

Federal Advisory Committee Act  
Clean Air Act Advisory Committee

**Mobile Sources Technical Review Subcommittee**

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**Virtual Meeting  
October 14, 2021**

**Welcome & Opening Remarks**

Due to health and safety concerns regarding the coronavirus, this Mobile Sources Technical Review Subcommittee (MSTRS) meeting was held remotely via Microsoft Teams. Ms. Julia Burch, the Designated Federal Officer (DFO), opened the meeting, reviewed the agenda, noted that the meeting is open to the public and mentioned that there would be time later in the day for public comment. Previous meeting minutes as well as materials associated with this virtual meeting are available online on the EPA’s MSTRS website (<https://www.epa.gov/caaac/mobile-sources-technical-review-subcommittee-mstrs-caaac>). A list of attendees is provided in Attachment 1.

**Virtual Meeting Agenda**

1:00 - 1:15 pm	Welcome and DFO Opening Remarks	Julia Burch
1:15 - 1:45 pm	Remarks and Regulatory Update from OTAQ Office Director (with Q&A)	Sarah Dunham
1:45 - 2:15 pm	Remarks on Future Mobility Report Executive Summary Overview	Rich Kassel
2:15 - 3:00 pm	Future Mobility Report Discussion and Vote	MSTRS Members
3:00 - 3:15 pm	Break	
3:15 - 3:45 pm	MOVES Review Workgroup Report Presentation	Matt Barth Megan Beardsley
3:45 - 4:00 pm	MOVES Report Discussion and Vote	MSTRS Members
4:00 - 4:15 pm	Public Comment	
4:15 - 4:30 pm	Final Remarks and Close Out	Julia Burch

**Remarks and Regulatory Update from OTAQ Office Director**

Ms. Sarah Dunham, the Director of the Office of Transportation and Air Quality (OTAQ), thanked the participants for their attendance and recognized the members whose terms on the committee were coming to an end. She emphasized the importance of the MSTRS and the MOVES workgroup to the EPA’s work on future mobility topics as well as the MOVES model. She then provided an overview of the work OTAQ has been doing since the last MSTRS meeting.

Ms. Dunham highlighted the work OTAQ has been doing to implement the Executive Order (EO) signed by President Biden on August 5, 2021, that focused on strengthening American leadership on clean cars and trucks. She noted that this EO set a goal of having 50% of light duty vehicles sold in the US in 2030 be zero-emission vehicles (ZEVs). The work OTAQ has undertaken related to this executive order include:

- Issuing a proposal for federal GHG emission standards for passenger cars and light trucks for model years (MY) 2023-2026.
- Beginning work on a separate rule to lay out tailpipe multi-emission standards for the light-duty fleet beyond MY 2026.
- Working on a series of future rulemakings to reduce GHG emissions and other harmful air pollutants from heavy-duty trucks.
- Investigating opportunities to propose targeted updates to the current Phase II GHG emission standards or specific segments of the heavy-duty sector.
- Working on a longer-term rule that would set more stringent GHG standards for heavy-duty vehicles as soon as MY 2030.
- Addressing concerns in overburdened communities and pursuing environmental justice initiatives throughout each of the above processes.

Ms. Dunham also noted that in addition to these efforts related to the Executive Order, OTAQ has also been working on a number of other initiatives, including:

- Developing a rulemaking to establish particulate matter (PM) standards for jet engines.
- Implementing Renewable Fuel Standards through multiple regulatory actions.
- Continuing to work on the Ports Initiative.
- Continuing to take actions related to the Diesel Emissions Reduction Act (DERA).
- Continuing to support the SmartWay program.

Ms. Dunham also briefly discussed assistance to state and local partners with efforts to reduce transportation emissions, such as through the Travel Efficiency Assessment Model (TEAM) and an updated report on best practices for reducing pollution exposures at schools near roadways.

Following this report on the ongoing work at OTAQ, Ms. Dunham responded to questions from MSTRS members regarding unification of standards between the EPA and the California Air Resources Board and the timeline for actions taken under the EO, noting that the EPA and California continue to maintain a collaborative relationship and that the EO asks the EPA to finalize all relevant actions by July of 2024. One MSTRS member also commented that there may be an opportunity with the upcoming Congressional funding for cross-agency efforts to reduce emissions, and another member advocated for robust light-duty GHG standards and quick promulgation of the heavy-duty rule.

## **Future Mobility Report Presentation and Vote**

Mr. Rich Kassel, the MSTRS chair, presented the Future Mobility report to the committee.

He began with an overview of the purpose of the report and the process that was used to develop the four chapters (Vehicle Technology, Personal Mobility, Fuels, and Goods Movement). Each subgroup produced a report that included recommendations for next steps, and these have been combined into a single document that will be voted on by the committee.

