

EPA Vehicle & Engine Compliance

G-20 Transport Task Group

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Why does compliance matter?

- Emissions from transportation sources do immense harm to public health, welfare and the environment
- EPA estimates that in 2030 alone, our regulations will prevent more than 38,000 premature mortalities and realize more than \$380 billion in health and welfare benefits.
- These benefit estimates describe the harm that will come if the vehicles and engines produced fail to comply with our programs
- We must ensure environmental compliance to deliver these environmental improvements

Importance of Compliance

- Clean Air Benefits
 - 1990 Clean Air Act Amendments:
 - From 1990-2020, 4.2 million lives saved, benefit outweighs costs ~30:1
 - In 2030 alone,
 - Eliminate more than 38,000 premature deaths
 - Realize more than \$380 billion in health and welfare benefits
 - The LDV GHG program is projected to result in:
 - \$1.7 trillion dollars of fuel savings over the lifetime of vehicles produced between 2011 and 2025
 - 12 billion fewer barrels of oil consumed
- Level Playing Field
 - Vehicle, engine, and fuels industries are highly competitive, especially in today's global environment
 - Regulated industries expect and rely on EPA to protect their investment in emissions compliance

Achieving Emission Reductions

- It is vehicle manufacturers, vehicle owners and repair technicians that determine how much pollution comes from cars
- We accomplish our emission reduction goals through the minds and hands of manufacturers, owners and technicians
 - We want manufacturers to design & manufacturer cars to limit vehicle emissions to the greatest degree technology will allow for the full lifetime of the vehicles
 - We want vehicle manufacturers to fix any defects in their products through recall and repair
 - We want vehicle owners and service technicians to properly operate and maintain vehicles
- Our compliance efforts then need to focus on these audiences to best effect their actions

Holding Manufacturers Attention

- Require a license to produce every year
- Meet manufacturers with an equally capable technical team
- Work to genuinely understand manufacturer challenges and help solve legitimate problems
- Visibly hold them accountable when they fail

Control Emissions Throughout Lifecycle

- Manufacturers must demonstrate upfront that vehicles are designed to last a lifetime
- Require manufacturers to warrant emission components
- Require manufacturers to report warranty claims / vehicle defects
- Compel manufacturers to recall and repair defective vehicles
- Conduct and review results of in-use testing by both EPA and manufacturers
- Create self-diagnosing cars, Onboard Diagnostics (OBD)
- Make vehicle registration contingent on vehicles passing annual emissions tests (ensure maintenance and repair)

Educate car owners (as simple as properly inflating their tires)

EPA Vehicle and Engine Emissions Compliance Oversight

- Our approach to compliance oversight is multi-faceted and multi-dimensional
 - We monitor emissions compliance throughout product lifecycle (see following slides)
 - Pre-production
 - Products coming off production lines
 - Vehicles and engines already in customer service
- We apply a flexible mix of testing, audits, manufacturer tracking/reporting review, and partnerships with other stakeholders and regulators to collect compliance information

Light-Duty Vehicle Compliance Program



Heavy-Duty Diesel Compliance Program



Locomotive: up to 10 years / 32,000 MW-hours

Compliance Report (2014-17)

- EPA periodically issues vehicle and engine compliance reports, to
 - Share data
 - Allow us to review and evaluate the effectiveness of our programs
 - Make compliance more visible
- April 2019: EPA issued a report covering 2014 2017 model years/calendar years
 - Next slides provide highlights

EPA's Compliance Tests Cover Vehicle/Engine Lifespan

Vehicle Type	Industry Sector	Pre Production			Production			Post Product'n
		Certification	Confirmatory Testing	Fuel Econ/ GHG	Line Testing	Field Audits	SEA	In-Use Testing
Highway	Cars, pickup trucks	Х	Х	Х		Х	Х	Х
	Motorcycles	Х	Х			Х		Х
	Trucks and buses	Х	Х	Х		Х	Х	X (CI Only)
Nonroad - Spark Ignition	Marine	Х	Х		Х	Х	Х	Х
	Small	Х	Х		Х	Х	Х	
	Large	Х	Х		Х	Х	Х	Х
	Evaporative Components	х	Х			Х		
Nonroad - Compression Ignition (Diesel)	Construction and Agricultural Equipment	Х	Х			Х	х	
	Locomotive	Х	Х		Х	Х	Х	Х
	Marine	Х	Х		Х	Х	Х	Х
Recreational	ATVs	Х	Х		Х	Х	Х	
	Off-highway Motorcycles	Х	Х		х	Х	Х	
	Snowmobiles	Х	Х		Х	Х	Х	

EPA's Compliance Activities Vary by Industry

- Industries differ in numbers of manufacturers, complexity of vehicles and engines they build, emission control technologies, and emission standards and regulatory requirements that apply
 - Some sectors more consolidated than others, e.g.,
 - EPA issues ~300 certificates to more than 100 motorcycle manufacturers
 - EPA issues ~600 certificates to 36 light-duty vehicle manufacturers
- EPA's compliance activities vary and are tailored to the differences in these industries
 - Programs for highway vehicles have a large focus on in-use controls
 - For other sectors, up-front prevention is the focus

Number of Certificates EPA Issues Continues to Grow



- A certificate is issued to each group of vehicles or engines with similar design and emission characteristics
- Increase is from growth in some sectors, and new categories of certificates

EPA Compliance Audits in the Field Encompass Three Continents



From 2014 – 2017, EPA conducted:

- 91 field inspections across a variety of regulated sectors
- 16 of which were Selective Enforcement Audits (EPA makes formal pass/fail determination)

EPA found issues such as

- problematic emissions measurement software,
- noncompliant calibration and testing practices,
- missing records,
- use of test fuel that did not meet specifications, etc.

Conclusion

- Ensuring ongoing compliance from vehicles and engines requires a multi-faceted and coordinated effort.
- The Agency has continued to learn and adapt to the challenges posed by new technology and ever more sophisticated approaches by manufacturers.
- EPA compliance programs are designed to maximize air quality benefits and to help ensure that manufacturers investing to comply with these programs can compete on a level playing field.
- Rigorous enforcement is a strong deterrent and complements the testing and oversight efforts.