

Supporting Statement for
Information Collection Request

HD2027:
Proposed Changes to Certification and Compliance Requirements for
Heavy-Duty Engines and Vehicles
(Proposed Rule)

EPA ICR Number 2621.01; OMB Control Number 2060-NEW

Clean Air Act
§ 202, §203, §206, §207, §208,
§213, §216 and §301
(42 USC 7521, 7522, 7225, 7541,
7542, 7547, 7550, and 7601)

Office of Transportation and Air Quality
Office of Air and Radiation
U.S. Environmental Protection Agency

1. Identification of the Collection of Information

1 (a) Title and Number of the Information Collection

Heavy-Duty 2027: Proposed Changes to Certification and Compliance Requirements for Heavy-Duty Engines and Vehicles (Proposed Rule), EPA ICR Number 2621.01, OMB Control Number 2060-NEW.

1(b) Short Characterization

With this supporting statement, the Environmental Protection Agency (EPA) requests **approval of a new** Information Collection Request (ICR). This supporting statement describes activities and burden associated with the proposed HD2027 rulemaking proposal, which primarily seeks to update and streamline emissions certification and compliance provisions for highway heavy-duty (HD) engines and vehicles. The proposal includes some provisions for other industries as well. The proposed changes build on existing emissions certification and reporting requirements which are already covered under other ‘programmatically’ ICRs, primarily:

- EPA ICR Number 1684.20, OMB Control Number 2060-0287, *Emissions Certification and Compliance Requirements for Nonroad Compression-ignition Engines and On-highway Heavy Duty Engines and Vehicles*
- EPA ICR Number 1695.14, OMB Control Number 2060-0338, *Certification and Compliance Requirements for Nonroad Spark-ignition Engines*
- EPA ICR Number 0783.65, OMB Control Number 2060-0104, *Motor Vehicle Emission Certification and Fuel Economy Compliance, 40 CFR Parts 86 and 600*

Therefore, to avoid duplication, this collection request only covers the incremental burden associated with the proposed rule.

Under Title II of the Clean Air Act (42 U.S.C. 7521 et seq.; CAA), EPA is charged with issuing certificates of conformity for engine and vehicle prototypes that comply with applicable emission standards. Such a certificate must be issued before engines produced after these prototypes may be legally introduced into US commerce. In 2020, EPA published an Advanced Notice of Proposed Rulemaking¹ (ANPR) requesting comments on plans to update NO_x emission standards for HD engines. The Agency was responding to a 2016 petition from over 20 organizations, including state and local air agencies from across the country, to revise NO_x standards for HD engines¹. The petition cited concerns over adverse health and welfare impacts and the need to help areas attain the National Ambient Air Quality Standards (NAAQS). In August 2021, Executive Order 14037 further directed the Agency to (1) set new NO_x emission standards and (2) update the existing GHG emissions standards for heavy-duty engines and vehicles.²

In response, EPA is proposing changes to HD emissions certification and compliance provisions for criteria pollutants and targeted changes to Phase 2 GHG standards. The Agency is also proposing to revise provisions related to other industries, such as the marine compression-ignition (Marine CI) and Small Spark-ignited Engines (Small SI).

Table 1
Regulations Amended by the Main Provisions of the HD2027 Proposed Rule

Industry	40 CFR ³ Part
Requirements for HD Engines & Vehicles	85, 86, 1036, 1037
Evaporative Requirements	1060
Engine Testing Procedures	1065

¹ The ANPR may be found at <https://www.govinfo.gov/content/pkg/FR-2020-01-21/pdf/2020-00542.pdf>

² Executive Order on Strengthening American Leadership in Clean Cars and Trucks. 86 FR 43583, August 10, 2021.

³ Code of Federal Regulations, <https://www.ecfr.gov/>. EPA emissions regulations are found in Title 40.

Vehicle Testing Procedures	1066
General Provisions – apply to most engine categories	1068
Marine Compression-Ignition (MCI) Engines and Vessels	1042

EPA is taking this opportunity to propose limited amendments to other engine and vehicle emissions certification and compliance programs (e.g., marine diesel engines, locomotives, light-duty vehicles, various types of nonroad engines, vehicles, and equipment). In general, those changes amend certain credit calculations, correct, streamline, and clarify existing provisions as summarized in this supporting statement. The agency is also seeking to codify certain confidentiality determinations, applicable across a wide range of industries subject to emission requirements to facilitate sharing emissions data with the public. The proposal would establish categories for the information submitted under the standard-setting parts and to determine whether such categories of information are entitled to confidential treatment. These proposed revisions would apply to Parts 2, 59, 60, 85, 86, 87, 1030, 1033, 1036, 1037, 1043, 1045, 1048, 1051, 1054, 1060, and 1068.

The information would be collected by EPA's Compliance Division (CD) within the Office of Transportation and Air Quality, Office of Air and Radiation. The information could be used by EPA and the Department of Justice for enforcement purposes. Some non-confidential certification data are disclosed in EPA's website and may be used by trade associations, environmental groups, and the public. The information is collected electronically and stored in CD's databases.

It has been estimated that a total of 279 HD engine and vehicle manufacturers will respond to this collection with an approximate annual cost of \$5.7 million, including an estimated \$3.7 million in annualized capital or maintenance and operational costs.

2. Need for and Use of the Collection

2(a) **Need/Authority for the Collection**

EPA's emission programs are statutorily mandated; the agency does not have discretion to cease these functions. The data required is necessary to comply with Title II of the Clean Air Act (42 U.S.C. 7521 et seq.; "CAA" or "the Act"), as amended. The Act charges EPA with developing standards for compounds deemed 'pollutants' as defined by the CAA itself, and issue certificates of conformity for those engines and motor vehicle designs that comply with those standards. Such a certificate must be issued before engines and vehicles may be legally introduced into commerce. Section 206(a) of the CAA (42 USC 7521) states:

"The Administrator shall test, or require to be tested in such manner as he deems appropriate, any new motor vehicle or new motor vehicle engine submitted by a manufacturer to determine whether such vehicle or engine conforms with the regulations prescribed under §202 of this Act. If such vehicle or engine conforms to such regulations, the Administrator shall issue a certificate of conformity upon such terms, and for such period (not in excess of one year) as he may prescribe."

It should be noted that the Supreme Court's decision in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), extended that charge to greenhouse gases (GHGs) when it ruled that GHGs are in fact pollutants under the CAA. Furthermore, Executive Order 14037 (86 FR 43583, August 2021), Strengthening American Leadership in Clean Cars and Trucks, directs EPA to take certain steps aimed at reducing GHG emissions from heavy-duty engines and vehicles.

Section 206(b)(1) of the Act authorizes EPA to inspect and require testing of new vehicles and engines to: (1) verify that manufacturer's final product complies with EPA standards; (2) assure that the correct parts are installed correctly in each engine; and (3) audit the manufacturer's testing process to ensure testing is being done correctly. The Production Line Testing (PLT) and Selective Enforcement Audits (SEA) Programs fulfill these requirements by inspecting and testing engines taken directly from the assembly line and/or existing fleets, and by

auditing the engine manufacturer's testing procedures and facilities. Section 207(b) of the CAA mandates the establishment of methods and testing procedures to ascertain whether certified engines in actual use in fact comply with applicable emission standards throughout their useful lives. The In-Use Testing and similar programs are implemented in response to that mandate.

In general, the sections of the CAA that offer statutory authority for the requirements proposed in this rulemaking are 202, 203, 206, 207, 208, 213, 216, and 301 (42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7547, 7550, and 7601).

2(b) Practical Utility/Users of the Data

EPA will use the information requested under this collection to verify and support a three-stage compliance assurance system envisioned in the CAA. First, certification information, including test data, is needed to verify that the proper prototype engines have been selected to represent each engine/vehicle family (group of engines/vehicles expected to have similar emission characteristics), and that the necessary testing has been performed. Based on this information, EPA issues a certificate of conformity. However, prototypes are often hand-built and not typical of assembly line engines.

