetration. Has EPA considered that the currently low market shares of electric drive vehicles might be an early stage in the technology adoption process for these vehicles? In addition to identifying potential barriers to adoption, will EPA consider how such barriers can be overcome to enable realization of the full benefits of the standards to the extent possible?

Clearly, fuel prices today are lower than expected when EPA conducted analyses several years ago. However, it is also well-known that Energy Information Agency projections are often not consistent with future realities. Thus, rather than base an analysis on a single projection, has EPA considered using an ensemble of projections, or using information from assessments of projection errors (from recent papers in the literature) to develop uncertainty bounds for such estimates?

Who funded the Trinity-NERA study that is cited by EPA, has this study been peer-reviewed and, if so, who and by whom?

Who funded the Indiana University study that is cited by EPA? Although the Indiana U. study has been reviewed, the review was organized and conducted by the study itself. If this study is to be used as a basis for the rulemaking, will there be further independent review organized by EPA?

What is the schedule for the rulemaking process to review and revise the standards?

Agency Response:

We appreciate the detailed questions that the SAB has asked with regard to various analyses that could be considered to inform the forthcoming NPRM. EPA will continue to assess these issues as we develop the proposed rule.

EPA has not yet announced a schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)

Does EPA intend to continue to use the study conducted by Tennessee Tech University cited in the proposed rule that was funded by Fitzgerald Glider Kits and subsequently withdrawn by the TTU president? If so, how will EPA obtain independent peer review of this study?

Does EPA intend to use its own November 20, 2017 chassis dynamometer study in which measured emissions of two glider vehicles were compared to two newly manufactured vehicles? Is EPA aware that its own study found that NO_x emissions were at least four times higher for transient operation and 43 times higher under highway conditions, and that PM emissions were 50 to 450 times higher under transient conditions and 55 times higher under highway conditions? Will this information be taken into account and, if so, how? Will EPA conduct further studies to quantify the emissions of glider vehicles compared to conventionally manufactured trucks? For example, studies based on in-use measurements

with portable emission measurement systems would be informative to a determination of the real-world emissions impact of glider vehicles.

How will EPA quantify the effect of the proposed repeal on GHG, NO_x, PM, CO, and HC emissions? What data, models, or other information will be used? What efforts will be made to obtain appropriate peer review in the case of ISI or HISI?

Is EPA considering imposing a cap on the total number of glider vehicles, glider kits, and glider engines that are allowed to be sold annually in the U.S.? If so, what caps are being considered and on what basis?

EPA claims that glider vehicles are 25% lower cost than newly manufactured trucks. What is the basis for this claim? Please provide the relevant documentation of this claim. Has this information been peer reviewed?

EPA states that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. What is the basis for this statement? For example, has EPA conducted life cycle inventory analysis? Please provide the relevant documentation. Has this information been peer reviewed?

EPA states that “some of the benefits for children’s health as described in that analysis would be lost as a result of this action.” What is the quantitative estimate of these lost benefits and its basis?

Would the operation of glider trucks, which have higher NO_x and PM emissions than a conventionally manufactured truck with the same chassis, create challenges for NAAQS attainment in areas that are currently in non-attainment?

Why is that “future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking” any more so than for future emissions for any other source category for which EPA has routinely developed estimates in other regulatory actions? Why not account for uncertainty in estimates either through sensitivity or uncertainty analysis?

Is EPA aware of an assessment by the International Council on Clean Transportation that this proposed repeal would lead to excess emissions of 1.5 million tons of NO_x and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage? Has EPA evaluated this study or conducted its own assessment of the emissions and health impacts of the proposed repeal? Is there a precedent for EPA to undertake a regulatory action that increases emissions and harms public health?

Has EPA considered the impact that repeal would have on the reduced turnover of old power trains in the heavy duty truck fleet and its long term impact on emissions?

