

Federal Advisory Committee Act  
Clean Air Act Advisory Committee

## **Mobile Sources Technical Review Subcommittee**

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Co-Chairs: Mr. Drew Kodjak and Mr. John Guy

Designated Federal Official: Mr. John Guy

### Summary of the Subcommittee's Meeting on October 5, 2010 Ann Arbor, Michigan

#### **Introduction/Opening Remarks**

Mr. John Guy (EPA, Co-Chair) and Mr. Drew Kodjak (ICCT, Co-Chair) called the meeting to order at approximately 9:00 am. Mr. Guy welcomed attendees, asked for a vote on the minutes of the May 4, 2010 Mobile Sources Technical Review Subcommittee (MSTRS) meeting (approved), and reviewed the day's agenda. Mr. Guy welcomed the new members that had joined the subcommittee and then asked for all members present to introduce themselves.

Presentations and meeting topics for this meeting are as follows:

- Office Director Comments – Margo Oge, EPA
- Presentation: Fuel Economy Label Proposal – Lisa Snapp, EPA
- Presentation: Perspectives on EPA / NHTSA Revisions to the Fuel Economy Label – Luke Tonachel, NRDC
- Presentation: EPA and NHTSA Proposed Revisions to U.S. Fuel Economy Labels – Bob Holycross, Ford
- Presentation: 2017-2025 Light-duty Vehicle GHG & Fuel Economy Joint Notice of Intent and Interim Technical Assessment Report – Bill Charmley, EPA and Jim Tamm, NHTSA
- Presentation: Vehicle Mass Reduction Opportunities – Gregg Peterson, Lotus Engineering
- Presentation: Transitioning I/M Workgroup – Gene Tierney, EPA
- Presentation: Report from MOVES Review Workgroup – John Koupal, EPA
- Presentation: “High Emitters” and MOVES – John Koupal, EPA
- Presentation: Distribution of High Emitters: Perspective for Sample Selection for Inventory Model Development – Sandeep Kishan, ERG

- Presentation: Aftermarket Catalytic Converters – Tom Cackette, CARB
- Presentation: Low Income Vehicle Repair, Retrofit, and Accelerated Vehicle Retirement Program and Local Initiative Projects Program – Santos Olivarez, TCEQ

Presentations are posted online at the MSTRS website: [http://www.epa.gov/air/caaac/mobile\\_sources.html](http://www.epa.gov/air/caaac/mobile_sources.html). As the presentations are posted for public view, the notes below primarily reflect the discussions that occurred in response to the presentations.

### **Comments from the EPA’s Office of Transportation and Air Quality Director – Margo Oge, EPA**

Ms. Oge thanked Mike Walsh for his 14 years of service to the MSTRS and lauded his efforts. She noted that he had also just received a prestigious award in China for helping the Chinese address motor vehicle emissions. Ms. Oge announced that John Guy will be retiring and that this meeting will be his last MSTRS meeting. She thanked him for his service to the MSTRS and remarked that he had done a great job in his role as co-chair. Next, Ms. Oge reviewed recent work and progress in EPA’s Office of Transportation and Air Quality (OTAQ) and goals for the future. She noted that in May 2010, President Obama asked that EPA and the National Highway Transportation Safety Administration (NHTSA) investigate greenhouse gas (GHG) and fuel economy standards for cars and light duty trucks for model years 2017 and beyond. On October 1<sup>st</sup>, a Notice of Intent (NOI) was issued that describes EPA and NHTSA's initial assessment of potential scenarios for a 2017-2025 National Program, and outlines the next steps for continued work that the agencies will be conducting in developing a rulemaking. EPA hopes to also issue an NPRM to address GHGs and fuel efficiency for heavy duty trucks soon. A priority of OTAQ is the Tier 3 standard, which is being driven by the ozone National Ambient Air Quality Standards (NAAQS), anti-backsliding concerns as a result of the 36 billion gallon renewable fuel mandate, and the EPA Administrator’s priority of addressing air toxics and their effects on communities. For this standard, EPA is also investigating whether a different fuel that is more representative of the fuel used in the marketplace should be used for the certification fuel. The next priority is the E15 (15% ethanol, 85% gasoline) waiver request, which is a petition to allow the use of mid-level blends rather than E10 (10% ethanol, 90% gasoline). The EPA Administrator had not responded to the waiver petition to date because more information about the effects of using these fuels was needed. The Agency is now ready to address the waiver and is preparing two actions in response to the petition, one for 2007 and newer vehicles and one for older and non-road vehicles. On the proposed fuel economy label, there will be public hearings in Chicago and California in October. EPA is working with the Federal Trade Commission (FTC) on labeling for E15, but it is unclear at this point whether there will ultimately be one label or two. There is also a lot of work being done on the renewable fuel standards (RFS2).