Data collected under the Production Line Testing (PLT) Program is used to verify that manufacturers have successfully translated their prototypes into mass-produced engines. Lastly, in-use testing is designed to determine if engines and vehicles maintained in accordance with the manufacturer's instructions still emit at acceptable levels after a prescribed number of years of actual use. If a family of engines or vehicles is found in noncompliance, manufacturers are required to recall the family.

The information will be received and used by various divisions within OTAQ that implement CAA requirements. In instances of noncompliance, the information may be used by EPA's enforcement office and the Department of Justice. Non-confidential portions of the information submitted to DECC are available to and used by importers, environmental groups, members of the public and state and local government organizations.

3. Nonduplication, Consultations and Other Collection Criteria

3(a) Nonduplication

The information requested under this ICR is required by statute. Because of its specialized nature, and the fact that most of it must be submitted to EPA before HD engines and vehicles can be sold, the information collected is not available from any other source. Furthermore, some of the data requested, such as sales volumes or certain engine designs, may be proprietary in nature, and thus claimed as confidential business information (CBI) by manufacturers. Therefore, EPA can only obtain the information if it is submitted by its owners, the engine manufacturers.

3(b) Public Notice Required Prior to ICR Submission to OMB

An Advance Notice of Proposed Rule (ANPR) soliciting pre-proposal comments on a rulemaking effort then known as the Cleaner Trucks Initiative (CTI) was published in the Federal Register (85 FR 3306) on January 6, 2020. This document may be accessed through the Federal Register's website at <https://www.govinfo.gov/content/pkg/FR-2020-01-21/pdf/2020-00542.pdf>. The Notice of Proposed Rule (ANPR) on which this collection request is based is pending publication.

3(c) Consultations

EPA used data gathered in consultations with the regulated industry during the development of burden

estimates for current programs (programmatic ICRs) and its own experience implementing the programs that this proposed rule seeks to amend.

3(d) Effects of Less Frequent Collection

The CAA states that emission certification must be done on a yearly basis (CAA 206(a)(1)), coinciding with the industry's 'model year'. Major product changes typically occur at the start of a model year. For these reasons, a collection frequency of less than a model year is not possible. However, it should be noted that when an engine or vehicle design is "carried over" to a subsequent model year, the amount of new information required is substantially reduced.

3(e) General Guidelines

Under 40 CFR Parts 1036.250 and 1037.250, copies of documents sent to EPA including pre-model reports, certification applications, ABT, emissions test data and end-of-the-year reports, must be kept and maintained for eight years after a certificate of conformity is issued. These records may be stored in any format and on any media if they are organized and can be sent promptly to EPA upon request. These recordkeeping requirements stem, in part, from the statutory requirement to warrant some items for long periods of time. However, data related to routine testing such as test cell temperatures and relative humidity readings, must only be kept for one year after a certificate of conformity is issued.

Manufacturers are required to submit confidential business information such as sales projections and certain sensitive technical descriptions [see section 4(b)(i)]. This information is kept confidential in accordance with the Freedom of Information Act, EPA regulations at 40 CFR Part 2, and class determinations issued by EPA's Office of General Counsel. Also, non-proprietary information submitted by manufacturers is held as confidential until the specific vehicle or engine to which it pertains is available for purchase.

No other general guideline is exceeded by this information collection.

3(f) Confidentiality

Manufacturers may assert a claim of confidentiality over information provided to EPA. Confidentiality is provided in accordance with the Freedom of Information Act and EPA regulations at 40 CFR Part 2. For further detail, refer to section 3(e), above.

3(g) Sensitive Questions

No sensitive questions are asked in this information collection. This collection complies with the Privacy Act and OMB Circular A-108.

4. Respondents and Information Requested

4(a) Respondents/NAICS⁴ Codes

Respondents to the primary provisions of the proposed rule are entities that manufacture, sell, or import into the United States new heavy-duty highway engines and vehicles. Additional proposed amendments apply for gasoline refueling facilities and for manufacturers of all sizes and types of motor vehicles, stationary engines, aircraft and aircraft engines, and various types of nonroad engines, vehicles, and equipment. In general, potential

⁴ NAICS Association. NAICS & SIC Identification Tools. Available online: <https://www.naics.com/search>

respondents to this proposed rule are classified in the North American Industry Classification System codes (NAICS) listed in Table 2.

Table 2
Respondent's North American Industry Classification Codes

NAICS Codes	NAICS Title
326199	All Other Plastics Product Manufacturing
332431	Metal Can Manufacturing
335312	Motor and Generator Manufacturing
336111	Automobile Manufacturing
336112	Light Truck and Utility Vehicle Manufacturing
336120	Heavy Duty Truck Manufacturing
336211	Motor Vehicle Body Manufacturing
336212	Truck Trailer Manufacturing
336213	Motor Home Manufacturing
336411	Manufacturers of new aircraft.
336412	Manufacturers of new aircraft engines.
333618	Other Engine Equipment Manufacturing
336999	All Other Transportation Equipment Manufacturing
423110	Automotive and Other Motor Vehicle Merchant Wholesalers
447110	Gasoline Stations with Convenience Stores
447190	Other Gasoline Stations
454310	Fuel dealers
811111	General Automotive Repair
811112	Automotive Exhaust System Repair
811198	All Other Automotive Repair and Maintenance

Additional proposed amendments apply for gasoline refueling facilities and for manufacturers of all sizes and types of motor vehicles, stationary engines, aircraft and aircraft engines, and various types of nonroad engines, vehicles, and equipment within the NAICS.

4(b) Information Requested

This section briefly lists proposed changes to various emissions certification and compliance programs. The proposed provisions largely apply to the HD engine and vehicle manufacturers and build on existing, long-established programs. The burden for those programs is already covered under EPA ICR Number 1684.20, OMB Control Number 2060-0287. Therefore, to avoid duplication, this ICR only accounts for the incremental changes in reporting and recordkeeping burden associated with the proposed rulemaking. To facilitate comparison, this document follows the structure of ICR 1684.20. ICRs 1695.14 and 0783.65 cover programs related to small SI, light-duty vehicles, and other categories of respondents.

It should be noted that not all the proposed regulatory changes impact reporting and recordkeeping requirements and the burden associated with them. For example, while the addition of a new test cycle directly

impacts the burden and expense associated with compiling and submitting a certification application, a change in the numeric value of an existing standard is not likely to. Likewise, there are also several provisions in the proposal that seek to clarify definitions or correct omissions. Those provisions that have no impact on reporting or recordkeeping requirements or the methods used to collect the information have been described in broad terms or omitted.

The data related to the proposed rule would be collected electronically in very much the same manner as it is now, through the EPA's Engines and Vehicles Compliance Information System (EV-CIS), formerly known as VERIFY. More information on the existing certification process and data requirements can be found at <https://www.epa.gov/vehicle-and-engine-certification/certification-heavy-duty-hd-commercial-trucks-and-buses-and-onroad>.

To clarify and better organize HD requirements, both existing and proposed, the agency is proposing to migrate HD criteria pollutant regulations from 40 CFR Part 86 Subpart A to Parts 1036, as applicable. The proposed rule also updates other CFR Parts as necessary. Regulatory citations offered throughout this document generally refer to the proposal. However, the proposal does follow the existing structure of the CFR, so it should be easy for the reader to find its place in either document.