With regard to safety, public commenters including Volvo have provided details on ways in which glider vehicles differ from conventional newly manufactured trucks. Will EPA take into account these differences and, if so, how?

What is the current status of this rulemaking? What is the schedule for the subsequent steps? Given the controversy regarding the TTU study and the questions this raises regarding the validity of the

underlying basis for this regulatory action, will EPA provide additional opportunities for public comment and public hearing?

Agency Response:

We appreciate the detailed questions that the SAB has asked with regard to EPA's recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider>), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule.

State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

The proposals to repeal and replace the Clean Power Plan (in the Spring 2017 Regulatory Agenda) appear based on an interpretation that Best System of Emission reduction (BSER) determinations under CAA Section 111(d) must be limited to controls on single sources. The Agency has taken many past actions to reduce emissions from EGUs or other large source categories which employ multi-source strategies - under 111 and other sections of the Act. For example, the 1995 Emission Guidelines for Large Municipal Waste Combustors (allowed NOx emissions averaging and trading), the 2005 Clean Air Mercury Rule (allowed inter-source and interstate trading), were issued in whole or in part under 111(d). Trading provisions have been successfully employed under other sections of the Act, such as in the 1998 NOx SIP call, the 2005 CAIR, and 2011 CSAPR, where they resulted in large cost savings compared to source-specific controls. Does the Agency have plans to employ other (than 111(d)) sections of the Act to further reduce EGU GHG emissions? Does the Agency plan to repeal other multi-source trading programs that have been issued under 111(d)?

The extent to which the ANPRM proposes or seeks feedback on specific single-source controls (heat rate/efficiency improvements); a range of source-specific controls (that might include fuel switching, co-firing, carbon sequestration, etc.); or multi-source controls (including averaging, trading, least emissions dispatching, etc.) is not clear. The ANPRM includes various trading provisions in the discussion of State implementation options. Is the intended premise that the EPA is limited to proposing BSERs which are limited to individual sources, while States may consider more cost-efficient multi-source strategies during implementation? Could the Agency provide some clarification on exactly what kinds of single-source and multi-source options may be considered at the EPA and State levels?

If the CPP is repealed and replaced by an alternative EGU GHG reduction program under which BSER is limited to marginally effective single-source controls like heat rate improvements, the resulting GHG reductions (and avoided mortality from reduced PM) will be much smaller than those that would have resulted from the original CPP. GHG emissions from US fossil fuel burning EGUs are larger than those from any other US source category, and represent the largest opportunity for meaningful near-term US GHG emissions reductions - especially if addressed in a cost efficient manner that includes trading, least emissions dispatching, renewable energy source replacement and other multi-source options. Is the Agency considering other EGU GHG control measures that will result in emissions reductions

comparable in magnitude and timing to those in the original CPP? Does the Agency have any information indicating that the urgency for near and long-term action to reduce GHG emissions has diminished since the original CPP was enacted?

This proposal to replace the CPP is dependent on a previously proposed action to repeal the CPP - which in turn is based on an August 2015 Regulatory Impact Analysis (RIA) that uses methods, assumptions and techniques which differ substantially from those employed in previous EPA RIAs, and which do not appear to have been subject to scientific peer review. Although the RIA was conducted to support the CPP repeal, this work product also seems especially critical to the effective design of a replacement plan, since it represents the Agency's most recent assessment of the costs and benefits associated with reductions of GHG and associated pollutant emissions from EGUs. Please describe the Agency's plans to conduct an external peer review to assure the quality of this important and influential RIA?

Agency Response:

The questions that you ask related to both the use of emissions trading/averaging under a 111(d) program and the quantification of benefits under a rescission or replacement to the Clean Power Plan are both questions that the agency is actively considering as part of rulemaking actions. The agency has not made any final determinations about how it intends to proceed on either of these issues. The Agency's work to review the Clean Power plan is here: <https://www.epa.gov/energy-independence> and will be updated when we announce future actions.