

Federal Advisory Committee Act

Clean Air Act Advisory Committee

**Virtual Meeting
December 15, 2021**

Welcome & Opening Remarks

Due to concerns about safety regarding the coronavirus, this Clean Air Act Advisory Committee (CAAAC) meeting was held remotely via Microsoft Teams. Ms. Lorraine Reddick, the Designated Federal Official, opened the meeting by welcoming the attendees. She noted that the purpose of this meeting is to follow up on, and provide an initial EPA response to, the Clean Air Act (CAA) 50th anniversary report adopted in October as well as hear other updates from the Office of Air and Radiation (OAR). She also reviewed the agenda, which is displayed below. She noted that there would be a public comment period at the end of the meeting, and attendance would be determined using the list of participants and meeting chat in Teams. A list of attendees is provided in Attachment 1. Previous meeting minutes as well as materials associated with this virtual meeting will be available online at EPA's CAAAC website (<https://www.epa.gov/caaac>).

Virtual Meeting Agenda

Time	Item	Presenters/Facilitators
1:00 - 1:10pm	Opening Remarks	John Shoaff Lorraine Reddick
1:10 - 2:00pm	Updates from OAR Leadership and Initial EPA Response to the CAA 50 th Anniversary Report	Joe Goffman Tomás Carbonell EPA program office representatives
2:00 - 2:30pm	Presentation and Discussion of MSTRS MOVES Technical Report	Matt Barth Megan Beardsley
2:30 - 2:45pm	Break	
2:45 - 3:45pm	Presentation and Discussion of Draft MSTRS Report, "Future Mobility"	Rich Kassel
3:45 - 4:00pm	Public Comment and Closing Remarks	

Mr. John Shoaff also greeted the attendees and introduced Mr. Joe Goffman, the Principal Deputy Assistant Administrator at OAR, to discuss recent EPA activities.

Updates from OAR Leadership

Before beginning his remarks, Mr. Goffman noted that he was joined by Mr. Tomás Carbonell, the Deputy Assistant Administrator for Stationary Sources and a former CAAAC member.

Mr. Goffman began by discussing the recent 26th United Nations Climate Change Conference of Parties (COP), which took place in Glasgow. Administrator Regan led a small EPA delegation to the COP and led a series of events that focused on concrete actions that the agency has taken in the past year to address major sectors of greenhouse gas (GHG) emissions. The EPA's proposed methane emission standards for the oil and gas sector were also announced at the COP, which encompass not only new and modified sources but also included guidelines for existing sources. In the proposal, the EPA included a series of questions they hope stakeholders and commenters will address in anticipation of issuing a supplemental proposal early next year that would strengthen the proposed provisions, expand the rule's coverage further, or include innovative ideas for enhancing compliance. Mr. Goffman noted that the direct air quality and public health benefits of the program will benefit many frontline communities.

Mr. Goffman then discussed the phasedown and allocation rule for implementation of the American Innovation and Manufacturing (AIM) Act, which was featured prominently and received with a great deal of enthusiasm by the COP participants. With the allocation rule in place, the mandated phasedown of hydrofluorocarbons (HFCs) will begin in 2022. As part of that effort, EPA has formed a task force with other government agencies, notably the Department of Homeland Security (DHS) Customs and Border Patrol (CBP), to deter and prevent the illegal importation of HFCs. The EU has had its own HFC phasedown program, and it has experienced issues related to illegal HFC imports, so the US has been able to learn lessons from that and put in place robust interdiction and deterrence efforts.

Mr. Goffman continued by explaining that the next major sector of pollution and GHGs where the US government has been extremely active, and the EPA in particular, is light-duty vehicles (LDVs). In the summer, they proposed LDV GHG emission standards for Model Years (MY) 2023 through 2026. At the time, the announcement was part of a larger announcement by President Biden in which he issued an Executive Order that declared that by 2030, zero-emitting or electric vehicles should make up 40-50% of new car sales. This announcement was supported by the United Auto Workers (UAW) and the big three manufacturers. He acknowledged that in order to capture MY 23 in the final rulemaking, it needs to be finalized very soon. It was sent off for inter-agency review on November 10, and they hope to get the final rule signed by Administrator Regan in time.