Mr. Drew Kodjak, the new MSTRS co-chair, introduced himself, noting that he is currently running an organization called the International Council on Clean Transportation

(ICCT). Over the next four months, he would like to talk with all the MSTRS members individually for about half an hour by telephone to discuss their concerns related to air quality and to discuss their areas of expertise.

### **Fuel Economy Label Proposal - Lisa Snapp, EPA**

Ms. Lisa Snapp (EPA) provided an overview of the new fuel economy labels proposed to meet both EPA's and NHTSA's statutory requirements. The new labels will include more information than the currently included miles per gallon (MPG) and annual fuel cost data, such as CO<sub>2</sub> emissions per mile and fuel consumption per 100 miles traveled. The labels for advanced technology vehicles (electric vehicles and plug-in hybrid vehicles) will include additional information, such as range and MPG-equivalence. To develop new label designs to include all of this information, EPA and NHTSA sought the advice of a panel of experts that have successfully promoted change in consumer thinking, including Craig from Craig's list, one of the designers of the iPod, and the leader of President Obama's campaign against obesity. They also held focus groups in several cities around the country to obtain consumer input. As a result, EPA and NHTSA are co-proposing two labels – one based primarily on the suggestions the expert panel and one based primarily on the suggestions citizens made during the focus group sessions. The biggest differences between the labels are the central letter grade assignment and more use of color on the label based primarily on the expert panel's recommendations, while the label based primarily on citizen focus groups' recommendations does not have a letter grade, and the use of color is less prominent.

#### Discussion

Dr. Lee Kindberg (Maersk) asked for confirmation that the new labels would show "0" for CO<sub>2</sub> emissions, noting that this seemed misleading. Ms. Snapp confirmed that under the current proposal, the labels would show zero emissions of CO<sub>2</sub> from electric vehicles, but added that EPA and NHTSA are seeking comment on this and other aspects of the new labels.

Mr. Chris Standlee (Abengoa) asked about the fuel types that will be assumed in developing the information for the new labels. Ms. Snapp replied that no changes were being proposed to the fuel and testing procedures, and that the current fuels used in testing do not include any ethanol. Ms. Snapp also noted that the people in the focus groups were not as interested in environmental issues as they were about fuel economy. EPA and NHTSA need to determine the best ways to inform the public about fuel economy when considering new technologies, such as electric vehicles, enabling consumers to perform comparisons between vehicles types. The public is accustomed to seeing fuel economy related in terms of MPG. EPA is also trying to find the appropriate way to present the additional information Congress has required to be put on the label, considering that the experts suggest keeping the label simple. From the focus groups, EPA also learned that people are not relying on the label at the car lot, but they are doing research ahead of time, so it is important that EPA develop an informative and user-friendly website for this information.

Mr. Tom Cackette (CARB) asked what the expert panel had to say about having fuel consumption on the label. Ms. Snapp replied that this data was not on the “radar screen” of the expert panel.

Mr. Sandeep Kishan (ERG) commented that in the future as vehicles become more efficient, the differences between vehicles will become smaller and smaller. It could be misleading to give letter ratings to vehicles that imply big differences when the differences between, for example a “B” car and a “C,” car could actually be very small. Ms. Snapp responded by acknowledging that this is an issue EPA is concerned about. The proposed rating system would split the top half of vehicles and bottom half of vehicles evenly around the median performing vehicle.

