



August 21, 2017

**Scott Pruitt, Administrator**  
**Environmental Protection Agency**  
Mail Code 1101A  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

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Connecticut

**Re: 1986 Federal Aftermarket Catalytic Converter Enforcement Policy**

Delaware

Dear Administrator Pruitt:

District of Columbia

The Ozone Transport Commission (OTC) is a multi-state organization in the Northeast and Mid-Atlantic, including thirteen states and jurisdictions from northern Virginia to Maine. Established under the Clean Air Act, the OTC is responsible for developing and implementing initiatives to reduce nitrogen oxides and volatile organic compounds (VOCs), the pollutants that form ground-level ozone (smog). The OTC also provides technical support and analyses and a forum for member states to collaborate and synchronize their pollution reduction strategies. In addition, the OTC advises the EPA on transport issues. Accordingly, we are eager to meet with the new team at EPA's Office of Air and Radiation when the time is right.

Maine

Maryland

Massachusetts

New Hampshire

New Jersey

One issue that we would like to bring to your attention is the need for an update to the program that ensures that replacement catalysts (aftermarket catalysts) for onroad light-duty vehicles continue to provide clean air benefits.

New York

Pennsylvania

Our country has invested heavily into clean vehicles. Vehicles in 2017 are 98% cleaner than the vehicles from just a decade ago. Unfortunately, the program that ensures the aftermarket catalysts purchased when the original catalyst wears out is outdated and no longer working. The catalyst is the most important part of new vehicles emission control systems. This problem allows huge amounts of nitrogen oxide (NO<sub>x</sub>) emissions to be released into the air. In the OTC states effective aftermarket catalysts would reduce NO<sub>x</sub> emissions by about 30 tons each day. This policy provides for more reductions than most other available measures for reducing NO<sub>x</sub> emissions. Additional reductions from upwind states east of the Mississippi River and through interstate travel will provide more benefit. The science is very clear and it tells us that the key to continued progress on ozone is regional and local NO<sub>x</sub> reductions.

Rhode Island

Vermont

Virginia

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David C. Foerter  
Executive Director

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We are already working in partnership with the manufacturers of aftermarket catalysts and many other states and there is broad support from both states and the private sector to find a solution to this problem. Letters of support will be provided under separate cover.

OTC has drafted a recommendation for an updated federal aftermarket catalytic converter policy for this effort (attached) and one option for fixing the problem would be to have the federal government update the federal policy consistent with the OTC recommendation. Other states and the private sector support a federal policy built from the OTC recommendation.

Private sector partners have also drafted an approach (attached) that allows industry to certify a "green catalytic converter" to higher standards than currently required under the federal aftermarket converter program. To make this work, EPA would need to approve the program and also ensure that the states can include the emission reduction benefits in their State Implementation Plans (SIPs).

We see this as cooperative federalism in action. We have built support from a large group of states, we have partnered with and built support within the private sector, and now we need effective leadership at the federal level to make this work.

If successful, adopting a federal aftermarket converter program would help the OTC states directly and better protect the health of millions of residents in our states. It would also provide upwind states with a program that limits their downwind contributions that will need to be addressed in Good Neighbor SIPs due in 2018.

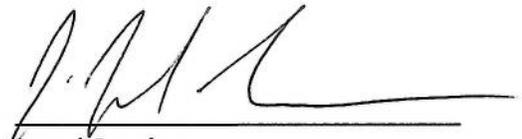
**Please find attached a copy of the formal statement from OTC adopted at its annual spring meeting on June 6, 2017 requesting that EPA update the federal aftermarket catalytic converter policy.**

OTC would like to see EPA update the federal aftermarket catalytic converter policy based on our recommendation. We would be happy to discuss OTC's recommended policy proposal, as well as industry's "green catalyst" proposal, at your earliest convenience and look forward to your response.

Sincerely,



Ben H. Grumbles  
OTC Chair



Jared Snyder  
OTC Past Chair

Attachments



## STATEMENT OF THE OZONE TRANSPORT COMMISSION REQUESTING THAT THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY UPDATE THE FEDERAL AFTERMARKET CATALYTIC CONVERTER POLICY

Connecticut

The Ozone Transport Commission (OTC) calls on the Environmental Protection Agency (EPA) to prioritize an update to the federal Aftermarket Catalytic Converter (AMCC) Policy.