Mr. Goffman added that part of Administrator Regan's domestic leadership was his co-chairmanship of a multinational initiative known as the Zero Emission Vehicles Transition Council (ZEVTC). Its purpose is to make Zero Emission Vehicles (ZEVs) the default technology of new car sales worldwide in the relatively near future. One of the major charges that ZEVTC adopted in its work is one which the EPA can contribute to directly: modeling for other countries, in the sense of setting an example and sharing practical experience and knowledge for

how to set regulations, such as the one for LDVs or the strategy outlined in the President's Executive Order.

Mr. Goffman finished his remarks by acknowledging the hard work the CAA 50th Anniversary Report Workgroup put into developing their final report and thanking the Workgroup for their effort. He noted that the report is comprehensive in its coverage of CAA issues and remarked that it has been a bit overwhelming for the EPA to digest.

Discussion

Mr. Dan Greenbaum noted that on mobile sources, a key element of the program's success has been the degree to which EPA has been able to coordinate with California. He asked if they could provide an update on how that discussion has progressed throughout the development of the LDV rule. Mr. Goffman responded that their work with California is always the most robust at the technical level. The two biggest tasks remaining are to finalize the LDV standards and act on the SAFE Rule part 1, which nullified California's 2013 waiver. He noted that California is eager to see what the EPA finalizes regarding the waiver. He also noted that the EPA will need to be right on task and choreograph with California on model years 2027+.

Mr. Mitch Hescox asked if Mr. Goffman could provide more insight on the new methane supplemental proposal. Mr. Carbonell responded that they view the supplemental proposal as an important step towards getting to a final rule by the end of 2022. The supplemental proposal will have regulatory text for the New Source Performance Standards (NSPS) and emission guidelines. He explained that depending on the input they get from the public, the supplemental proposal may expand on requirements for some things, such as abandoned wells, poorly controlled flares, community monitoring programs, and advanced monitoring technologies. Mr. Goffman added that with public comments on the proposal, the EPA should have a very credible basis for the supplemental proposal before finalizing the rule.

Mr. Bob Meyers noted that for many years, the EPA has tried to harmonize vehicle standards worldwide with the World Forum but has not been completely successful. He asked how this issue will be addressed with ZEVTC. Mr. Goffman replied that the EPA hasn't looked into that issue with ZEVTC, but the U.S. contribution to ZEVTC would be a higher level of aggregation and would not subsume the work of the World Forum.

Initial EPA Response to the CAA 50th Anniversary Report

Mr. Mike Koerber, the Deputy Director for the Office of Air Quality Planning and Standards (OAQPS), began by explaining that OAQPS already has activities related to many of the recommendations in the report, so he would focus on five notable areas and give some insight about future collaborations with the CAAAC. The first two areas of recommendations advise comprehensive review of Title I permitting and New Source Review (NSR) guidance documents as well as emission factors. He agreed that there is a need for this type of review, but it will

depend on time, people, and resources. He added that follow-up is welcome, and they're happy to report back on their progress in the future.

The third recommendation falls under ambient monitoring and relates to the documentation of large-scale exceptional events. This is a big undertaking for a lot of states, and when there are large-scale events, coordinated effort could be useful. He noted that it would be helpful to hold follow-up conversations with the states, since they have primary authority, as well as possibly Multi-Jurisdictional Organizations (MJOs).

The fourth recommendation related to Title V permitting and the appropriateness of those fees, which he described as a topic of great interest to the Office of the Inspector General, which has issued five reports over the past 20 years on this topic. It also has an active evaluation underway to determine the sufficient and appropriate use for Title V fee revenues. The CAAAC can expect further engagement on this topic in the future.

The fifth recommendation, in the environmental justice (EJ) section of the report, suggests expanding and enhancing air pollution monitoring in EJ communities. He agreed that monitoring is important to air quality management, and they put out a request for applications under the American Rescue Plan (ARP) as part of a \$20 million grant competition. The government also provides other financial assistance and technical support for monitoring. Looking forward, they are working on implementing the Request for Applications (RFA) under the ARP, and if they get more resources under the Build Back Better (BBB) plan, they will be able to do more, and CAAAC will be a great resource for planning those next steps.