Mr. Kassel then described each of the scenarios and questions considered by the four subgroups, followed by ten overall themes that emerged throughout the whole report. These overall themes included the following:

1. EPA should adopt a comprehensive approach to decarbonizing the entire transportation sector.
2. Good data and analysis will be critical to meeting future mobility goals.
3. EPA should consider new ways to integrate and prioritize social equity, environmental justice, and mobility justice.
4. EPA will need to identify and pursue ways to increase collaboration across agencies and levels of government.
5. EPA should consider solutions that are outside its traditional regulatory authority.
6. Fuel-neutral, technology-agnostic performance standards will continue to be critical.
7. Incentives, public education, and outreach programs will continue to be critical to accelerate deployment.
8. EPA will need to consider new approaches to solve both new and old problems that may go beyond EPA's traditional role.
9. EPA should consider additional strategies that will be needed for hard-to-electrify components of legacy and future fleets.
10. There is no silver bullet.

Following this presentation, a few members suggested edits to the report, including that the term "micromobility" should be "shared mobility" instead; that Appendix G seems to leave out recommendations from the fuels group, which should be included; and that some of the images did not get imported correctly from the draft report sections to the final report appendices, which should be corrected.

At the conclusion of the discussion, Dr. Matt Miyasato proposed a motion to vote to approve the report, pending the amendments to the appendices that were discussed in the meeting, and Dr. Matt Barth seconded the motion. Ms. Burch facilitated the voting process by asking members to virtually raise their hands using the "Raise Hand" feature in Teams to vote "Yes," "No," or "Abstain." The voting results are provided in Attachment 2. The report was conditionally approved with a vote of 20 to 0, with no abstentions.

Mr. Karl Simon noted that they do not know when the next CAAAC meeting will be held for CAAAC members to approve the report, but they will notify the MSTRS when it is scheduled.

## **MOVES Review Workgroup Report Presentation and Vote**

Dr. Barth and Ms. Megan Beardsley, the MOVES Review Workgroup co-chairs, presented the workgroup recommendations to the committee.

They began with a description of the MOVES model, which estimates emissions and energy use from both on-road equipment like cars, trucks, and buses as well as non-road equipment such as construction equipment, lawn mowers, gas and mining equipment, railroad service, recreational vehicles, and boats. It excludes aircraft, locomotives, and commercial marine sources. The EPA uses MOVES in all of its mobile source work, especially in generating inventory impact statements when developing regulations, as well as for national inventories of air pollutants. State and local agencies also use MOVES for emission inventories, State Implementation Plans (SIPs), and transportation conformity determinations. Lastly, academics use MOVES in a wide variety of fields.

They noted that MOVES3 was released in November 2020, and there is now an overview report online that summarizes the updates and defaults, in addition to many other reports explaining key parts of the model. Two patches were distributed in March and September 2021 to fix minor issues with the model. MOVES3 is now being used to develop mobile source emission estimates for the 2020 National Emissions Inventory (NEI).

They then provided some background about the MOVES Review Workgroup, which was formed five years ago by the MSTRS and features a wide spectrum of stakeholders and subject matter experts. All of their meeting notes and presentations are available online.

Over the last several years, the workgroup has developed recommendations for the MSTRS for how to improve MOVES. They noted that most of the short-term recommendations they presented to the MSTRS in 2017 have already been incorporated into the MOVES3 release, so the ones being discussed at this meeting will focus more on the medium- and long-term.

They explained the workgroup's process for developing this latest set of recommendations, which included multiple meetings for discussion as well as submitting ideas via email, resulting in a final list of 14 items. This was followed by a process whereby each member voted on their top 5 ideas in order to rank the recommendations. The final list is as follows:

1. Improve modeling of energy use and direct emissions from vehicles using alternative fuels and technologies.
2. Update modeling of exhaust emissions from conventional heavy-duty vehicles in MOVES.
3. Update modeling of exhaust emissions from conventional light-duty vehicles in MOVES.
4. Improve how MOVES works with other models and tools (e.g., SMOKE, GREET, VISSIM, AERMOD).
5. Improve the capabilities of MOVES for community-scale modeling and equity analysis.
6. Update modeling of nonroad equipment.
7. Improve the capabilities of MOVES for project-level analyses.
8. Update modeling of brake and tire wear particulate emissions from conventional, electric, and other alternative vehicles, both light- and heavy-duty.
9. Better evaluate the accuracy and applicability of MOVES.
10. Incorporate new options to reduce processing time.
11. Improve the user interface for inputs and outputs.
12. Improve the ability of MOVES to model emissions from automated and connected vehicles.

13. ["Write-in" recommendations listed in Appendix E of the final report.]
14. Improve software installation and update processes.