(4)(b)(i) Data Items

(4)(b)(i)(1) Certification - Summary of changes

The proposed provisions that would impact certification reporting and recordkeeping requirements include changes to the standards, test procedures, regulatory useful life, and emission-related warranty requirements, briefly summarized here, along with those that do not impact burden estimates. EPA is proposing the following:

HD Engine & Vehicle Certification Programs –

- To migrate criteria pollutant emissions requirements currently found in Part 86, Section A into Part 1036, applicable to MY2027 and beyond
 - Alternate Standards for Specialty Vehicles - proposing to migrate these alternate standards from Parts 86.007-11 and 86.008-10 into 1036.605 without modification. However, we may therefore consider revising the alternate standards, or discontinuing the alternate standards entirely. We might make those changes in this rule or in a future rule.
 - Includes various terms and applicability clarifications
- Emission standards (changes to the numerical values):
 - Unit change: standards expressed in units of milligrams per kilowatt-hour as for the HD nonroad and locomotive standards.
 - Lower HD NO_x emission standards – EPA is requesting comment on two proposed options with different numeric levels of the HD standards and lengths of useful life and warranty periods. Please refer to the proposed rule for details
 - Option 1 would have lower standards, longer useful lives and warranty periods to be implemented in two steps from MY2027-2030 and after MY2030
 - Option 2 would have less stringent standards but would apply starting on 2027 (one step)
 - Separate duty cycle standards at an intermediate useful life for MY 2031 and later Heavy-duty Engines (HDE)
 - CI HDE: engines: New NO_x, PM, HC, and CO emission standards based on a new low-load test cycle (LLC)
 - SI HDE: Adopt the Supplemental Emission Test (SET) standards (and the SET duty cycle) for NO_x and PM emissions. The proposed Options 1 and 2 SI HDE standards for HC and CO emissions on the SET cycle are numerically equivalent to the respective proposed FTP standards
 - Targeted revisions to the GHG Phase 2 standards and credit calculations
 - Lower Phase 2 CO₂ emission standards applicable to a subset of HD vehicles.
 - Reduce the number of incentive credits generated by electric vehicles (using the

- advance technology multiplier) in MY 2024 through MY 2027
- Updates to emission standards for existing laboratory test cycles (i.e., FTP and SET)
- New refueling emission standards (SI only) for incomplete vehicles above 14,000 lb GVWR starting in MY 2027. Manufacturers could use an engineering analysis to demonstrate that they meet our proposed refueling standard
- Longer engine useful lives and warranty periods for HD engines
 - Under proposed 1036.150(w), those longer warranty periods would not apply for engine technologies that are limited to controlling greenhouse gas emissions
- Testing requirements:
 - For HD diesel engines, new low-load cycle in addition to existing testing cycles
 - For HD gasoline engines:
 - New SET duty cycle to address high load operation and idle emission control requirements to supplement the current FTP duty cycle (currently only required for heavy-duty CI engines) and updates to the current engine mapping
 - Updates to the current engine mapping procedure to ensure the engines achieve the highest torque level possible during testing.
 - Clarification of testing option that allows manufacturers of electric vehicles to test hybrid engines and powertrain together so they can generate NO_x credits [1036.101(b)]
 - An idle test to assess whether the main component of the SI engine emission control system, the catalyst, remains effective during prolonged idle events. Could be in addition to or substituted by the proposed LLC
 - Update to 1065.510(b)(5)(ii) to require manufacturers to disable any AECD that would impact peak torque during the engine mapping procedure (all industries to which Part 1065 applies)
 - Changes to the way certain test data is analyzed and presented:
 - For model year 2027 and later engines, replacement of the not-to-exceed (NTE) torque maps and data analysis in favor of 300-second moving average windows (MAWs) of continuous engine operation. MAWs will be divided into three categories or “bins” based on the time-weighted average engine power of each MAW of engine data rather than the inside-of-NTE or outside-of-NTE currently used
 - Seeking comment on whether to require manufacturers to apply adjustment factors to SI FTP and/or SET emission test results to quantify the HC, CO, NO_x, and PM emission increases that occur due to enrichment AECDs
- Deterioration factors (DFs):
 - DF Determination-
 - Migrate existing DF determination options to 1036.245
 - Proposing option to use bench-aged aftertreatment
 - Dynamometer testing of an engine and aftertreatment system to a mileage that is less than regulatory useful life, then bench age the aftertreatment system to regulatory useful life and combine the aftertreatment system with an engine that represents the engine family
 - Option to propose a procedure or use an existing one, such as the one used for light-duty engines
 - When the useful life of the new MY is longer than the useful life in effect when the original test was performed [1036.235(d)], the manufacturer would need to supplement the data to demonstrate compliance throughout the new, longer useful life periods
 - Separate DF factor for intermediate useful life
 - Related to proposed separate duty cycle standards at an intermediate useful life for MY 2031 and later Heavy HDE
 - DF Validation: Propose codifying the DF verification program (proposed 1036.246) already in place since 2020 for HD diesel and NRCI engines with Selective Catalytic Reduction

- (SCR) technology through guidance issued by EPA⁵ and CARB⁶
 - Annual DF validation report by September 30 (proposed 1036.246) until all DFs are verified at 85 percent of useful life
 - Verification occurs over an 8-year period
 - Proposal applies to all Part 1036 engine families
 - In the case of a failure, manufacturers could request approval for a revised DF or retest to determine a new DF, but the affected engine families would not be able to generate emission credits using a DF that failed to pass verification.
 - Added provision to allow carry-over of all or some of the deterioration test results currently in use if the manufacturer can demonstrate that the engines meet the requirements over the additional years of useful life
 - Includes provisions for carry-over DF data and manufacturer requests for variances
 - Extension of some of these provisions to nonroad engines regulated under Parts 1033, 1039, 1042, and 1048
 - Flexibility for Medium HDE or Heavy HDE engine families that manufacturers show would be used in low volume, specialty vocational vehicles. Would allow engine manufacturers, for MY 2027 -2029 only, to certify up to 5 percent of their total production volume of HD CI engines in a given model year to the current, pre-MY 2027 engine provisions of Part 86, subpart A to accommodate the technologies needed to meet the proposed more stringent engine emission standards.
- Changes to the certification application package:
 - More detailed description of various elements of design, including:
 - Auxiliary Emission Control Devices (AECs), consistent with EPA guidance documents issued in 1998 and 2004 as well as California Air Resource Board (CARB) requirements.
 - Adjustable parameters, including electronically controlled parameters [1036.205(s), 1068.50(d)(2)]
 - Attempt to codify in one place a set of provisions that are consistent with current practice.
 - Largely based on the regulations that already apply for highway engines and vehicles under 86.094-22(e) and 86.1833-01.
 - Applies to all engine categories to which 1068 applies
 - Improved maintenance instructions directed towards increasing engine serviceability [1036.125(h)(3)-(9) and (11)]
 - Definition of the type of maintenance manufacturers may choose to recommend to owners
 - Some require EPA approval
 - Outlining specific requirements for maintenance instructions provided in the owner's manual, such as:
 - A description of how the owner can use the OBD system to troubleshoot problems and access emission-related diagnostic information
 - general description of how the emission control systems operate
 - access to diagrams describing system layout and operation for owners and repair technicians
 - Troubleshooting guide to address DEF dosing- and DPF regeneration-related warning signals
 - Instructions on how to remove DPF for cleaning
 - Other changes to certification applications include:
 - Standards expressed in units of milligrams per kilowatt-hour, so that each value of the standards is in the international system of units (SI units)
 - Updated the primary intended service classes for HD SI engines

⁵U.S. EPA. "Guidance on Deterioration Factor Validation Methods for Heavy-Duty Diesel Highway Engines and Nonroad Diesel Engines equipped with SCR." CD-2020-19 (HD Highway and Nonroad). November 17, 2020.