Mr. Chris Grundler, the Office Director for the Office of Atmospheric Programs (OAP), began by thanking the CAAAC for reminding them that their work isn't done on improving air quality in the United States. He first pointed to a recommendation that more should be done on the Interstate Transport program. He stated that they are actively considering what the next transport regulations should look like under the National Ambient Air Quality Standards (NAAQS), and there should be a proposal in the first half of 2022. Similarly, while they've made measurable progress in the area of acid deposition, they agree with a recommendation about supporting the role of science in addressing acid rain. The EPA has been a participant in the National Atmospheric Deposition Program for the past 20 years, which is a mechanism by which the science can be advanced; for example, it is an area of focus every year when they publish the Power Plant Progress Report.

Mr. Grundler then discussed recommendations about Title VI, assuring the CAAAC that they are leaning on their experience managing the phasedown of ozone-depleting substances (ODS) as they look at opportunities under their new authorities granted by Congress. He added that they relied on this history with ODS when they put out the first allocation rule under the AIM Act and will continue to do so as they put out more rules in the coming years, focusing on particular end use sectors for HFCs.

Mr. Grundler acknowledged the recommendations about the importance of data and monitoring. He noted that the EPA is still soliciting feedback on the recent five-year assessment of the Clean Air Studies and Trends Network (CASTNET) program, and they are in the midst of a multi-year re-engineering project for the Clean Air Markets Division (CAMD) suite of data collection and publication tools. He pointed to a recommendation in the report about the importance of partnership programs, including their climate protection partnership programs. He repeated Administrator Regan's position that it won't be possible to solve everything with regulations, and they will rely on partnership efforts, particularly through recent efforts to connect with harder-to-reach sectors of industry. Lastly, he noted that EJ continues to be a central tenet to addressing climate change. For example, they've worked to provide web resources and mapping tools so communities can see power plant data alongside EJSCREEN demographic data.

Mr. David Rowson, from the Office of Radiation and Indoor Air (ORIA), spoke about his appreciation for the attention paid by the report to indoor air quality (IAQ) issues and the recommendations in that area. He stated that the EPA has found the recommendations to be largely consistent with the program's current approaches and agreed they should be pursued based on resource availability. He interpreted this as an indication that the EPA is generally on the right path. Regarding the recommendations to develop a research framework and strategy that more intentionally examines the relationship between ambient air and indoor exposures, the relative contribution of exposure to risk, and the impact of ventilation and filtration technologies on reducing exposures to indoor pollutants and pathogens, he noted that ORIA is engaged with the Office of Research and Development (ORD) and non-EPA federal partners to promote and sponsor such efforts.

For recommendations related to considering other EPA and non-EPA federal and international IAQ laws, standards, and benchmarks for integration into the EPA's IAQ program, Mr. Rowson explained that they routinely monitor and consider such actions and policies by other bodies to inform their priorities and programs. The report also recommended monitoring advances in the science of indoor air chemistry and the impact of energy efficiency measures on building ventilation and filtration, and the resulting health of occupants. This work has been pursued on several fronts, through in-house expertise and external research. They developed an indoor air chemistry simulator that can help guide policy and recommendations. They are also collaborating with the National Academies of Science (NAS) on an indoor air chemistry study and working with the Department of Energy (DOE) to investigate the impacts of energy efficiency measures on IAQ. They are also looking for more opportunities to deploy their test house for research on ventilation and filtration.

Lastly, two recommendations related to indoor air quality and climate, as well as the intersections with EJ and tribal populations. They are trying to build out guidance on these topics and determine how to support tribes and other affected communities with mitigating wildfire impacts. He concluded by noting that they have more detailed responses to the report that will be brought to the CAAAC in the future, and they are looking for ways to further engage on those recommendations.

Mr. Shoaff stated that Alejandra Nuñez, the Deputy Assistant Administrator for Mobile Sources, and Sarah Dunham, the Office Director from the Office of Transportation and Air Quality (OTAQ), sent their regrets that they weren't able to attend the meeting. In their stead, he would relay their initial thoughts on the sections of the report related to mobile sources. He began by noting that given the regulatory agenda for light-, medium-, and heavy-duty vehicles over the next several years, they expect to be considering many of these recommendations as part of those actions. For example, there were recommendations on the relative merits of performance-based emission standards versus technology mandates; the importance of existing program design elements such as emissions averaging, banking, trading, and other compliance flexibilities and their relevance to future regulatory actions; the role of electric and hydrogen vehicle infrastructure and what authority EPA has to promote that; and consideration of EJ issues.