Dr. Mike Rogers (GA Tech) commented that EPA should try to create an environment where there is an incentive to over-control, which would not happen if the scale changes over time. The proposed letter grade system will create an environment where automakers are competing against each other rather than trying to beat the standard.

Mr. Ichiro Sakai (Honda) noted that it can be misleading to the consumer to focus on fuel economy because it is not readily apparent that the fuel cost savings between vehicles at the upper end of the MPG spectrum are less than the cost savings between vehicles in the middle and bottom ends. Ms. Snapp agreed and noted that EPA is trying to move toward consumption ratings, in part, for that reason. Mr. Sakai also noted that if additional loads are applied to the engine such as A/C, electric loads and others, then mpg values vary a lot more if the fuel economy number is originally higher. Thus the consumer will potentially be confused about a big gap with a higher fuel economy vehicle than a vehicle with lower fuel economy. Mr. Sakai also suggested that EPA and NHTSA make the fuel consumption number more prominent but may have to retain the fuel economy number due to statutory requirements.

Dr. Tim Johnson (Corning) commented that there may be gamesmanship in the future, in which marketing companies could narrowly focus on one number included on this label in advertising campaigns for their product or against others. This is something that should be considered in designing the label and determining what information is presented.

### **Perspectives on EPA / NHTSA Revisions to the Fuel Economy Label – Luke Tonachel, NRDC**

The NRDC prefers the letter grade system label of the two labels proposed by EPA and NHTSA. This label displays the letter grade prominently, provides a GHG basis for comparison across all technologies, provides clear operational cost information, and includes a fuel consumption metric. It is simple, easy to understand, and promotes clean technologies. It is also clear that the labels need to address advanced technologies, as by model year 2015 there are expected to be 108 models on the market compared to 23 models today. From the EPA pre-focus group survey data, most people considered more than one vehicle and shopped across vehicle types when purchasing a vehicle. These data also indicated that the biggest factors considered in purchasing a vehicle were size/capacity and fuel economy. There are many choices of class and fuel economy for a given vehicle size. As there are many choices available,

the label with the letter grade system, with its single scale, is important for showing efficiency independent of vehicle type. The letter grade is simple and enables efficiency and pollution to be a large factor early in the buying process, and the letter grade is enhanced with the “save” or “spend” information on the label. This label will promote clean technologies and help to bring more of these technologies to the market.

#### *Discussion*

Due to time constraints, there was no discussion following this presentation.

#### **EPA and NHTSA Proposed Revisions to U.S. Fuel Economy Labels – Bob Holycross, Ford**

Today’s fuel economy label is relatively simple, easy to understand, and effective for comparing vehicles. Ford supports EPA and NHTSA’s goal to develop new labels to help consumers make informed decisions and recognizes that new, additional information is required to be on the labels. However, it is important to consider the information that is important to the consumers and the ways in which they will use the information to make decisions. Based on the focus group reports, consumers shopping for a vehicle typically have a vehicle type in mind and buy that kind of vehicle. They need information relevant to the vehicle type of interest. The letter grade label is significantly different than today’s label, with the letter grade being the predominant label feature and with less emphasis on the objective data. The letter grade is a one-size-fits-all grading criteria, does not balance fuel economy with smog-forming emissions, and “A” grades are effectively reserved for electric vehicles. The more traditional label preserves the simple format of today’s label, fuel economy data is more visible, it provides a more balanced comparison for vehicles within the same class, and it provides more balanced ratings between GHGs and smog-forming emissions. For the advanced technology vehicle (ATV) labels, consumers need and want more data on ATVs versus conventional vehicles. The traditional label presents information more clearly for plug-in hybrid electric vehicles (PHEVs). Adding color to the labels may be making the labels more complex without adding much value. There are also so many labels and information required to be placed on the vehicles by multiple agencies that it is becoming harder to actually see the interior of the vehicles at the dealership lot. It would be good to consolidate some of this information onto fewer labels. No matter what label is chosen, auto manufacturers will need sufficient lead-time to transition to the new label.