⁶California Air Resources Board, "Methods to Validate On-Road Heavy-Duty Diesel and Offroad Diesel Engine Deterioration Factors for CARB Approval," ECC 2020-07, November 24, 2020

- Allowance to combine engines that would normally be in different engine families [1036.230(j) and (k)], and vice versa
- Identify NOx Family Emissions Limit (see AB&T section below)
- Improved statement of compliance
- Manufacturers must provide the information to read, record, and interpret information broadcast by the engines' on-board computers and state that they will furnish any tools necessary to do it. [1036.201(t)]
 - Not applicable to field fixes identified after the end of the model year
 - Would become effective upon the effective date of the final rule, if adopted.
- Additional opportunities for carrying across OBD certification data
 - Between vehicle families at or below 14,000 lb GVWR and engine families above 14,000 lb GVWR limit. This will limit the need for duplicate OBD certification testing if a manufacturer's chassis- and engine-certified technology packages are sufficiently similar
 - To certify, if approved, spark-ignition, engine-certified products using data from similar chassis-certified Class 2b and Class 3 vehicles that meet the provisions of 40 CFR 86.1806-17
- Running Changes: Limit amendments to the application for certification to the stated production period (revised 1036.225 and 1037.225)
- Miscellaneous:
 - Changes and clarifications related to maintenance schedules, allowable maintenance on test engines, etc
 - Updates on minimum maintenance intervals for certain critical emission-related components
 - Changes to the engine emissions label to include certain maintenance information and a QR code [proposed 1036.135(c)] that would direct repair technicians, owners, and inspection and maintenance facilities to a website which provides critical emissions systems information at no cost
 - Changes to Onboard diagnostic (OBD) requirements, such as
 - Incorporation by reference of 2019 California Air Resources Board's (CARB) OBD regulations already implemented by manufacturers to harmonize the requirements and streamline data collection processes
 - Allowing the use of data from CARB-only families to demonstrate compliance with federal requirements in certain cases, already implemented by guidance
- HDE Aftermarket Fuel Converters:
 - No changes to reporting or recordkeeping requirements
 - Proposed anti-tampering provisions (1068.50) are not intended to interfere with actions aftermarket converters may need to take to modify or replace ECMs as part of the conversion process
 - However, converters need to be aware of the proposed provisions intended to prevent unauthorized access to the engine's ECM and may need to adjust their strategies.

HD Electric vehicles:

- Battery (BEVs) electric vehicles and fuel-cell electric vehicles (FCEVs):
 - The proposed rule consolidates criteria pollutant and GHG emission certification requirements in 1037 for certain electric vehicles, as specified in the current 1037.1 and proposed 1037.102
- Emission Standards: Targeted tightening of Phase 2 vehicle CO₂ emission standards for certain HD vehicles categories
 - Applicable to school buses, transit buses, delivery trucks, and short-haul tractors in and after MY2027 in the vocational vehicle and tractor categories
 - The proposed sales-weighted approach adjusts 17 of the 33 MY 2027 Phase 2 vocational vehicle and tractor standards
 - Applies to BEVs and FCEVs over 14,000 pounds GVWR
 - Testing/test data:

- Powertrain test procedure for a series of duty-cycle tests (multicycle test, MCT). See proposed 1037.552 and 1037.554
- BEVs and FCEVs used to generate engine NO_x emission credits must meet certain durability requirements [proposed 1037.102(b)(3)]. Requires measuring useable battery energy (UBE) for BEVs, and initial fuel cell voltage (FCV) for FCEVs at the start of useful life using the MCT procedures in proposed 1037.552 or 40 CFR 1037.554, respectively
- Application for Certification: Manufacturers who wish to generate NO_x emission credits for use in engine certification must submit test data at the time of certification to support their NO_x credit calculation
- Useful life (UL) for UBE and FCV: increases in UL in three stages starting in MY 2024. See proposed 1037.102(b)(2) an Preamble Section IV.A for our proposed useful life periods
 - There would be no minimum requirement for UBE or FCV

Other HD Industries:

- HD Secondary Vehicle Manufacturers:
 - Need to be aware of the proposed changes to refueling standards and the strategies that chassis manufacturers implement to meet them
 - Will need to work with original chassis manufacturers to ensure that the vehicles remain in certified configuration
 - This is part of their usual business practices and not expected to present difficulties
 - No changes to reporting or recordkeeping requirements

Other Industries:

- Small Nonroad Spark-Ignition Engines (Part 1054):
 - Codify 2020 EPA guidance clarifying manufacturers' testing responsibilities for the range of equipment using engines from a given emission family - "Small Spark-Ignition Nonhandheld Engine Test Cycle Selection," EPA guidance document CD-2020-06, May 11, 2020
 - Limit the applicability of the A cycle to engines with governed speed at full load that is at or above 2700 rpm, and limit the applicability of the B cycle to engines with governed speed at full load that is at or below 4000 rpm
 - Steady-State Duty Cycles - for many years, we have approved a modified five-mode duty cycle for nonhandheld engines by removing the idle mode and reweighting the remaining five modes. proposing to adopt that same alternative duty cycle into the regulation and require its use for all engines that are not designed to idle
 - Proposing to remove the ramped-modal test option for the six-mode duty cycle as it's never been used
 - Miscellaneous clarifications
- Recreational Vehicles and Nonroad Evaporative Emissions (40 CFR Parts 1051 and 1060) - Miscellaneous clarifications and removal of obsolete references to NO_x emission standards
- Light-duty motor vehicles (Parts 85, 86, and 600):
 - Update the SAE J1634 standard referenced in Part 600 from the 2012 version to the 2017 version.
 - Will require manufacturers to use 65 mph for the constant speed cycles of the MCT.
 - Allows manufacturers to use the BEV 5-cycle adjustment factor methodology outlined in Appendices B and C of the 2017 version of SAE J1634
 - Additional changes to the procedures outlined in the 2017 version of SAE J1634 such as specifying a maximum constant speed phase time of 1 hour with a minimum 5-minute soak following each one-hour constant speed phase
 - Requirement to attest that the vehicle was not preconditioned or connected to an external power source during the 20°F cold soak period
 - Beginning with model year 2024, that manufacturers be allowed to perform only two UDSS cycles when running the CTPP, with a 10-minute key-off soak between the UDSS cycles to generate their BEV 5-cycle adjustment factor

- For LD Electric Vehicle Testing: proposing to update from the 2012 to the 2017 version of SAE J1634 and proposing to include regulatory provisions that amend or clarify the BEV test procedures outlined in the 2017 version.
- Correct the warranty periods identified in Part 85, subpart V to align with the CAA
- Revising the equation in Section 86.117-96(d)(1) used to calculate evaporative emissions from methanol-fueled vehicles to properly represent the fuel-specific calculations and includes temperature correction for the sample volume based on the sample and SHED temperatures
- Clarifying certification responsibilities so that small-volume LD manufacturers that modify a vehicle already certified by a different company and recertify the modified vehicle to the standards that apply for a new vehicle under Part 86, subpart S not be required to repeat those fleet-average calculations for the affected vehicles.
 - Applies to fleet average standards for criteria exhaust emissions, evaporative emissions, and greenhouse gas emissions
 - The secondary vehicle manufacturer would need to meet all the same bin standards and family emission limits as specified by the original certifying manufacturer.
- Clarify that the definition of “engine code”
- Section 86.1843-01(f)(2): Delay the end-of-year certification application updates deadline until May 1 following the end of the model year.
- Amendments related to greenhouse gas emissions and fuel economy testing
 - Migration of test procedures to Part 1066
 - Section 86.1823: Revise paragraph (m)(1) to reflect current business practices with respect to CO₂ durability requirements
 - Section 600.002: Revise the definition of “engine code” to refer to a “test group” instead of an “engine-system combination”.
 - Codify a 2015 guidance for the fuel economy program to reflect technology trends.⁷
 - Section 600.512-12: Delaying the deadline for the model year report from the end of March to May 1. The proposal aligns the deadline provisions with the proposed amendment for end-of-year reporting as described in 40 CFR 86.1843-01(f)(2).
- Large Nonroad Spark-Ignition Engines (Part 1048) – correct mistaken reference to duty cycles and remove obsolete references
- All Industries to which Part 1065 applies - proposed update to 1065.510(b)(5)(ii) would require manufacturers to disable any electronic controls that they report to EPA as an auxiliary emission control device (AECD) that would impact peak torque during the engine mapping procedure
- All Industries to which Part 1068 applies - detailed description of various elements of design, including:
 - Auxiliary Emission Control Devices (AECDs) - the proposed requirements for improvement are consistent with a 2004 EPA guidance document⁸ that is widely accepted across industries as the standard for AECD descriptions
 - Adjustable parameters, including electronically controlled parameters [1036.205(s), 1068.50(d)(2)]

(4)(b)(i)(2)(a) Annual Production Reports & EV model year report

EPA is proposing to delay the following due dates to give manufacturers more time to gather the necessary data:

- HD Engine and Vehicle Annual Production Report from 90 days from the end of the model year, or March 30, to September 30th (1036.250 and 1037.250)
- Electric Vehicle Model Year report required in 86.1843-01(f)(2) from the end of March to May 1.
 - Aligns the deadline provisions with the proposed amendment for end-of-year reporting as [CFR 86.1843-01(f)(2)]
 - This report contains the information necessary for the calculation of the manufacturer's average fuel economy and average carbon-related exhaust emissions.