Mr. Shoaff highlighted a number of recommendations which are already being worked on by OTAQ and other offices. These include developing and improving the necessary analytical capabilities and infrastructure to assess the relative impact of different vehicle types on generation of GHGs more precisely, including working with outside groups like DOE. He noted that there are several recommendations addressing mobile source air pollution that the EPA has also received from the Mobile Sources Technical Review Subgroup (MSTRS) Future Mobility report, which will be discussed later in the meeting. He then invited Mr. Carbonell to share his thoughts.

Mr. Carbonell echoed others' praise for the hard work of the report workgroup. He noted that the EPA has been giving thought to how best to leverage the expertise and perspective of the CAAAC and engage with the committee. He noted that the EPA is actively thinking about how to integrate climate change and EJ priorities into their decision-making and actions while also developing new programs under the new infrastructure law and potentially Build Back Better law, and these seem like areas where CAAAC may be able to play a productive role in providing advice and input. They are also considering the recommendations from the 50th anniversary report and determining whether there are program-specific questions that are ripe for CAAAC input and advice. He added that if anyone has immediate input on either topics or modes of working together that they want to share following this meeting, they should feel welcome to send it to Ms. Reddick and Mr. Shoaff. He thanked everyone again for their work and support.

Discussion

Mr. Gary Jones asked about EPA's approach towards the ozone NAAQS, particulate matter (PM) NAAQS, and interstate transport. Mr. Carbonell responded that they are working on interstate transport, ozone-forming pollution, and "good neighbor" regulations with respect to the 2015 ozone NAAQS. There is a deadline coming in February 2022 to either take action on State Implementation Plans (SIPs) or propose federal plans around ozone transport. Separately, they are working through review and reconsideration of the previous Administration's decisions to retain the PM and ozone NAAQS, but this will be a longer-term process. Mr. Koerber added

that they are in the early stages of NAAQS review for lead and the nitrous oxides (NO_x)/sulfur oxides (SO_x)/PM secondary standards.

Mr. Jones followed up by asking about their sense of whether the good neighbor provisions will withstand being challenged. Mr. Carbonell responded that they are working to build the most legally and technically robust approach possible.

Mr. Meyers asked whether the EPA will report back to CAAAC on the GHG recommendations of the report or if a similar process of review of those recommendations is being done. Mr. Carbonell stated that this is an area where they will need to follow up later, but the EPA is moving forward to achieve significant reductions in climate pollution from major sources, including oil and gas, HFCs, and vehicles. The Administrator has also indicated that their regulatory agenda should include a focus on power sector related actions that will achieve reductions. Mr. Meyers added that he is interested in hearing EPA's thoughts on other recommendations that aren't linked to the current regulatory agenda.

MOVES Review Workgroup Report

Mr. Matt Barth and Ms. Megan Beardsley, the co-chairs of the workgroup, presented the report to the committee.

Mr. Barth began with a description of the Motor Vehicle Emissions Simulator (MOVES) model, which estimates emissions and energy use from both on-road vehicles like cars, trucks, and buses as well as non-road equipment such as construction equipment, lawn mowers, and boats, but it excludes aircraft, locomotives, and commercial marine sources. The emissions estimates it can produce include engine running, engine starting, idling (extended idle), evaporative, and brake and tire wear for criteria pollutants, GHGs, and air toxics; additionally, it can estimate fuel consumption. It accounts for factors that include national emission standards, vehicle populations and activity, state and local rules, fuels, temperature, and humidity. The latest version of MOVES, MOVES3, was released in November 2020.

MOVES is applied in a wide range of contexts, although it is primarily a regulatory model. The EPA uses MOVES in all mobile source work as well as for national inventories of air pollutants. It also provides inputs for many other models and tools. State and local agencies use MOVES for emission inventories, SIPs, National Environmental Policy Act (NEPA) analyses, and transportation conformity determinations. He noted that California has its own separate model, called EMFAC, which is used instead of MOVES. Lastly, academics and interest group researchers use MOVES to look at onroad and nonroad emissions, transportation, and air quality.

He 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. Its purpose is to provide feedback on the model to guide improvements and new features. All of their meeting notes and presentations are available online at <https://www.epa.gov/moves/moves-model-review-workgroup>.