#### *Discussion*

Due to time constraints, there was no discussion following this presentation.

#### **2017-2025 Light-duty Vehicle GHG & Fuel Economy Joint Notice of Intent and Interim Technical Assessment Report - Bill Charmley, EPA and Jim Tamm, NHTSA**

The EPA and NHTSA have produced a technical report and NOI to issue a proposed rule in response to the President’s May 2010 memorandum. The memo directed EPA and NHTSA to work with the California Air Resources Board (CARB) to perform a technical assessment of technologies, costs, benefits and other factors associated with reducing vehicle emissions in model years 2017 and beyond. This memo also directed EPA and NHTSA to publish this notice

by September 30, 2010, which would announce plans for setting fuel economy and GHG emission standards for light-duty vehicles and light duty trucks of model year 2017 and beyond and describe the key elements of the program and the schedule for standards. The NOI and technical report are being released concurrently. To produce the technical report, EPA, NHTSA, and CARB met with over 70 stakeholders, considered data from the stakeholders and other new and existing data, evaluated the technologies, and performed modeling. Using this information, potential future scenarios, which consider different mixes of the use of ATVs and vehicle mass reduction, demonstrate that substantial reductions in fuel consumption and GHG emissions can be achieved with increased use of ATVs. In these scenarios, there is an increase in vehicle costs, but there is a net savings over the lifetime of the vehicle due to fuel savings. However, more detailed assessments will be needed to support a full rulemaking. The next steps are to work with stakeholders to conduct additional assessments, complete a second NOI by the end of November 2010, propose standards for model years 2017 and beyond by September 2011, and finalize the standards by July 2012.

### *Discussion*

Mr. Cackette (CARB) added that they are still working on modeling for advanced internal combustion engines and they are performing a sensitivity analysis on battery costs, as the costs they assumed may have been too low. Also, in the scenarios presented, they did not go to the top end of weight-reduction possibilities, and the costs ascribed to weight reduction were assumed to be higher than those shown in the Lotus study. Weight reduction is an attractive option because it is the most cost effective.

Dr. Bob Sawyer (UC Berkeley) asked whether the scenarios presented assumed the same footprint as that of the current fleet. Mr. Charmley replied that they assumed a 2025 distribution for all the scenarios. The net impact of this is that the cars are assumed to be about six inches shorter overall. Dr. Sawyer asked whether people would be moving toward smaller cars in the future due to cost. Mr. Charmley and Mr. Tamm responded that some thought had been given to this and also to whether demographic changes might affect car choices by the year 2025.

Mr. Kishan (ERG) asked whether other variable were considered, such as high fuel prices. Mr. Charmley replied that for the full proposal, variables like that will be considered, but due to time constraints – they have only had three months to look into this – they have not considered all the variables yet.

Dr. John Wall (Cummins) asked whether electric utility emissions were considered for electric vehicle emissions. Mr. Charmley said they assumed business-as-usual nationwide averages for the electric utility emission rates.

Dr. Johnson (Corning) commented that this is an interesting study, but the end-points were what was investigated. He would encourage EPA, NHTSA, and CARB to look at year-by-year incrementals. Incremental technologies are probably going to be the cheapest, and those technologies will lead the way to the goals. Mr. Charmley and Mr. Tamm responded that they will look at multiple technology approaches going forward, however, during vehicle design,

which happens only every 5 to 6 years, they want to make sure the auto makers are thinking big at that time.