⁷ “Derived 5-cycle Coefficients for 2017 and Later Model Years”, EPA Guidance Document CD-15-15, June 22, 2015.

⁸ US EPA, “Non-Road Compression Ignited Engines: Guidance on Reporting Maximum Allowable Off Cycle Emissions,” CCD-04-12 (HD), June 15, 2004

(4)(b)(i)(2)(b) Confirmatory Testing

Confirmatory testing provisions remain with some changes proposed in 1036.235(c), such as:

- Clarification that engines provided by manufacturers must include electronic control modules
- References to adjustable parameters, per proposed changes 1036.115(f)]
- EPA may use an engine dynamometer to simulate normal conditions and determine if the engine meets off-cycle emission standards

(4)(b)(i)(3) Averaging, Banking and Trading (AB&T)

EPA is proposing the following updates related to the HD engine and vehicle emissions credits generation, calculation, and reporting:

- Proposed changes in sections 1036.150, 1036.730 and 1037.730
- Discontinuation of the end-of-the-year report (currently due by March 31) for both the HD engine and HD vehicle AB&T programs
 - Currently, manufacturers submit two reports: an end-of-the-year report (draft report due by March 31) and a final report (due by September 30)
- Changes in how credits are generated, calculated and/or used, although these do not have substantive effects on reporting requirements
 - Allow manufacturers to generate NO_x emission credits for hybrid electric, battery electric, and fuel cell electric *vehicles* to be used in either vehicle or engine certification
 - Changes to averaging sets and FEL caps
 - Discontinuation of the program for HC and PM after 2027 as standards would be revised so manufacturers can meet them without the use of credits
 - Update existing credit life provisions in 1036.740(d) to apply for CO₂ and NO_x credits
 - Interim provisions to generate advanced-technology credits
 - Transitional NO_x credits through MY2026 to be used to certify engines in MY2027 and after (1036.150)
 - Generate advanced-technology vehicle credits through 2023 within limits
 - Early adoption incentive – HD Manufacturers who demonstrate early compliance with the proposed MY 2027 or MY 2031 standards (Options 1 and 2) would apply a multiplier to emission credits they generate
- Various updates for consistency with new standards and other provisions

(4)(b)(i)(4) Marine CI Production Line Testing (PLT)

EPA is proposing the following updates related to the HD engine and vehicle emissions credits generation, calculation, and reporting:

- A default engine sampling rate of one test per family. An engine test from a prior year would count as a sufficient demonstration if the manufacturer certifies the engine family using carryover emission data.
 - Includes tests performed before these changes to the regulation become effective.
 - May share testing for recreational and commercial engine families if they rely on the same emission-data engine
- Removal of the testing exemption for small-volume engine manufacturers and low-volume engine families.
 - Require a single test engine randomly selected early in the production run. EPA may direct the manufacturer to select a specific configuration and build date.
 - The manufacturer continues to be subject to the requirement to test two more engines for each failing engine, and notify EPA if an engine family fails
- To reduce reporting requirements from up to four per year to one within 45 days after testing is complete

for the family

- Manufacturers would be able to transition to the new test requirements by spreading out tests over multiple years if several engine families are affected. Small-volume engine manufacturers would need to test no more than two engine families in a single model year, and other engine manufacturers would need to test no more than four engine families in a single model year.
- To allow EPA to withhold approval of a request for certification for a family for a given year if PLT work from the previous model year is not done
- EPA retains the ability to require an additional test in the same model year or a later model year for cause even after there was a passing result based on any reasonable suspicion that engines may not meet emission standards
- The start of testing must occur within 60 days after production starts for a given Category 1 engine family, with an accommodation for low-volume families that specifies that the engine manufacturer must test the next engine produced if the 60-day time frame is not sufficient for selecting a test engine
- The same provisions apply for selecting a Category 2 engine for testing, except that the 60-day period for engine selection starts after the manufacturer produces the fifth engine from an engine family. This approach is reflective of the production volumes that are typical for Category 2 engines
- For the additional testing that is required after failing results, we specify a 90-day time frame in case the engine family's production volumes are too low to resume testing after producing 15 engines.
- Keeping the requirement to randomly select production engines for testing, but we are clarifying that:
 - Must ensure that test engines have been assembled using the same instructions, procedures, and quality-control oversight that applies for other production engines, and
 - Random selection can include preferentially selecting engines earlier than we specify. For example, a manufacturer may randomly select a test engine for a high-volume Category 1 engine family in the first 20 days of production instead of randomly selecting a test engine from the first 60 days of production
- No test requirements until after the manufacturer starts production for a given engine family.

(4)(b)(i)(4) In-use Testing – Heavy-duty engines

The HD In-use testing program requirements are being modified to reflect proposed changes in testing and data analysis requirements.

- Migrating the manufacturer-run field testing program provisions for CI engines from Part 86, subpart T to Part 1036
 - Not proposing a manufacturer-run in-use testing program for Spark-ignition HDE at this time, though we may consider it in future rulemakings
- Use of the proposed moving average window (MAW) procedure (proposed 1036.515) that separates in-use operation into idle, low load and medium/high load bins.
- Proposed changes to testing limits and determination of pass/fail status
 - Proposing to not carry forward the Phase 2 requirements in 86.1915 beginning with MY 2027
 - Compliance with the off-cycle standards would be determined by testing a maximum of 10 engines, which was the original limit under Phase 1
 - Proposed 1036.425 requires initially testing five engines
 - Engine family passes if all five engines obtain passing results
 - If there are failures, additional engines would be tested, up to a maximum of 10
 - Engine family fails if the arithmetic mean of the sum-over-sum emissions from the ten engines for any of the 3 bins for any of the pollutants is above the off-cycle bin standards
 - Proposing to allow manufacturers to test a minimum of 2 engines using PEMS provided they measure and report in-use data collected from the engine's on-board NO_x measurement system
 - Requires Agency approval per 1036.405(g)
- Requesting comment on option to request and, if approved by EPA, exempt test results from a vehicle selected for in-use testing if the engine manufacturer can show that the vehicle was historically fueled with biodiesel blends whose B100 blend stock did not meet the ASTM D6751-20a limit for Na, K, Ca, and/or Mg metal (metals which are a byproduct of biodiesel production).