Delaware

District of Columbia

The current federal AMCC Policy was published on August 5, 1986 (Notice of Proposed Enforcement Policy regarding the "Sale and Use of Aftermarket Catalytic Converters," 51FR 28114) and has not been updated to reflect the significant changes in automotive technologies and vehicle emission standards. The OTC states requested that EPA update the AMCC Policy in 2009 and submitted a recommendation for an updated policy to EPA in 2011.

Maine

Maryland

Massachusetts

Based on OTC's technical analysis, updating the AMCC Policy to include current technology and standards would reduce emissions of oxides of nitrogen by up to 30 tons per day in the OTC member states. There would be additional emissions reductions from an updated AMCC Policy in the upwind states and through interstate vehicle travel. These reductions are necessary for states in the Ozone Transport Region to attain the 2015 ozone National Ambient Air Quality Standard (NAAQS) of 70 ppb.

New Hampshire

New Jersey

New York

Pennsylvania

Rhode Island

Updating the AMCC Policy will help reduce emissions from the legacy vehicle fleet and assist states to meet the ozone health standard. The OTC completed a model rule for states to utilize due to lack of federal action and industry stakeholders have put forward a proposal for a voluntary green catalyst certification program. Industry stakeholders have raised concerns of a "patchwork" of state rules. This "patchwork" can be avoided with federal action.

Vermont

Virginia

The OTC calls on the EPA to prioritize an update to the federal AMCC Policy as expeditiously as practicable.

Adopted by the Commission on June 6, 2017.

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Jared Snyder  
OTC Chair

OTC Mobile Source Committee  
Recommended Federal Aftermarket Catalytic Converter Program (FACCP)

EXECUTIVE SUMMARY

In June 2009, the Ozone Transport Commission (OTC) formally called on the USEPA to amend its enforcement policy regarding the sale and use of aftermarket catalytic converters designed for use on federally certified passenger cars and light-trucks (see Attachment-1). This document lays out a recommended program design that is based on the recent changes California adopted for aftermarket catalytic converters (ACCs). In developing this recommendation, comments were solicited from interested stakeholders (see Section V).

The recommended changes to the USEPA's current policy for approving after market catalytic converters establish more stringent emission performance and durability requirements for new aftermarket converters in recognition of the significant advances in catalytic converter performance and durability that have occurred for original equipment catalytic converters. These advancements have made the technology more readily available and affordable. The recommendations also modify the current provisions allowing the sale and usage of used catalytic converters.

The recommended program was discussed with key stakeholders including the Manufacturers of Emission Controls Association (MECA) and their associated industries as well as the USEPA and staff from the California Air Resources Board (CARB). MECA supports the recommended program.

The USEPA's current enforcement policy governing aftermarket catalytic converters, adopted in 1986, requires manufacturers to demonstrate that their converters will reduce engine out emissions by at least 30 to 70 percent for 25,000 miles of vehicle use. However, vehicles meeting current emission certification standards can require catalytic conversion efficiencies in excess of 95% in order to comply with the more stringent emission standards that have been adopted since the late 1980s. Further, catalytic converter technology has improved to the point where aftermarket converters can be designed to achieve a significantly higher level of performance in a cost-effective manner.

The recommended changes to the USEPA enforcement policy would replace the existing policy with performance standards for aftermarket catalytic converters based on reducing engine out emission levels to the point that in-use vehicles equipped with aftermarket catalysts can comply with certification emission standards. The required durability period for these aftermarket converters would be extended from 25,000 miles to 5 years or 50,000 miles of use. The amendments would also require manufacturers to demonstrate that their catalysts are compatible with vehicle on-board diagnostic (OBD) systems for 1996 and newer vehicles, warrant that the converters are free from defects, and implement quality control procedures to ensure production components perform as expected in-use.