### **Vehicle Mass Reduction Opportunities - Gregg Peterson, Lotus**

Lotus is studying ways to reduce vehicle mass in two phases. The results of Phase I, which studied 20% and 40% mass reductions for the 2009 Toyota Venza, were published in a report in April 2010. Phase II is in progress, which is a structural and impact analysis of the 40% mass reduction vehicle structure, and it should be complete in April 2011. The overall objective of the study is to create a low mass vehicle using materials and processes feasible for a 2020 model year vehicle with an annual production volume of 60,000 units, while minimizing total vehicle cost. For the study, this reduced-mass vehicle, based on the Toyota Venza, must retain all the key interior and exterior dimensions and volumes and meet or exceed crash and structural performance of the Toyota Venza. Lotus started by dismantling and weighing each component of the Venza to use as a baseline. They then looked to reduce vehicle mass overall by optimizing design efficiency, which included reducing stress on components, minimizing the number of parts, and selecting high-strength, lightweight materials. In the study, they were able to reduce the body in white (BIW) parts from over 419 parts to 211 parts and reduce the weight by 42% with a cost increase of 35%. The BIW assembly process would also be more efficient, using low energy, low heat friction stir welding and programmable robotic fixturing. They were also able to reduce the closures/fenders, interior, chassis/suspension and electrical/lighting wiring systems mass by approximately 40% with net cost savings. For front and rear bumper systems an estimated 11% mass reduction could be achieved by replacing the front steel beam with an aluminum beam. The underhood heating, ventilating, and air conditioning (HVAC) and glass components were not changed due to the need for equivalent performance and other factors. The overall vehicle mass was 38.4% less than the baseline vehicle with a 3% increase in cost.

#### *Discussion*

An audience member asked about the carbon footprint of manufacturing the lower mass vehicle and whether more electricity would be used overall to produce a vehicle with a higher aluminum content. Mr. Peterson replied that more electricity might be required, but that will be investigated in Phase II of the study.

Dr. Rogers (GA Tech) asked what the differences in the low mass vehicle would be. Mr. Peterson responded that there would not be many noticeable differences in the look of the low mass vehicle.

Mr. Holycross (Ford) asked whether a lighter vehicle would be more dangerous. Mr. Peterson replied that minimizing the G-forces is the key to safety, and they have been able to maintain or lower those G-forces with the lower-mass vehicle.

Mr. Kodjak commented that Europe and Japan have lighter fleets with smaller engines than the U.S. fleet, and asked whether it would be possible to move to lighter materials in those markets and achieve the same types of mass savings. Mr. Peterson replied that it is possible, but there is a limit to how thin the materials can go. Mercedes is already using a high percentage of

lower-mass materials, particularly advanced high-strength steel, in some vehicle body structures, e.g. the new 2010 E-class. Mr. Peterson noted that the 2010 E-class also has a lower MSRP than the 2009 model it replaced.

### **Transitioning I/M Workgroup - Remote OBD Protocol Development - Gene Tierney, EPA**

The workgroup has completed a recommended protocol for remote on-board diagnostics/inspection and maintenance (OBD/IM) programs. Key features of the recommended include minimum parameters for continuous IM credit; it addresses factors unique to OBD, such as OBD monitor readiness, fraud detection, and timely repairs; it addresses issues unique to wireless testing, such as privacy and data security; and it provides a basis for specifying a request for proposal (RFP). Final edits are currently being made to the document and the final recommendations will be presented at the next MSTRS meeting.

#### *Discussion*

Due to time constraints, there was no discussion following this presentation.

### **High Emitter Discussion**

Since the last meeting, Gene Tierney organized a conference call among interested members of the subcommittee to further discuss the issue of high emitters, which was brought up in the previous meeting. The members decided to pursue obtaining additional information on the subject and the following four presenters were invited to brief the MSTRS.

### **Report from MOVES Review Workgroup - John Koupal, EPA**

MOVES is EPA's replacement for the MOBILE6.2 model as EPA's official car and truck emissions model for State Implementation Plans (SIPs) and conformity determinations. Several drafts of the model have been released, with the latest being in September 2010, which included a minor update to account for new fuel consumption and GHG rules. The MOVES Review Workgroup was created in 2007 to provide input to EPA on MOVES development. This group met through April 2010 to review and provide input on MOVES inputs and algorithms, which were incorporated into the model. They have also developed final comments and recommendations on MOVES for the MSTRS subcommittee to forward to the Clean Air Act Advisory Committee (CAAAC).