- o The engine manufacturer would need to provide proof of historic misfuelling with off-specification biodiesel blends and an analysis of the level of the poisoning agents on the catalysts

(4)(b)(i)(5) Special Provisions and other considerations

- Confidentiality determinations – EPA is proposing regulations to establish eight categories of information submitted to the agency through its certification and compliance data collections that may not qualify for the protections afforded to proprietary information under the CAA
 - o Currently, data may be published voluntarily by the agency, through FOIA requests or litigation
 - o Current process to challenge claims of confidentiality could be a time-consuming process with inequitable results
 - o Proposal would apply to a wide range of products a under Parts 59, 60, 85, 86, 87, 1030, 1033, 1036, 1037, 1043, 1045, 1048, 1051, 1054, 1060, and 1068.
 - All highway and stationary engine and vehicle categories, including stationary engines
 - Aircraft and aircraft engines
 - Portable fuel containers
 - Fuel tanks and fuel lines used with some types of nonroad equipment.
 - o The information categories are:
 - (1) certification and compliance information,
 - (2) fleet value information,
 - (3) source family information,
 - (4) test information and results,
 - (5) averaging, banking, and trading (AB&T) credit information,
 - (6) production volume information,
 - (7) defect and recall information, and
 - (8) selective enforcement audit (SEA) compliance information.
- Adjustable parameters - proposing a new 1068.50 to update the current regulatory provisions to better describe how the established principles and requirements related to adjustable parameters also apply for current technologies.
 - o Largely based on the regulations that already apply for highway engines and vehicles under 86.094-22(e) and 86.1833-01.
 - o Attempt to codify in one place a set of provisions that are consistent with current practice.
- Updates and clarifications to, such as:
 - o Miscellaneous exemptions
 - o Miscellaneous 1068 provisions
 - o Miscellaneous testing requirements
- Codification of 2016 guidance on Vanadium SCRs on reasonable steps to prevent excessive loss of vanadium through sublimation
- Proposal to end existing exemption from the 15-ppm sulfur fuel standard for highway and nonroad engines and vehicles in Guam since Guam has adopted rules requiring the 15-ppm sulfur standard for in-use diesel fuel for those engines and vehicles
- Streamlining of miscellaneous fuel refueling provisions 80
- Inducement provisions

(4)(b)(ii) Respondent Activities

Respondent activities are generally unchanged from those already indicated in the programmatic ICR (ICR 1684.20). Those are:

- Review the regulations and guidance documents
- Prepare and submit pre-model year reports or related production data for certification applications
- Develop engine or vehicle “test” or “family” groups
- Test engines and vehicles for compliance with emission and fuel consumption standards
- Gather and analyze test results

- Collect inputs and run GEM, as needed
- Submit the Application for Certification
- Label certified vehicles
- Prepare and submit carryover applications
- Prepare GHG compliance plan and reports, as needed
- Prepare and submit annual production reports and AB&T reports
- Store, file and maintain records

5. The Information Collected--Agency Activities, Collection Methodology, and Information Management

5(a) Agency Activities

Agency activities are generally unchanged:

- Review and interpret regulations, provide guidance
- Review pre-model reports, evaluate test plans, and credit projections
- Meet with respondents as requested
- Review certification applications for completeness and accuracy
- Verify that the correct engines and vehicles have been selected and tested
- Evaluate test and related technical documents
- Determining if the use of carry-over/across data is appropriate
- Issue appropriate certificates of conformity
- Collect and review the various reports described in this ICR
- Determine compliance with all regulatory programs and provisions
- Review credit balances under AB&T
- Conduct confirmatory testing and in-use testing
- Investigate potential violations and refer findings to the appropriate enforcement office
- Store, file and maintain data
- Answer questions from manufacturers, other government agencies, Congress, and the public
- Periodically perform maintenance or enhance certification and compliance databases as needed
- Make data available to the public and maintain public websites
- Answer FOIA requests, including analyzing and managing requests for confidentiality
- Collaborate with each other, including sharing data and providing access to databases

5(b) Collection Methodology and Management

Collection methodology and management remains generally unchanged from that explained in ICR 1684.20. EPA will continue to collect, house, and analyze data using the Engine and Vehicle Compliance Information System (EV-CIS), EPA's web-based engine and vehicle emissions database. Manufacturers use EV-CIS' web-forms or schema files to upload individual data elements and documents. Some of the proposed provisions, such as the new testing cycles and the new report can be accommodated with modifications to the existing web-forms and schema files (e.g., modification of drop-down menus, addition of data fields for LLC test results, etc.). No new forms are expected to be created. More information on the certification process and data requirements can be found at <https://www.epa.gov/vehicle-and-engine-certification/certification-heavy-duty-hd-commercial-trucks-and-buses-and-onroad>.

5(c) Small Entity Flexibility

The small business flexibilities already built into the existing programs will continue. In addition, the proposed rule:

- Gives small manufacturers the ability to request a delay in complying with the proposed OBD requirements for up to three model years if that manufacturer has not certified those engines or

- other comparable engines in California for those model years [proposed 1036.110(b)(1)]
- Proposes changes to maintenance manuals and other serviceability-related provisions that are responsive to the needs of small business including small fleets, independent owner/operators, and rural operations as access to dealer service networks can be a challenge for them
- Restructures the Marine CI PLT testing and reporting requirements as explained in section 4(b)(i) (4) of this document to make the program more equitable to small businesses and represent large burden and cost savings
- Clarification of the certification responsibilities of small-volume LD secondary vehicle manufacturers to ensure that they don't have to repeat fleet-average calculations already made by the original manufacturer. This applies to fleet average standards for criteria exhaust emissions, evaporative emissions, and greenhouse gas emissions. However, the secondary vehicle manufacturer would need to meet all the same bin standards and family emission limits as specified by the original certifying manufacturer.

Under the other proposals included in this ICR, the information being requested is the minimum needed to effectively conduct and maintain integrity of the required certification and enforcement programs. Further measures to simplify reporting for small businesses do not appear prudent or necessary.

5(d) Collection Schedule

EPA is proposing to reduce the reporting frequency under PLT (from quarterly to annually 45 days after the end of testing) and AB&T (from bi-annually to annually on September 30). The new DF report would be submitted annually. Some deadlines have been delayed giving manufacturers more time to gather data. All other schedules remain unchanged.

6. Estimating the Burden and Cost of the Collection

6(a) Estimating Respondent Burden

Burden estimates are based primarily on information gathered during the development of ICR 1684.20 which contains the burden for HD engine and vehicle programs and Marine CI engines and adjusted them to reflect comments and experience gained through program implementation. These estimates are presented in Table 3 below. The table's content is discussed in detail in sections 6(b)(ii) and 6(d) of this supporting statement.