The USEPA policy currently permits the practice of reselling used original equipment catalytic converters, provided that the reseller uses a process to ensure that the converters still have a reasonable level of performance. The recommended policy would eliminate the provisions permitting the sale of used converters for pre-ODB II vehicles (Model Year 1995 and older vehicles) and calls on the USEPA to study the appropriateness of allowing the reuse of OBD II era (Model Year 1996 and newer vehicles) catalytic Converters. If the reuse of OBD II era catalysts is to continue, verification of proper performance of the converter, and whether this would be accomplished through independent testing or reliance on the OBD II system, must be a component of the revised policy.

Based on the estimated emission reductions for the aftermarket catalytic converter rule amendments in California, the emission reductions that may be achieved in the OTR from the recommended new Federal Aftermarket Catalytic Converter Program (FACCP) policy will be significant. New aftermarket catalytic converters designed to meet the recommended requirements would cost up to \$200 more per unit than those currently available for older vehicles. However, due to the substantially better emissions performance and durability requirements of these converters, it is estimated that the recommended requirements would be cost effective emission reductions.

## **I. Purpose**

Under the recommended program, the USEPA would update its enforcement policy regarding the use, installation and purchase of aftermarket catalytic converters. The USEPA's enforcement policy was established in 1986 and has not been updated to reflect the significant changes in automotive technologies and vehicle emission standards.

The updated policy would address conversion efficiency and durability for new aftermarket catalytic converters as well as compatibility with the vehicle's Onboard Diagnostics II (OBD II) system for 1996 and newer vehicles. The policy would also address the sale of used original equipment catalytic converters.

## **II. Background**

Catalytic converters reduce vehicle exhaust emission levels by chemically converting engine-out emissions before the exhaust gas leaves the tailpipe. A converter contains a substrate that directs exhaust gases through narrow channels coated with precious metals that initiate the conversion of pollutants into primarily carbon dioxide, water vapor and nitrogen.

Since the introduction in mid-1970, catalytic converters continue to be the single most important technology for the control of emissions from gasoline powered motor vehicles. Current catalytic converter designs are more than 95% efficient in removing the hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) from engine exhaust before they reach the atmosphere. Improvements in catalytic converter

washcoats, precious metal loading, and substrate designs over the years, in combination with better vehicle fuel control systems, are the primary factors that have made compliance with Federal and State Inspection/Maintenance (I/M) programs' emission standards possible.

Original equipment manufacturer (OEM) catalytic converters are designed and certified to last for at least 100,000 to 150,000 miles on newer model vehicles. Heat, vibration, and poisons can eventually reduce catalytic converter efficiencies to the point that older vehicles will not be able to meet federal and state emission requirements and Onboard Diagnostics (OBD) test limits. Such converters need to be replaced; however, OEM replacement converters are typically expensive, costing from \$500 to over \$1000. Compounding the problem, many vehicles requiring a replacement converter have considerably less than 100,000 miles of expected life remaining, making such large repair costs difficult to justify.

Another significant advance that occurred in the 1990's was the implementation of On-Board Diagnostic II (OBD II) systems on light- and medium-duty vehicles. These systems use the vehicle's on-board computer to monitor the performance of its emission control systems, including the catalytic converter. Aftermarket catalytic converters meeting the current converter conversion efficiency requirements are generally not compatible with vehicle OBD II systems because their level of performance, even when relatively new, can fall below the levels at which the OBD II system will indicate a malfunction.

Because some OBD II equipped vehicles are now more than 14 years old, the need already exists in the marketplace for aftermarket catalytic converters that are compatible with these vehicles. As such, the USEPA policy on the use of aftermarket catalytic converters, last updated in 1986, clearly needs to be updated.

### **III. Main Components of the Recommended Aftermarket Catalytic Converter Program**

Table-1 provides a summary and comparison of the recommended program to current Federal Aftermarket Catalytic Converter Program enforcement policy

1. Tightens durability and emissions requirements for pre-OBD (pre-1996) aftermarket converters.
  - The current policy requires 25,000 mile durability and 70%/70%/30% HC/CO/NO<sub>x</sub> conversion efficiencies.
  - The recommended policy requires 50,000 mile durability and meeting vehicle certification emission standards (mass-based).