MSTRS members asked the presenters a few questions and there was brief discussion regarding the effects of oxygenated fuels in MOVES. From the questions and discussion, Ms. Beardsley noted that some recommendations in the report can be acted on quickly by the EPA, but others will take more time to address, due to the data and research needed. She also noted that any updates needed to address oxygenated fuels would fall into this second category.

Dr. Barth proposed a motion to vote to approve the report, and Mr. Kassel seconded the motion. The same voting procedures as for the Future Mobility report were followed. The voting results are provided in Attachment 3. The report was approved with a vote of 18 to 0, with no abstentions.

### **Final Remarks and Close Out**

Ms. Burch opened the floor for public comments. No members of public made comments. Mr. Kassel proceeded with his closing remarks, and he and Mr. Simon both thanked the attendees for their time and participation, particularly thanking the members whose terms were ending.

Ms. Burch noted that the process for adding new members to the committee is ongoing, and the EPA Administrator will soon be making the final determination in selecting and appointing new members. Ms. Burch thanked the attendees again, promised to inform everyone when the CAAAC meeting was scheduled, and adjourned the meeting.

## Attachment 1

<b>MSTRS Virtual Meeting Attendance List<sup>1</sup></b>	
<b>MSTRS Members</b>	
<b>Name</b>	<b>Organization</b>
Robert Anderson	Chevron
Matt Barth	Institute of Electrical and Electronics Engineers
Rasto Brezny	Manufacturers of Emission Controls Association
Blair Chikasuye	Hewlett Packard
Elena Craft	Environmental Defense Fund
John Eichberger	Fuels Institute
Kent Hoekman	Energies
Michael Iden	Association of American Railroads
Tracey Jacksier	AIR LIQUIDE Research & Development
Rich Kassel	Tri-State Transportation Campaign
Jim Kliesch	American Honda Motor Co., Inc.
Nancy Kruger	National Association of Clean Air Agencies
George Lin	Caterpillar, Inc.
Matt Miyasato	South Coast Air Quality Management District
Elaine O’Grady	Northeast States for Coordinated Air Use Management
Joanne Rotondi	Hogan Lovell
Susan Shaheen	International Journal of Sustainable Transportation
Luke Tonachel	Natural Resources Defense Council
<b>Other Attendees</b>	
Megan Beardsley	
Erin Birgfeld	
Zoe Bultman	
Byron Bunker	
Julia Burch	
Craig Butler	
Michael Cammisa	
Bill Charmley	
Zack Colman	
James Coverdale	
Bill Dell	
Dominic DiCicco	
Sarah Dunham	
Keesha Esqueda	
Dustin Fitzpatrick	
Tim French	
Robert Fronczak	
Diana Galperin	

<sup>1</sup> This list of meeting attendees is not comprehensive due to a number of unidentified call-in participants.

<b>MSTRS Virtual Meeting Attendance List<sup>1</sup></b>
Tim Hogan
Patrick Kelly
John Kinsman
David Lax
Sonya Lewis-Cheatham
Amy Lilly
Andy Mabutol
Rachel Muncrief
Christopher Mylan
Doug Obey
Robert O'Keefe
Patricia Paff
Russell Pildes
Clay Pope
Reid Porter
Greg Potter
Julia Rege
Sarah Roberts
Matt Rudnick
Craig Segall
Michael Shell
Karl Simon
Lisa Snapp
Matthew Spears
Andrew Su
Mary Uhl
Kathryn Valdez
Tom Van Heeke
Christopher Voigt
Diep Vu
Cynthia Williams
Deborah Wilson
Jacob Zimmerman
<b>Contractor Support</b>
Lesley Stobert
Margaret Overton

## Attachment 2

<b>Voting Results for Future Mobility Report</b>		
<b>Yes</b>	<b>No</b>	<b>Abstain</b>
Bob Anderson	None	None
Matt Barth		
Rasto Brezny		
Blair Chikasuye		
Elena Craft		
John Eichberger		
Kent Hoekman		
Michael Iden		
Tracey Jacksier		
Rich Kassel		
Jim Kliesch		
Nancy Kruger		
George Lin		
Matt Miyasato		
Elaine O'Grady		
Robert O'Keefe		
Joanne Rotondi		
Susan Shaheen		
Luke Tonachel		
Cynthia Williams		



### Attachment 3

<b>Voting Results for MOVES Workgroup Recommendations</b>		
<b>Yes</b>	<b>No</b>	<b>Abstain</b>
Bob Anderson	None	None
Matt Barth		
Rasto Brezny		
Blair Chikasuye		
Elena Craft		
Kent Hoekman		
Michael Iden		
Tracey Jacksier		
Rich Kassel		
Jim Kliesch		
Nancy Kruger		
George Lin		
Robert O'Keefe		
Russell Pildes		
Joanne Rotondi		
Susan Shaheen		
Luke Tonachel		
Cynthia Williams		