**Table 3
Respondents' Estimated Burden and Cost**

Information Collection Activity	Burden and Cost per Application											Total Burden and Cost			
	Engineer	Manager	Legal	Mechanical Engineering Technician	IT analysts	Clerical	Respondent hr/yr	Labor Cost/yr	Capital Startup Cost	O & M Cost ¹	Frequency or Applications/ Respondent ²	Number of Respondents	Total hr/yr	Total Cost/yr	
	Rate/hour \$	Rate/hour \$	Rate/hour \$	Rate/hour \$	Rate/hour \$	Rate/hour \$									
HD engine manufacturers: Review of new regulations, general system changes	40	25	10	10	50	0	135	\$14,668	\$0	\$200	1.0	16	2,160	\$237,886	
Other industries: Review of new regulations, system changes	20	7	3	2	10	0	42	\$4,557	\$0	\$50	1.0	263	11,046	\$1,211,525	
In-house Testing for New Certification and DF requirements³															
New certification and DF tests, in house	40.0	10	0	60	0	0	14	124	\$9,968	\$0	\$6,000	1.8	16	3,596	\$463,059
Outsourced Testing Costs, Annualized⁴															
LLC Tests (HD CI only)	5	1	0	0	0	1	7	\$672	\$0	\$5,000	11.0	16	1,232	\$998,353	
SET & engine mapping updates (HD SI Only)	5	1	0	0	0	1	7	\$672	\$0	\$5,000	8.0	16	896	\$726,075	
Developing new DFs or DF demonstrations (longer UL demonstrations, new intermediate UL), annualized	10.0	5	0	38	0	3	56	\$4,386	\$0	\$14,000	1.8	16	1,568	\$514,813	
Additional DF validation Activities & Annual DF validation report	30.0	10	1	20	0	2	63	\$5,977	\$0	\$27,000	2.0	16	2,016	\$1,055,253	
New Intermediate UL Tests	5	1	0	0	0	1	7	\$672	\$0	\$17,600	1.6	16	175	\$456,812	
HD In-use Testing - new test cycles	5	1	0	0	0	1	7	\$672	\$0	\$5,000	1.0	6	42	\$34,035	
HD - MAWs and other data analysis changes not accounted for elsewhere	30.0	10	0	0	0	10	50	\$4,827	\$0	\$10	3.6	16	2,900	\$280,574	
Software updates for MAWs	0	0	0	0	0	0	0	\$0	\$0	\$15,000	1.0	16	0	\$240,000	
Other activities															
Cert application documentation improvements (AECDS, AdjPar)	10.0	2	0	0	0	5	17	\$1,483	\$0	\$10	1.0	16	272	\$23,880	
Improvement of Maintenance Manuals/Labels/Warranty Statements, annualized	20.0	3	0	20	0	15	58	\$4,378	\$0	\$100	1.0	12	696	\$53,737	
HD and EV AB&T Credit Calculation Updates	10.0	5	0	0	0	0	15	\$1,710	\$0	\$100	1.0	12	180	\$21,722	
HD Engine AB&T Reports - Discontinuation of one of two annual reports									-\$76,889	\$0	-\$320	1.0	16	-986	-\$77,209
Marine CI PLT Testing - savings related to program modifications									-\$429,795.0	0.0	-\$332,349	1.0	29	-5,785	-\$762,144
Recordkeeping															
Store, file and maintain records	1.0	0.0	0	0	0	1	2	\$141	\$0	\$0	1.0	73	146	\$10,273	
Estimated Totals															
Industry Totals	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$1,964,708	\$0	\$3,729,550	varies	279	24,214	\$5,694,258	

¹Includes lab maintenance, shipping and testing costs. Other lab-related costs have already been accounted for in the general certification collections, ICR 1684.20. See section 6(b)(ii) for details.

²Frequency refers to the number of times a respondent performs each task per year. In most instances, this is tied to the number of engine families or certification applications in each category, except when in one-time tasks or tasks that apply all applications, such as reviewing regulations.

³HD engine manufacturers are usually large companies and have invested in in-house testing laboratories for certification and compliance testing as well as research & development.

⁴In some instances, manufacturers hire outside laboratories for testing.

6(b) Estimating Respondent Costs

6(b)(i) Estimating labor costs

To estimate labor costs, EPA used the Bureau of Labor Statistics' (BLS) 2020 National Industry-specific Occupational Wage Estimates for the Engine, Turbine and Power Transmission Equipment Manufacturing Industry (NAICS 333600, available at https://www.bls.gov/oes/2016/may/naics4_333600.htm). EPA used mean hourly rates increased by a factor of 2.1 to account for benefits and overhead, as listed in Table 4 below.

Table 4
Labor Costs Estimates

Occupation	SOC Code Number	Mean Hourly Rate	Mean Hourly Rate (Including benefits and Overhead)
Mechanical Engineers	17-2141	\$45.17	\$94.86
Engineering Managers	11-9041	\$72.53	\$152.31
Lawyers	23-1011	\$85.75	\$180.08
Mechanical Engineering Technicians	17-3027	\$31.81	\$66.80
Computer and Information Analysts	15-1210	\$43.78	\$91.94
Secretaries, Except Legal, Medical and Executives	43-6014	\$21.84	\$45.86
Mechanical Engineering Technicians	17-3027	\$31.81	\$66.80
Truck Drivers	53-3032	\$21.68	\$45.53

6(b)(ii) Estimating Capital, Operations and Maintenance Costs

Operation and Maintenance (O&M) costs are listed in Table 3 in section 6(a). Wherever possible, estimates were developed using current costs. Where it was not practicable to obtain a new estimate, EPA used estimates developed in previous years and corrected them for inflation using the Bureau of Labor Statistic's Consumer Price Index Inflation Calculator. The calculator can be found at http://www.bls.gov/data/inflation_calculator.htm.

HD engine emissions testing is the largest cost in this collection. HD engine manufacturers are large companies that have built their own test cells, which they use for most of their certification and compliance testing needs as well as for research and development. Sometimes, however, they hire outside laboratories. Therefore, testing cost estimates are presented in two categories: "in-house testing" and "outsourced testing." Maintenance of in-house emission laboratories is already accounted for in ICR 1684.20, but this ICR includes some costs associated with performing the additional tests in the proposal. Since manufacturers carry over certification emissions data from one model year to the next, certification testing costs has been annualized, where appropriate, over the approval period requested for this ICR (3 years).

The average cost of HD engine certification testing package has been estimated at \$52,800⁹ or \$17,600 annualized. The cost of the package has been apportioned to estimate the cost of the LLC and other newly proposed testing requirements, as listed in Table 3. The cost of using PEMs for durability testing has been estimated at approximately \$42,000 (\$14,000 annualized).

EPA is proposing to codify the current DF validation program. This program has been in place since 2020 through guidance¹⁰ both at the federal level and in California after the agencies questioned the reliability of DFs being used for certification. Consistent with the fact that initial DF demonstrations can be carried across to multiple families with similar technology, if approved, each DF validation exercise should also apply to the same families as the initial DF. Since the program has been in place since 2020 and manufacturers are already engaged in the exercise, some of the families may have their DFs already validated by the time the proposal, if finalized, becomes effective in MY2027. Because of this and the carry-across provision, EPA estimates that each manufacturer will perform, in average, approximately two DF validations per year, for a total of 36 DF validation tests for the industry (two tests times 16 manufacturers). This is perhaps the largest testing-related cost of the proposal.

⁹ Estimate was developed for ICR 1684.20 and adjusted for inflation.

¹⁰ U.S. EPA. "Guidance on Deterioration Factor Validation Methods for Heavy-Duty Diesel Highway Engines and Nonroad Diesel Engines equipped with SCR." CD-2020-19 (HD Highway and Nonroad). November 17, 2020; and California Air Resources Board, "Methods to Validate On-Road Heavy-Duty Diesel and Offroad Diesel Engine Deterioration Factors for CARB Approval," ECC 2020-07, November 24, 2020

Other O&M Costs associated with this information collection include electronic system updates, test analysis software updates (from NTE to MAWs), electronic data storage, shipping expenses, and phone calls.

6(b)(iii) Capital/Start Up Costs

There are no capital or start-up costs associated with the revision of this ICR.

6(c) Estimating Agency Burden

EPA's Compliance Division (CD) within the Office of Transportation and Air Quality (OTAQ) would be responsible for collecting the data requested under the proposal.

About 10 EPA employees of EPA's Compliance Division routinely dedicate a significant portion of their time to the activities described in this collection request. Table 5 summarizes EPA's labor costs and burden associated with this information collection. The 2021 hourly rates used were obtained from the Office of Personal Management (<https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2017/general-schedule/>), and adjusted by a factor of 1.6 to account for benefits and overhead. While the EPA team that implements this collection is has some members in Washington, DC, we've used Ann Arbor, MI's locality pay rates where the majority reside for simplicity. Regulatory development, government-conducted testing and other costs incurred by the agencies not directly related to data submitted by respondents under this ICR are not included in this estimate.