- Simplify certification procedures by allowing for “worst-case” vehicle certification for pre-OBD and OBD vehicles to reduce certification costs while maintaining emissions reduction performance.
2. Requires OBD aftermarket converters demonstrate full functionality with OBD II system at emissions level of 1.5 x tailpipe OEM thresholds. To ensure that the in-use emissions from vehicles are not adversely compromised by the use of aftermarket catalysts, the recommended program would include new evaluation procedures for new aftermarket catalytic converters that would replace the existing performance requirements based on converter efficiency to standards based on vehicle tailpipe emission levels, require a demonstration of compatibility with the vehicle’s on-board diagnostic II (OBD II) system, and extend the durability and warranty periods from 25,000 miles to a 5 year or 50,000 mile period
  3. Sunsets “remanufactured” or used converters:

Under the recommended program, the use of remanufactured or used OEM converters would sunset for pre-OBD II (Model Year 1995 and earlier) vehicles. For OBD II vehicles, the recommendation calls for the USEPA to evaluate the reuse of the catalytic converters, including a determination of whether additional verification testing and certification is necessary or if the OBD II system itself is sufficient to ensure continued compliance with emission standards. If the former, the USEPA would need to develop appropriate testing protocols to ensure the catalytic converter systems will continue to meet the applicable emission standards and goals of this recommendation. For example, the productive re-use of relatively new used OEM converters for vehicles that were scrapped for other reasons, e.g., accidents, may offer lower cost compliance mechanisms.

4. Other Recommended Components of the OBD II Compliant Federal Aftermarket Catalytic Converter Program

- OBD MIL demonstration required for OBD equipped vehicles: The recommended procedures would also require a demonstration of OBD II compatibility. Manufacturers would demonstrate through the emission testing that their new aftermarket catalytic converters would not cause a test vehicle’s Malfunction Indicator Light (MIL) to illuminate when the catalyst is functioning properly. The manufacturers would then severely age a prototype converter to demonstrate that the test vehicle’s OBD II system will detect the converter as malfunctioning by the time its conversion efficiency deteriorates to the point that vehicle emissions exceed the manufacturers’ limits for malfunction detection by no more than a factor of 50 percent
- Allows for limited aggregation of similar vehicles for worst-case vehicle certification for OBDII vehicles
- Allow engine dynamometer aging for pre-OBD and OBD converters.

- Converter quality reporting requirements: The recommended program would require aftermarket catalytic converter manufacturers to monitor the aftermarket catalytic converter production process to ensure that production components actually meet the approved specifications. Manufacturers would check for adequate precious metal content, base metal content, and wash coat loading. Inspections to ensure proper application of the wash coat, installation of matting materials, and the absence of leaks in the converters shell would also be required. The recommended procedures would require manufacturers to report the results of their quality control checks to the USEPA on at least a quarterly basis.
5. Vehicles Applicability Guide requirement and installation requirements to be supplied by the aftermarket converter manufacturer
  6. Labeling of aftermarket catalytic converters with permanent, visible labeling

#### **IV. Estimated Emission Reduction Benefits**

##### Estimate of Emission Benefits

- Emission Reductions Based on California Assumptions (source: Initial Statement of Reasons for Rulemaking, Public Hearing To Consider Amendments To Regulations Regarding New Aftermarket Catalytic Converters And Used Catalytic Converters Offered For Sale And Use In California, September 7, 2007).
  - 880,000 aftermarket converters sold in California per year
  - 74% of sales are pre-OBD aftermarket catalytic converters
  - 8,000 miles per year vehicle miles traveled (VMT)
  - Pre-OBD converter has 3 year average life
  - EMFAC estimates 3.5 M pre-OBD vehicles in California in 2012 and 1.26 million with aftermarket converters
- Based on measured emission rates and vehicle populations, CARB estimated their rule would result in a reduction of 5.3 tpd HC and 31.3 tpd NOx
- Simple ratio of California versus federal fleet populations (10%) would predict a potential 49 state benefit of:
  - 47.7 tpd HC and 282 tpd NOx
  - Added potential benefit of 462 tpd CO
- Actual emissions reductions are likely to be greater since California pre-OBD converters had to achieve 60% NOx conversion (vs. 30% for Federally certified converters) and 100% of federal aftermarket converters are pre-OBD technology.