#### *Discussion*

Dr. Nick Cernansky (Drexel University) commented that he was concerned about collecting data in the future, as recommended by this workgroup, as it appears that EPA does not have immediate plans for this data collection. Mr. Koupal responded that EPA is actually being very proactive in this.



Dr. Rogers (GA Tech) noted that the workgroup's advice was to (1) plan on regular model updates, and (2) develop and act according to a plan to get data for the updates. Ms. Oge responded by saying that EPA agreed that model updates need to be done on a more frequent basis and suggested that the workgroup help EPA to develop time tables for those updates. She also added that EPA needed to be forward thinking, have an ongoing effort, and champion the next phase of MOVES.

Dr. Rogers stated that there needs to be an attitude that the model will be updated, so data should be documented along the way to avoid problems with re-establishing baselines. There also needs to be a plan for continuous data collection.

Voting on whether to forward the workgroup recommendations was postponed until after the next set of presentations, which would provide additional information on EPA's plans for data collection. One member requested that, in the future, if the MSTRS needs to vote or take action, the agenda include this as a separate item.

### **“High Emitters” and MOVES - John Koupal, EPA**

The MOVES model is based on “modal” emissions, which allows finer-scale modeling than the previous model, which was based on specific test cycle data, and it covers several pollutants and emissions processes. To capture potential high emitters, a high-emitter category was created, however, defining “high emitters” has been difficult, as there seems to be no right answer as to which pollutants, emissions processes, and operating ranges should be considered. Based on I/M data, a small percentage of vehicles, even within the same age range, contribute a disproportionate amount to emissions (e.g., 10% of vehicles contribute 34% of emissions), and this trend is similar between Tiers 0, 1, and 2 relative to standards. With MOVES, it is possible to capture the “tail” end of the distribution of emissions, but it is important to ensure the underlying data are representative. To obtain representative data that properly include the tail end of the emissions distribution, very large samples are needed if the samples are random. One emerging approach that is beginning to be used to improve emission inventories using smaller sample sizes is a remote sensing device/inspection and maintenance (RSD/IM) and portable emissions measurement systems (PEMS) hybrid. In this type of program, vehicles are screened using RSD, stratified samples are developed based on the RSD, vehicles in each strata are tested with PEMS, and the PEMS results are re-weighted according to the RSD strata weighting. A study is also being conducted in methods to detect vehicles with high evaporative emissions, which are not represented by a continuous distribution with a long tail.

#### *Discussion*

Due to time constraints, questions were held until after the last presentation in this group of presentations about high emitters.

### **Distribution of High Emitters: Perspective for Sample Selection for Inventory Model Development - Sandeep Kishan, ERG**

By looking at Denver I/M data, their distributions and trends, we have tried to identify the contribution of high emitters to the overall NO<sub>x</sub> and hydrocarbon (HC) inventories. In general, newer model year vehicles emit less NO<sub>x</sub> and HC. However, when looking at one particular model year, there are a few vehicles that emit more than others. For older model years, these emissions are higher and a greater percentage of the total vehicles at that age emit at higher levels. The data show that vehicles repaired as a result of a failure of an emissions test attain emission levels lower than vehicles that pass the emissions test, if OBD systems are used for pass/fail identification. To develop a sample fleet for model development, random sampling is not sufficient due to the skewed distributions of high-emitting vehicles. EPA and ERG have been using a preliminary surrogate measure, remote sensing data, to develop a stratified random sample in several studies. We have worked to relate remote sensing data to IM240, to develop a stratified sampling design, and to model exceedance probabilities. This work has been completed in an effort to understand the full range of emissions across the vehicle fleet by considering the importance of high emitters.

### *Discussion*

Due to time constraints, questions were held until after the last presentation in this group of presentations about high emitters.