Over the last several years, the workgroup has developed recommendations for the MSTRS for how to improve MOVES, which have already been presented to the MSTRS and are now being submitted to the CAAAC for approval to go to the EPA. He noted that most of the short-term recommendations that 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.

He explained that to develop this latest set of recommendations, they not only narrowed down the list to 14 final items, but they also asked the workgroup members to rank them in importance in order to present them in priority order. The full list is included in the report, and he discussed the top five overall recommendations for the CAAAC.

The first recommendation was to improve modeling of energy use and direct emissions from vehicles using alternative fuels and technologies by compiling their emissions, activity, and vehicle characteristics.

The second recommendation was to update modeling of exhaust emissions from conventional (diesel and gasoline) heavy-duty vehicles (HDVs) in MOVES. For example, the activity can incorporate the latest data on HDV operations and better account for road grade and changes in vehicle mass and road load. In addition, the emissions can be updated with real-world data and account for new regulations, adjustments can be made to better account for tampering and inspection and maintenance programs, and speciation can better account for secondary organic aerosol (SOA)-precursors and ultrafine particles.

The third recommendation was to update modeling of exhaust emissions from conventional LDVs in MOVES in the same ways as that for HDVs.

The fourth recommendation was to improve how MOVES works with other models and tools. This is critical because MOVES is used for a lot of other purposes in conjunction with other models. Suggestions include to develop, test, and document best practices; provide software tools and application programming interfaces (APIs); facilitate life-cycle analysis for electric vehicles and GHGs; simplify source types to better align with Federal Highway Administration (FHWA) vehicle categories; and allow additional user inputs such as vehicle load or weight.

The fifth recommendation was to improve MOVES' capabilities for community-scale modeling and equity analysis. Recommendations include expanding on existing project-level guidance to estimate emissions at the community level; developing and testing techniques such as Automated License Plate Readers to estimate vehicle mix and activity at the sub-county level; and developing MOVES-based tools for equity or EJ analyses, or to support other EPA tools that require mobile source emissions input.

Mr. Barth concluded by explaining that the next step requested by MSTRS is for CAAAC to approve the final report and workgroup recommendations and forward them to EPA for

consideration. Ms. Beardsley expressed her appreciation for the workgroup before answering questions. Mr. Shoaff then invited comment from the CAAAC.

Discussion

Mr. Greenbaum approved of the recommendation to improve MOVES integration with other models and pointed out that it's not the best tool for certain functions, such as modeling air quality and exposure, so it isn't a good idea to water it down to make it serve too many purposes.

Ms. Rosemary Ahtuanguaruak described how, if you're a small village, looking and seeing the effects from emissions, you wonder how things add up, and without these types of programs and this support, they have a hard time measuring. She thanked them because they see flares every day and those emissions are very concerning to them.

Mr. Shoaff also acknowledged a comment in the chat from Ms. Ahtuanguaruak, which read, "Our small village sees flares every month. The staging of 68 super size dump trucks within 5 miles of our village for oil and gas development. Our village suffers health concerns and emissions exist and are increasing. Profit for who now must not lead decisions for health of communities. Thank you for all this work and enforcement must follow. Prevent industry exemptions please."

Mr. Robert Hodanbosi emphasized the point on the second recommendation about better accounting for inspection programs and tampering. He explained that it is critical for states to have an accurate account of the effectiveness of their inspection and maintenance programs. Their recent experiences running MOVES have shown just a minimum improvement in air quality, which they believe is inaccurate, so reflecting real world improvements as a result of those programs would be helpful.

Mr. Shoaff thanked Mr. Barth and Ms. Beardsley and explained that the plan was to hear the next presentation about the MSTRS Future Mobility report, and then vote on both reports at the next CAAAC meeting.

MSTRS Future Mobility Report

Mr. Rich Kassel, the MSTRS chair, presented the report to the CAAAC on behalf of the subcommittee. He noted that its content dovetails nicely with a lot of the previous discussions of the CAA 50th anniversary report and the MOVES workgroup report. He encouraged everyone to view this as the start of a conversation.