- OBD compatible converters with advanced catalyst technology were being sold in California under an MOU since 2002.

## **V. Increased Prices for New Aftermarket Catalytic Converters under the Recommended Program**

Aftermarket catalytic converters for pre-OBD II vehicles currently average \$100 each. It is estimated that the average price of an aftermarket converter for pre-OBD II vehicles under the recommended program will initially increase by \$100 to \$200 as a result of the recommended changes. For OBDII equipped vehicles, the average price increase would range from \$250 to \$450.

## **VI. Public Process**

The outreach process used in developing these recommendations included meetings and conference calls with interested parties including representatives from the California Air Resources Board (CARB), the USEPA's Regional Offices 1 and 2 as well as the Office of Transportation and Air Quality (OTAQ), the Manufacturers of Emissions Control Association (MECA), and state environmental representatives from states within the Ozone Transport Region (OTR) and the Northeast States for Coordinated Air Use Management (NESCAUM). A reverse chronologically ordered listing of those calls/meetings is as follows:

April 7, 2010 – Subcommittee Call – Final Recommendations review

April 1, 2010 - Subcommittee Call with the USEPA Regions 1 and 2, OTAQ, MECA and Umicore to review recommendations

February 17, 2010 - Subcommittee Call - Revising Recommendation

December 14, 2009 - Call with Mike McCarthy (California ARB) - pros and cons of the CA program

October 22, 2009 - Subcommittee Call - Developing recommendation

August 31, 2009 - Call with Chris Salmi and Karl Simon (EPA) - elements of a recommendation for Fed program

June 10, 2009 - OTC Statement at Annual Meeting Signed - request for federal program

February 26, 2009 - Call with MECA - MECA presentation on potential reductions

## **VII. Summary**

- Significant advances in catalyst performance and durability for original equipment applications have made the technology more readily available today.
- Testing conducted by the CARB on used vehicles has demonstrated readily achievable, cost effective, reductions in emissions with advanced aftermarket converter technology on pre-OBD and OBD equipped vehicles.
- If the CARB requirements for aftermarket catalytic converters are implemented federally, the NOx reductions could be greater than CARB's estimates for California because current federal aftermarket catalytic converters are less effective than CARB-certified converters.
- Cost effectiveness is estimated to be under \$4,000 per ton of VOC and NOx reduced
- Federal program could be based on streamlined version of CARB program and incorporate learning from the California experience to lower costs and improve vehicle coverage for ACCs under the revised program.
- A revised federal aftermarket program would provide states significant NOx reductions to help with future ozone attainment efforts



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## PROPOSED INDUSTRY PROGRAM FOR VOLUNTARY AFTERMARKET CONVERTER CERTIFICATION

This document outlines a proposal for a voluntary program to certify Aftermarket Catalytic Converters for use on out-of-warranty vehicles in states currently operating under the U.S. EPA aftermarket converter policy. The goal of this program is to provide vehicle owners in those states with aftermarket converters that meet emission performance and durability standards equivalent to those required by the state of California and is significantly better than the current EPA requirements.

### Summary of Changes

Compared to the current EPA Policy on *Sale and Use of Aftermarket Catalytic Converters* [40CFR Part 85] the proposed program would:

- Sets emission performance standards to the same level as those required by California for new aftermarket catalytic converters.
- Require demonstration testing to follow the protocols similar to those prescribed by CARB in its aftermarket converter program
- Increase emission test life requirement to 50,000 miles (from 25,000 miles).
- Increase emission warranty to 5 years or 50,000 miles (from 25,000 miles).
- Require performance demonstration on a vehicle in the same OE emission tier (LEV, ULEV, etc.) as the intended converter application family.
- Restrict the application of aftermarket converters to those vehicles in emission categories for which technology has been demonstrated.
- Provide for periodic in-field compliance testing of approved aftermarket converters to ensure they matched the original part certification.