### **Aftermarket Catalytic Converters – Tom Cackette, CARB**

Both California State law and Federal regulations allow for the use of aftermarket (a/m) replacement catalytic converters. These replacement catalytic converters are cheaper than original equipment manufacturer (OEM) catalytic converters, but they are also less efficient and less durable. In testing performed by CARB, performance of a/m catalytic converters in reduction of HC and NO<sub>x</sub> fell very quickly over time. Also, the malfunction indicator lights (MIL) of the OBD systems do not illuminate because of the way OBD II systems calculate catalyst efficiency. As a result of these problems, in 2007 CARB issued a new regulation with the goals of improving the performance and durability of a/m catalytic converters while maintaining a lower cost option than the OEM converters. The converters that meet the rule requirements cost about \$300 compared to the \$100 converters available that do not meet the requirements. They are estimated to last 5 years or 50,000 miles, are compatible with OBD II, meet the useful life emissions standards for NO<sub>x</sub> and HC, and are estimated to reduce NO<sub>x</sub> and HC emissions by 106 pounds over the 5 year lifespan for pre-OBD II vehicles. When the rule began to be implemented in 2009 there was some frustration with low-cost compliant a/m converters not being available, as they are more vehicle-specific and cannot be used universally across vehicles. There have also been compliance issues, since non-compliant a/m converters can be ordered through the internet and are used in the other 49 states. Comparable federal requirements would help to resolve these issues.

### *Discussion*

Due to time constraints, questions were held until after the last presentation in this group of presentations about high emitters.

## **Low Income Vehicle Repair, Retrofit, and Accelerated Vehicle Retirement Program and Local Initiative Projects Program - Santos Olivarez, TCEQ**

The Texas Commission on Environmental Quality (TCEQ) administers a program to help low income automobile owners repair or replace their vehicles if they fail an emissions inspection. The program is called the Low Income Vehicle Repair, Retrofit, and Accelerated Vehicle Retirement Program (LIRAP). The program is funded by fees collected from vehicle emissions inspections performed in the 16 participating Texas counties. The program provides up to \$600 to repair a vehicle's emissions-related problems or \$3,000 toward vehicle replacement with a car or truck of current or recent model years or \$3,500 for vehicle replacement with a hybrid of the current or previous model year, as long as any replacement vehicle cost does not exceed \$25,000. If a car is replaced, it is taken to a dismantler for recycling of the vehicle's metal and destruction of the remaining parts. Participants in the program must earn less than 300% of the federal poverty level guidelines to be eligible. As of May 31, 2010, over 13,000 repairs and 36,000 replacements had been made through the program, with the majority of the retired vehicles being 1990's model years. Using unused LIRAP funds, TCEQ also has the Local Initiative Projects (LIP) program, which funds individual projects to further reduce vehicle emissions.

### *Discussion*

Dr. Sawyer asked whether there is a high emitter problem. Mr. Kishan replied that he thinks so, but since the distribution is skewed, it is important to understand what is going on at the tail end of the distribution.

Dr. Wall asked whether the emissions at the tail end were normal or expected due to deterioration of the vehicles or whether the emissions were not expected as a normal process of aging. Mr. Koupal responded that his group was focusing on fleet emissions and not so much so on the particular vehicles. Mr. Kishan also responded that there are both types of high emitters – those that are broken and those that are emitting as expected for their age. The data from Colorado with OBD and IM240 information has been helpful in showing what is actually wrong with the vehicles.

Dr. Mridul Gautam (WVU) asked whether newer cars have shorter emissions distribution tails. Mr. Kishan replied that newer cars do have shorter emissions distribution tails, but noted that it is also important to know how much the vehicles are driven. Estimating a tons/year emissions value may be incorrect based only on knowledge of emissions in grams/mile.

Dr. Joe Kubsh (MECA) commented that 3 to 4 million aftermarket catalytic converters are sold every year and they have “lousy” performance. There is a huge opportunity to reduce emissions by moving toward something like the California requirements.

### **Voting on the MOVES Review Workgroup Report**

Mr. Kodjak asked whether the subcommittee was now comfortable with sending the MOVES comments and recommendations to the CAAAC. The subcommittee agreed to forward

this report to the CAAAC after hearing the presentations and information about EPA's activities to continue to gather data that will be used in future versions of the model.