This report comes on the heels of years of discussion at EPA about how emerging transportation and mobility trends will impact OTAQ's work on air pollution and climate change. He explained that four big trends emerged across the chapters: first, increasing and accelerating electrification of light duty transportation passenger cars and certain segments of the medium- and heavy-duty trucking sectors; second, the increasing use of alternative and renewable fuels and other low-carbon fuels; third, changing trends in personal mobility, especially in cities, that stem from the

emergence of micromobility modes; and fourth, a dramatic shift in “last mile” goods movement as retail goods are increasingly bought and sold online.

He continued by explaining that in 2019, OTAQ asked the MSTRS to consider the question, “What is EPA’s role with respect to each of the paradigm shifts being seen?” The approximately 35 members self-selected into four subgroups to discuss each of the four mobility trends, and the EPA provided them a list of questions that would initiate the conversation. This work continued from September 2019 through June 2021 with the help of EPA staff, resulting in a report by each group that included recommendations for next steps in the near-, mid-, and long-term as well as new approaches that should be considered by EPA to support its mission of reducing emissions while increasing mobility, accessibility, and equity. These have been combined into a single document that was approved for presentation to the CAAAC at the October 2021 MSTRS meeting.

Mr. Kassel listed ten overall themes that emerged throughout the whole report:

1. To meet the nation’s GHG, criteria pollution, and other future mobility goals, EPA should adopt a comprehensive approach to decarbonizing the entire transportation sector and finding ways to move people and goods in as sustainable and equitable a way as possible.
2. Good data and analysis will be critical to meeting future mobility goals.
3. EPA should consider new ways to integrate and prioritize principles of social equity, EJ, and mobility justice.
4. EPA will need to identify and pursue ways to increase collaboration across agencies and levels of government. This also extends to non-governmental organizations like standard-setting organizations, environmental organizations, community organizations, and industry.
5. EPA should consider solutions that are outside its traditional regulatory approach. This is especially relevant to mitigating externalities, whether they’re related to the supply chain, end-of-life recycling, reducing EJ impacts, or other factors.
6. Fuel-neutral, technology-agnostic performance standards will continue to be critical for both fuels and vehicles.
7. Incentives, public education, and outreach programs will continue to be critical to accelerate deployment, especially when it comes to managing times of transition.
8. EPA will need to consider new approaches to solve both new and old problems that may go beyond EPA’s traditional role (e.g., legacy vehicles that may need to be retrofitted or retired).
9. EPA should consider additional strategies that will be needed for hard-to-electrify components of legacy and future fleets, such as agricultural equipment, construction equipment, marine engines, locomotive engines, aviation, and other nonroad or offroad engines and equipment.
10. There is no “silver bullet.” Every tool in the toolbox will be needed to meet emissions goals.

Mr. Kassel concluded by thanking everyone who contributed to the report and noting that since it was completed, the Biden Administration released its November report, titled “The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050.” He stated that the MSTRS report is consistent with and provides additional details that will help EPA implement the Biden Administration’s long-term strategy, as well as the mobile source and other related recommendations in the CAA 50th anniversary report.

Mr. Shoaff then opened the floor for comment by CAAAC members.

Discussion

Mr. Wallington remarked that if ratcheting down the standards in the future isn’t going to be effective, it needs to be determined whether new standards should still be developed, and how. He suggested that this would be useful to consider in the executive summary. Mr. Kassel replied that they spent a fair amount of time considering the role of those performance standards, as one of consequences of the fleet averaging approach is that each good actor enables a bad actor. Performance standards are needed to keep accelerating the optimization of internal combustion engine vehicles and ensure there isn’t any backsliding. The issue is to ensure that future performance standards are meeting goals and doing so using the best data and analysis in the most cost-effective way.

Ms. Mary Peveto asked what the EPA is doing for enforcement and detection of defeat devices especially for light-, medium-, and heavy-duty trucks. Mr. Kassel responded that they do address the need for improved and enhanced data collection and analysis, which can be used to improve compliance and enforcement. He added the personal mobility section also discussed this because it covers the pros and cons a scenario in which more cars are owned by networks or companies than private individuals. Mr. Shoaff added that he could circle back with his OTAQ colleagues to try to get more information about her question.

Mr. Kassel additionally mentioned that the report addresses this through an EJ lens, because the tools today are so much greater than they were just a decade or two ago, and they suggest ways that EPA and other stakeholders can improve real time monitoring, mapping, and other mechanisms to understand what’s happening at a community level. This will enable the EPA and those stakeholders to design programs to address environmental burdens and also determine if those programs are working. Ms. Peveto added that indirect source rules are needed, and that without them it is difficult to alleviate those community burdens. Mr. Shoaff noted that they also received a comment suggesting a topic along those lines for future CAAAC discussion and consideration.