### Program Steps

1. Manufacturers conduct product testing at independent emission labs
2. Manufacturers will submit certification application, with proposed application list and test program results to independent program administrator.
3. Administrator grants "certification" to parts meeting program requirements
4. Manufacturers market parts as "certified" to voluntary standard
5. Administrator conducts annual field surveillance of certified parts sold to public to ensure quality and compliance

## **Performance Requirements**

Aftermarket Catalytic Converters will be required to meet or exceed the OE full useful life emission standard, in grams per mile, for the vehicle emission class to which they are intended to be used, when aged to the equivalent of 50,000 miles.

## **Vehicle Applications**

Vehicle application will be qualified by OE emission class. Emission class is defined as the combination of vehicle type (passenger car or light truck), emission tier (LEV, ULEV, and Tier Bin levels, etc.) and exhaust configuration (single in-line converter or multiple in-line converters) for that vehicle type within the models years for which the aftermarket part is intended.

## **Testing Conditions**

Sample aftermarket converters will be evaluated in an “aged” condition representing their warranted life limit (50k miles) on a representative test vehicle.

## **Test Procedures**

Manufacturer will demonstrate the performance of the aftermarket converter by conducting two FTP emission tests of a representative sample converter that has been aged to the useful life limit on a representative test vehicle (RTV). Both tests must show emissions at or below the standard.

Manufacturer will select the RTV to perform the emission demonstration. The criteria for selecting the RTV will be based on the vehicle makes and models to be covered by the proposed converter design.

The criteria will include the following items:

- 1) The lowest gram per mile emission standard. (SULEV is lower than ULEV, etc.)
- 2) The highest engine displacement to converter volume ratio. (Engine size divided by total catalyst volume)
- 3) The highest vehicle test weight. (Inertia weight setting for the test dynamometer, )

## **Representative Test Vehicle:**

The representative test vehicle is selected from the proposed vehicle application list that the catalyst manufacturer has compiled for the aftermarket part to be tested. The representative test vehicle selection is based on the following criteria:

- Lowest gram per mile HC Emission Limit
- Lowest gram per mile NOx Emission Limit
- Lowest Catalyst Swept Volume Ratio
- Greatest Test Weight

Each aftermarket converter configuration is evaluated separately. Converter configuration is based on the CARB aftermarket “single” or “dual” converter concept.

“Single” converter configurations are characterized by only one converter “can” in the entire exhaust system or one “can” per engine bank, in the case of a dual exhaust system. In a “single” converter system, exhaust gas passes through only one converter can before exiting out the tailpipe.

“Dual” converter configurations are those where the exhaust gases pass through two or more converter cans in series before exiting the tailpipe. For “dual” configurations, the front can, rear can, and any middle can may not swap positions unless the re-arranged configuration is tested separately.

The selection criteria will be applied to the vehicle application list in the priority order listed above to determine which vehicle model is a suitable representative test vehicle. The method is as follows:

1. Identify the vehicle makes and models having the lowest gram per mile HC emission standard.
2. Reduce the list to those vehicles with the lowest gram per mile NOx emission standard.
3. Narrow the remainder of the list to vehicles with the lowest aftermarket catalyst swept volume ratio (aftermarket catalyst volume divided by engine displacement).
4. Finally, trim the list down to the models with the greatest test weight.

The representative test vehicle will be selected from the resulting list.

If the list contains multiple emission test groups, any of the remaining vehicle test group numbers are suitable for the selection of a representative test vehicle. The manufacturer is required to select the representative test vehicle from the list of suitable vehicle test groups.

OE manufacturers often certify a single test group number for multiple makes, models, and engine displacements. The aftermarket manufacturer may choose from any of the vehicle models configured with an applicable test group number, as long as the selected representative test vehicle has the same catalyst swept volume ratio determined by the selection criteria.

Similarly, an aftermarket manufacturer may revise the vehicle application list for a previously tested catalyst configuration to include additional vehicle models at any time after successful completion of a test program, provided that the vehicles to be added fall under the selection criteria of the original representative test vehicle.

This procedure applies to 1996 or newer gasoline engine chassis certified on-road vehicles with a GVWR 14,500 lbs or less. Engine certified vehicles are excluded. All diesel vehicles, all heavy duty vehicles and all non-road vehicles/engines are excluded.