### **Other Discussion**

Mr. Kodjak noted that he would like to discuss the high-emitter issue with everyone in the telephone calls he will be having with individual subcommittee members.

Dr. Johnson commented that he would like to propose a definition for a "high-emitter." This definition would be: a vehicle that emits one or more pollutants disproportionately relative to its peers and outside the regulatory requirement. A high-emitting SULEV might still be lower in emission than a complying ULEV, but the high emitting SULEV will result in higher than expected emissions.

### **Adjournment**

Mr. Guy asked whether there were any additional comments including comments from the audience. There was no request to speak from any other individuals. Mr. Kodjak adjourned the meeting.

**Mobile Sources Technical Review Subcommittee**  
October 5, 2010

**Presenters and Subcommittee Members in Attendance**

<b>Name</b>	<b>Organization</b>	<b>Organization Abbreviation (as used in this document)</b>
Sally Allen*	Gary Williams Energy Corporation	GWEC
Bob Babik*	General Motors	GM
Thomas Balon*	MJBradley and Associates, LLC	MJBradley
Tom Cackette*	California Air Resources Board	CARB
Nicholas Cernansky*	Drexel University	Drexel University
Bill Charmley	US Environmental Protection Agency	EPA
Steven Flint*	New York Department of Environmental Protection	NY DEP
Terry Goff*	Caterpillar	Caterpillar
Mridul Gautam*	West Virginia University	WVU
John Guy	US Environmental Protection Agency, Designated Federal Official	EPA
Bob Holycross*	Ford Motor Company	Ford
Al Jessel*	Chevron Corporation	Chevron
Timothy Johnson*	Corning, Inc.	Corning
Lee Kindberg*	Maersk	Maersk
Sandeep Kishan	Eastern Research Group	ERG
Drew Kodjak*	International Council on Clean Transportation, Co-chair --MSTRS	ICCT
John Koupal	US Environmental Protection Agency	EPA
Joseph Kubsh*	Manufacturers of Emissions Controls Association	MECA
Michael Leister*	Marathon Petroleum Company LLC	Marathon
Arthur Marin*	Northeast States for Coordinated Air Use Management/ Northeast States Center for a Clean Air Future	NESCAUM
Margo Oge	US Environmental Protection Agency	EPA
Santos Olivarez	Texas Commission on Environmental Quality	TCEQ
Gregg Peterson	Lotus Engineering	Lotus
Mike Rogers*	Georgia Institute of Technology	GA Tech

Ichiro Sakai*	American Honda Motor Company, Inc.	Honda
Robert Sawyer*	University of California, Berkeley	UC - Berkeley
Lisa Snapp	US Environmental Protection Agency	EPA
Christopher Standlee*	Abengoa Bioenergy U.S. Holding, LLC	Abengoa
Jim Tamm	National Highway Traffic Safety Administration	NHTSA
Gene Tierney	US Environmental Protection Agency	EPA
Luke Tonachel*	Natural Resources Defense Council	NRDC
John Wall*	Cummins, Inc.	Cummins

\* Denotes Subcommittee Member or alternate

#### **Attendees**

Giedrius Ambrozaitis	Alliance of Automobile Manufacturers
Mark Couchi	Environment Canada
Tony D'Ambrosi	Toyota
Elizabeth Etchells	US Environmental Protection Agency
Hugh Harris	US Environmental Protection Agency
Sunil Lam	Lotus
Bob Maxwell	Association of International Automobile Manufacturers
Mark Monohon	NGK Spark Plugs USA, Inc.
David Patterson	Mitsubishi Motors
Darrell Sonntag	American Association for the Advancement of Science/EPA
Nick Tamborra	Volkswagen
Fred Walas	Marathon Oil
Mike Walsh	ICCT

#### **EPA Contractor Support**

Nanishka Albaladejo	EC/R Incorporated
Lesley Stobert	EC/R Incorporated