Ms. Natalene Cummings praised the report contents and expressed her excitement at seeing repeated recommendations throughout the document to conduct life cycle assessments (LCAs), including the upstream emissions. She explained that the resources needed to electrify vehicles lie in mineral deposits underground, a majority of which lie within 35 miles of Tribal lands; this includes 90% of nickel, 89% of copper, 79% of lithium, and 68% of cobalt. She stated that

Tribes should be consulted from the beginning for any kind of regulations related to the mining of those resources because they will be the ones most impacted. She also noted that regarding equity, people in rural areas will be less likely to use advanced technologies if the nearest place to service the vehicle is 3-4 hours away. Support is needed in the form of education and training so there is a workforce that can handle the service and repair those types of vehicles require. Mr. Kassel thanked Ms. Cummings for highlighting these issues and explained that they tried to flag those issues in the report for the EPA's consideration.

Ms. Ahtuanguak observed that the communities she represents in Alaska do not have many of the amenities that most people take for granted; but she sees flares within just a few miles of her village. She emphasized that changes are needed, but they shouldn't be made at the risk of the health of the people who will see the impacts to the lands and waters in the effort to reduce emissions. Mr. Kassel agreed and noted that they emphasized the need for a holistic approach in the report to ensure all effects and outcomes are considered.

Mr. Greenbaum commented that a lot of the changes in personal mobility will happen in highly urban areas, but less so in the broader metropolitan context and non-urban areas. He also noted on equity issues related to new mobility, some people might prefer to have a rideshare arrangement rather than public transit, but it will likely not be affordable for many who use public transit. He also asked if MSTRS considered the question of, if there's going to be a transition and a change in how the EPA thinks about these issues, how can they make the necessary changes in the agency while maintaining the high level of existing expertise. Mr. Kassel stated that they have flagged this issue throughout the report, also highlighting that there should be interagency collaboration, as other agencies have expertise in some of these areas. Mr. Kassel also acknowledged potential impacts that agencies should be cognizant of so the future of transport can be shaped in a way that increases mobility, equity, accessibility to jobs, and more.

Mr. Beto Lugo-Martinez stated that there should be an end to all combustion-based technologies for mobile sources because combustion creates localized NO_x and PM impacts. He suggested that EPA can stay neutral between different zero-emission technologies and also start to be more aggressive about how to get there. Mr. Kassel responded that they've tried to address this in the report by detailing the kind of emissions data that will be needed to understand local impacts in real time and then track the transition towards zero-emission vehicles. They've tried to ask the right questions to provide guidance and insights to the EPA and other agencies in the report. Mr. Kassel also acknowledged Mr. Lugo-Martinez's opposition to internal combustion engines and stated that they've tried to detail near-term and long-term solutions. He stated that they tried to create a roadmap that will be helpful in not just reaching the end goal, but accelerating the reduction of emissions as soon as possible, which is why the report doesn't just say "no internal combustion."

Public Comment and Closing Remarks

Mr. Shoaff stated that there would be an opportunity for public comment, and if anyone had thoughts later, they could follow up with him or Ms. Reddick later.

Ms. Reddick provided a few updates to the committee regarding the next CAAAC meeting, which is scheduled for February 8th, with the 9th reserved as backup if needed. The notice for the meeting was published in the *Federal Register* alongside the notification for this meeting. During the meeting, they expect to complete a final review and vote on the MSTRS and MOVES reports, and members should send any comments to her or Ms. Sarah Roberts. Ms. Reddick also thanked the members who provided input on topics to consider at future meetings and stated that they welcome additional thoughts.

Mr. Shoaff asked if any members of the public had comments they wished to share.

Ms. Jordan Barton introduced herself as an intern for Our Children's Trust, a nonprofit law firm representing 21 youth plaintiffs in a constitutional climate lawsuit. She explained that they assert that their constitutional rights are being infringed by the government's conduct that causes climate change. She shared the following statement:

“We respectfully advise the committee to align its recommendations to EPA with the best available science to protect the health of children. The CAA requires that air quality criteria accurately reflect the latest scientific knowledge useful in indicating the effects on public health or welfare, which may be expected from such pollutants in the ambient air. Experts are clear on following key points that should be considered in your advice to EPA.