## Vehicle Application List

The manufacturer compiles a vehicle application list for the converter configuration that is being tested. The vehicle application list is the complete list of all vehicle models for which the tested catalyst configuration is cataloged. The vehicle application list includes the following information for each vehicle:

- Vehicle Make
- Vehicle Model
- Vehicle Model Year
- Vehicle Engine Displacement (in liters)
- Vehicle Test Group Number (a.k.a. Engine Family Number or Emission Family Number)
- Vehicle Test Weight (the FTP dynamometer inertia weight setting, a.k.a. ETW, LVW or ALVW)
- Emission Tier (actual tier of the OEM test standard for EPA Certificate of Conformity or CARB EO --TIER1, LEV1 LEV, T2B8, etc.)
- HC Emission Limit (g/mile THC, NMHC, or NMOG ultimate life limit of the vehicle emission tier)
- NOx Emission Limit (g/mile NOx ultimate life standard of the vehicle emission tier)
- Catalyst Volume of the Proposed Aftermarket Part. (liters of catalyst substrate volume specific to the listed vehicle)
- Aftermarket Catalyst Swept Volume Ratio (aftermarket catalyst volume divided by engine displacement)

## Catalyst Aging

Catalyst aging is conducted using the CARB-modified RAT A method as detailed in the appendix of the “California Evaluation Procedures for New Aftermarket Catalytic Converters” in the California Code of Regulations.

All passenger cars and any trucks that have a test weight of 3750 pounds or less are evaluated using a test catalyst aged for a minimum of 75 hours.

Trucks with a test weight greater than 3750 pounds must be evaluated separately using test catalyst aged for a minimum of 100 hours

Manufacturers are free to age their catalysts using the CARB-modified RAT-A method for a longer duration if they choose.

## **Certification Submission Requirements**

The manufacturer must submit the following documents and data to the program administrator.

- List of Vehicle Applications to be covered
- Representative Test Vehicle selection strategy methodology and resulting spreadsheet
- Baseline (OE converter equipped) FTP emission tests and MODE6 download for each RTV
- Catalyst description, dimensions and PGM loading
- Catalyst aging report, including aging cycle, time and temperature hysteresis plot
- Aftermarket converter FTP emission tests and MODE6 download for each RTV
- Demonstration of compatibility with OBD system



**Manufacturers of Emission Controls Association**

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July 27, 2017

Ben Grumbles  
Chair  
Ozone Transport Commission  
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Dear Mr. Grumbles:

The Manufacturers of Emission Controls Association (MECA) appreciates the opportunity to provide comments in support of the actions taken by the Ozone Transport Commission (OTC) to urge the U.S. EPA to update the federal aftermarket catalytic converter policy for on-road, light-duty gasoline vehicles. MECA is a national association of companies that manufacture a variety of emission control and powertrain efficiency technologies for a range of new, on- and off-road mobile sources, as well as aftermarket converters for existing, light-duty vehicles.

MECA agrees with OTC that the most effective way to achieve maximum emission reductions from the in-use, light-duty fleet is through a revised federal aftermarket converter program. The current federal aftermarket converter policy was issued by EPA in 1986. Catalytic converter technology has improved significantly over the past 30 years and today is capable of achieving EPA's stringent Tier 3 emission limits for new vehicles. Developments in catalyst materials, substrates, and coating technology have resulted in dramatic improvements in the performance and durability of new automotive catalysts. These same technology improvements can be applied to aftermarket converters as a cost-effective replacement for OEM converters when their performance deteriorates beyond the emission warranty period.

In 2009, the California Air Resources Board (ARB) implemented new regulations for aftermarket converters requiring them to meet the same emission limits as would be required for OEM converters. A similar program could be implemented by EPA in the remaining 49 states to achieve significant reductions of smog-forming hydrocarbons (HCs) and nitrogen oxides (NOx). Since these advanced aftermarket converters are based on the same catalyst technologies already being used on new vehicles and the advanced aftermarket converters are already available in California (as well as in New York), we believe this opportunity represents an effective near-term policy to help states meet their State Implementation Plan commitments, which have been made even more challenging by tighter ozone national ambient air quality standards.

MECA has supported OTC's efforts over the years to urge EPA to act on a program that utilizes this advanced converter technology. MECA staff and member companies have also engaged in discussions with EPA directly over the past 10 years to try to revise the 1986 aftermarket

converter policy to be more in line with California's comprehensive aftermarket converter program. An effective federal program will eliminate issues related to enforcement on out-of-state vehicles and advanced aftermarket converter coverage for federally certified vehicles that are not included in the California aftermarket program.

In the absence of federal action on this issue, MECA, AutoCare, and aftermarket converter manufacturers have recently proposed a 49-state, voluntary "green converter" certification program. The program would be an industry-run, licensing and compliance program based on similar programs operated by the American Petroleum Institute for lubrication fluids and diesel exhaust fluid (see: <http://www.apidef.org>). The goal of the program is to provide vehicle owners with aftermarket converters that meet emission performance and durability standards equivalent to those required by California. An independent third-party would administer the program and would conduct periodic auditing of certified aftermarket converters to ensure quality and compliance. This innovative program offers an opportunity for states, EPA, and industry to combine resources to deliver a cost-effective policy for aftermarket converters that gives consumers a less expensive option to maintain their vehicles while reducing the risk of inferior products in the marketplace.

With approximately three million aftermarket converters sold per year across the U.S. (based on surveys conducted by MECA), significant additional HC+NO<sub>x</sub> emission reductions could be achieved with a revised federal aftermarket converter policy. According to OTC's own analysis conducted in 2014, the combined HC+NO<sub>x</sub> reductions from such a policy would represent about 36 tons per day in the Northeast and Mid-Atlantic regions.

MECA strongly supports OTC's efforts to urge the U.S. EPA to develop an effective 49-state aftermarket catalytic converter policy. We look forward to continuing to work with OTC to help the Commission and its member states achieve their air quality goals.

Sincerely,

A handwritten signature in black ink, appearing to read "Rasto Brezny". The signature is fluid and cursive, with the first name "Rasto" and last name "Brezny" clearly distinguishable.

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Cc: David Foerter, Executive Director, OTC



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August 21, 2017

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Mail Code: C401-01  
Research Triangle Park, NC 27709

On behalf of the Washington State Department of Ecology (Ecology), I am writing to ask you to expeditiously update the federal Aftermarket Catalytic Converter Policy (AMCC). The current policy has not been updated since 1986, is sadly out of date and does not reflect significant changes and advancements in automotive technology and emission standards.

The catalyst is the critical component of the vehicle emission control system. Because the national program does not include current technology or standards, it allows replacement catalysts that release significant, harmful levels of preventable pollution.

Updating and ensuring compliance with a revised AMCC Policy will help reduce emissions from vehicles already on the road and provide much needed assistance to states working to attain or maintain air quality within federal ambient standards. A policy consistent with current technology would benefit public health and consumers by requiring aftermarket converters to meet durability standards that ensure vehicles continue to operate with low emissions and pass emissions tests.

Some states and the private sector have already begun working together. The Ozone Transport Commission (OTC) has drafted a well-reasoned recommendation for an updated federal aftermarket catalytic converter policy. The private sector has proposed a voluntary approach that allows industry to certify a "green catalytic converter" that meets emission performance and durability standards equivalent to those required in California but has expressed concern about potential for a patchwork of differing state rules.

To make any updated AMCC Policy work, the Environmental Protection Agency (EPA) would need to ensure that the aftermarket converters sold under the program achieve advertised standards and that states can include the emission reduction benefits in their State Implementation Plans (SIPs).

Mr. Michael Korber  
August 21, 2017  
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I believe collaborative, technical coordination between states, EPA and the private sector would provide the most effective process to update the aftermarket catalyst program.

But such an approach cannot be successful without effective federal leadership. I see this as an excellent opportunity to demonstrate cooperative federalism.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Stuart A. Clark". The signature is fluid and cursive, with the first name "Stuart" being the most prominent.

Stuart A. Clark  
Air Quality Program Manager

✓ cc: Dave Foerter, OTC