“Climate change is adversely impacting the physical and mental health of American children through extreme weather events, decreased air quality, altered infectious disease patterns, and food and water insecurity. Children are uniquely vulnerable to human-caused climate change and pollution because of their developing bodies, higher exposure to food, water, and air per unit body weight, dependence on caregivers, and longevity on the planet.

“Returning the atmospheric CO₂ concentration to below 350 parts per million (ppm) by 2100 is the best scientific standard for stabilization of GHG concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system sufficient to protect life and liberties. Current increased temperatures of 1 degree Celsius and greater - now 1.2 degrees Celsius - are already dangerous. Medical experts have recently recognized that a global increase of 1.5 degrees Celsius above the pre-industrial average risks catastrophic harm to health that would be impossible to reverse. The science is clear: every ton of emissions matters and causes more danger and more temperature rise. Experts have opined that it is economically and technically feasible to achieve the science-based GHG emissions reduction target of close to 100% by 2050, placing the US on an emissions trajectory to return atmospheric CO₂ to below 350 ppm by 2100. We urge you to heed their advice.

“We also recommend that the committee advise the EPA to develop a GHG NAAQS for CO2 emissions. The CAA requires the Administrator to list pollutants given several factors, and there is no reasonable dispute that GHGs are emitted from numerous and diverse sources and that they endanger public health and welfare. Setting a science-based NAAQS for GHGs would bolster current individual state efforts to regulate GHGs while encouraging inter-state cooperation and aligning collective action, more so than any other CAA provisions. A national standard is critical to protecting the health and welfare of our nation and essential in advancing President Biden’s overall climate agenda. Congressional gridlock and shifting policies between Administrations revealed that a long-lasting regulatory scheme is more necessary than ever.

“Our children and future generations are suffering injury with long-lasting and potentially irreversible consequences at present levels of heating, and thus EPA must do everything in its power to facilitate GHG emissions reductions in line with the best available science. Young people seeking environmental and climate justice, especially youth from EJ communities, must not only have their voices heard, but have their constitutional rights protected. Thank you.”

Mr. Shoaff thanked Ms. Barton and noted that they had received a letter that echoed her comment that they would make available to the CAAAC and also include in the meeting summary.

Ms. Reddick added that they will be sending a message soon enlisting reviewers for the Clean Air Excellence Awards program, and they anticipate forwarding applications to those identified members in late February or early March. She then thanked everyone and adjourned the meeting.

Attachment 1

CAAAC Virtual Meeting Attendance List¹		
CAAAC Members	EPA Staff	Other Attendees
Rosemary Ahtuanguaruak	Megan Beardsley	Kevin Bogardus
Susan Anenberg	Julia Burch	Andrew Cherepy
William Bahnfleth	Isabel DeLuca	Lori Clark
Shannon Broome	Joe Goffman	Michael Geller
Deb Brown	Christopher Grundler	Kelley Green
Natalene Cummings	Catrice Jefferson	Megan Green
Veronica Figueroa	Mike Koerber	Doug Greenhaus
Jeremy Fincher	Jonathan Lubetsky	Alex Guillen
Gail Good	Lorraine Reddick	Hayden Hashimoto
Dan Greenbaum	Sarah Roberts	Rich Kassel
Sara Hayes	David Rowson	John Kinsman
Mitch Hescox	Tamara Saltman	Kate Konschnek
Robert Hodanbosi	John Shoaff	Anuj Kuman
Adrienne Hollis	Karl Simon	Brett Marston
Jason Howanitz	Alisa Smith	Ruth Morgan
Elizabeth Jacobs	Peter Tsirigotis	Margaret Overton
Gary Jones		Stuart Parker
Miles Keogh		Kim Scarborough
Beto Lugo-Martinez		Carolyn Slaughter
Eric Massey		Lesley Stobert
Bob Meyers		ML Textor
Mary Peveto		Diep Vu
Clay Pope		Steve Zuiss
Frank Prager		
Kris Ray		
Kim Scarborough		
Max Sherman		
Bill Spratlin		
Vicky Sullivan		
Tim Wallington		
Bob Wyman		

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