**Table 5
Agency Burden**

Employee	Level	Hours and Labor Cost						
		Total Annual Labor Cost	Rate Increase by 1.6	Number of Employees	Full time hours per employee	% of Time	Total hr/yr	Total Labor cost/yr
CD Full-time Career Employees	GS 12 through 15	\$1,746,822	\$2,794,915	26	2080	7%	3,786	\$195,644
SEE Support	N/A	\$55,000	N/A	1	2080	0%	-	\$0
IT/Contract Support	GS 13/5	\$109,900	\$175,840	2	2080	10%	416	\$17,584
OGC & OECA (lawyers)	GS 13/10	\$126,062	\$201,699	1	2080	10%	208	\$20,170
Division Director	SES-1	\$201,700	\$322,720	1	2080	10%	208	\$32,272
Office Director	SES-2	\$181,500	\$290,400	1	2080	3%	62	\$8,712
Other Staff	GS-11/5	\$71,504	\$114,406	5	2080	10%	1,040	\$11,441
Burden & Labor Total:		\$ 2,492,488	\$ 3,899,981	37	N/A	N/A	5,720	\$ 285,823
O&M Costs								
In-use Testing								\$0
Travel								\$0
Confirmatory & Other Testing								\$2,500
SEAs								\$1,000
Contract Support - Compliance								\$50,000
Contract Support - Certification								\$50,000
		O&M Total:						\$ 103,500
							TOTAL:	\$ 389,323

6(d) Estimating the Respondent Universe and Total Burden and Costs

As previously mentioned, the proposed rule builds on existing, long-established engine and vehicle certification and compliance requirements. The largest and most burden-intensive provisions make changes to the HD engine and vehicle programs, which are already covered under EPA ICR Number 1684.20, OMB Control Number 2060-0287, *Emissions Certification and Compliance Requirements for Nonroad Compression-ignition Engines and On-highway Heavy Duty Engines*. ICR 1684.20, also referred to in this document as one of the ‘programmatically ICRs’ includes burden for both HD CI and SI engines, HD vehicles and marine CI engines which are also affected by the proposed action, among others.

The proposed rule also updates, clarifies, and streamlines existing provisions related to other industries, albeit with minimal to no new burden. The burden for those programs’ existing requirements is accounted for in the following ‘programmatically ICRs:’

- EPA ICR Number 1695.14, OMB Control Number 2060-0338, *Certification and Compliance Requirements for Nonroad Spark-ignition Engines*.
- EPA ICR Number 0783.64, OMB Control Number 2060-0104, *Motor Vehicle Emission Certification and Fuel Economy Compliance*, 40 CFR Parts 86 and 600.

To avoid duplication, this collection only includes the incremental burden associated with the proposed provisions as shown in Table 3 in section 6(a).

To estimate the respondent universe and response frequency, EPA examined response levels in recent years including data gathered for recent renewals of the programmatically ICRs. Wherever possible, we based estimates for this ICR on 2019-2021 data.

Table 6 below details the number of respondents. Engine manufacturer numbers have been gleaned from past response levels. EPA does not expect new HD companies to enter the market by 2027 or a significant number of new engine/vehicle families as these numbers tend to remain stable after the first few years of a new certification program.

Table 6
Number of Respondents per Category

Industry	Number of Respondents
HD Engines Gas & Diesel (Exhaust Emissions)	16
HD GHG Vehicles- Certain Vocational Vehicles & Tractors	35
EV Manufacturers	26
Marine CI engine manufacturers	29
Other ¹¹ – respondents from various industries	177
Totals:	279

The largest increase in burden and expense stemming from the proposed rule comes from new testing requirements for HD engines and changes to the way test data are analyzed, specifically:

- Addition of an LLC to the HD CI engine certification testing package
- New intermediate useful life tests

¹¹ Respondents across industries that may need to perform minor (from a burden perspective) activities such as update formulas used in their calculations or request testing variances, as outlined in Section 4(b)(i)

- Addition of a SET to HD SI lab demonstrations and engine mapping updates
- DF demonstrations over a longer useful life
- New intermediate DFs
- DF validation activities and report

Since testing expenses are considered O&M costs, please refer to Section 6(b)(ii), *Estimating Capital, Operations and Maintenance Costs* for a brief discussion of testing-related cost estimates.

Burden estimates in Table 3 also include:

- Time to study the new regulations (learning curve),
- Updates to internal systems (databases, data files, data gathering practices),
- The cost of improving certain documents required for certification (e.g., AECD and adjustable parameter descriptions)
- The cost of improving maintenance manuals, engine labels and warranty statements
- AB&T credit calculation updates

EPA is proposing to streamline HD AB&T reporting requirements and Marine CI testing and reporting requirements. In both cases, reporting requirements have been reduced to just once a year (from semi-annually for AB&T and quarterly for PLT). The streamlining of these programs results in great burden and cost savings to respondents in those industries and a more equitable testing scheme for Marine CI engine manufacturers. To quantify those savings, EPA consulted ICR 1684.20 which contains the burden for both programs and calculated the savings as shown in Tables 7 and 8 below. The savings are shown in Table 3 as reductions to the overall burden associated with the proposed rule.

Specifically, current regulations require that manufacturers of HD engines participating in AB&T submit an end-of-the-year report by March 31 and a final report by September 30. Manufacturers have expressed frustration about the difficulties of gathering the necessary data so close to the end of the model year. Therefore, EPA is proposing to simplify reporting requirements by discontinuing the end-of-the-year report in favor of the final report.

Table 7
Burden and Costs Savings from the Discontinuation of the HD AB&T End-of-the-Year Report

HD AB&T	Number of Respondents	Labor Cost/Year	Capital Startup Costs	O&M Cost	Total Hour/Year	Total Cost/Year
Current Inventory ICR 1684.20, IC #1 Certification	16	\$192,223	\$0	\$800	2,464	\$193,023
Estimated Savings from Discontinuation of the end-of-year report: 40%	16	\$ (76,889)	\$0	\$ (320)	(986)	\$ (77,209)

In the case of Marine CI PLT, EPA is proposing to significantly reduce testing and reporting requirements. An analysis of the program shows that under the proposed testing rates respondents will need to perform about 22

test per year, a reduction of 30 tests per year in an industry of only 29 respondents many of whom are small businesses: a 60% reduction. Reporting rates are decreased from four per year to just one, a 40% decrease. Table 6 below approximates the burden and expense savings.

Table 8
Burden and Costs Savings from Changes to the MCI PLT Program

MCI PLT	Number of Respondents	Labor Cost/yr	Capital Startup Cost	O & M Cost	Total hr/yr	Total Cost/yr
Current Inventory ICR 1684.120, IC #1 Certification	29	\$661,223	\$0	\$511,307	8,900	\$1,172,530
Estimated Savings from this Action: 65%	29	\$ (429,795)	\$0	\$ (332,349)	(5,785)	\$ (762,144)

EPA is also proposing to discontinue HD engine Phase 2 in-use testing requirements beginning in MY 2027. Under current provisions, if an engine family selected for in-use verification fails eight out of 10 in-use tests (Phase 1), the manufacturer is required to test an additional 10 engines (Phase 2). The proposal seeks to establish fail/pass status with a maximum of 10 engines tested, the original limit of Phase 1, thus repealing Phase 2 provisions. While this proposal represents significant potential savings for respondents, EPA is not accounting for this reduction at this time because the burden associated with is not currently reflected in ICR 1864.20.

EPA is also proposing to add the new certification test cycles to in-use testing; therefore, EPA has accounted for the incremental testing burden in Table 3. As described in ICR 1684.20, every year EPA orders an average of 6 manufacturers to test one engine family each.

The proposed rule includes other potentially burden-reducing provisions, such as allowing manufacturers to carry across OBD data between engine and vehicle families if those families are sufficiently similar. EPA is not accounting for those reductions in burden yet as it is unclear at this time how many engine and vehicle families would qualify.

The proposal contains no changes to recordkeeping requirements. Despite the fact that ICR 1684.20 already accounts for recordkeeping, EPA has accounted for a modest amount of burden and cost related to the new testing requirements and data analysis.

Regarding the number of responses, it must be noted that the proposed rule amends responses (e.g., certification applications, AB&T reports, PLT reports) already accounted for in the programmatic ICRs, mainly ICR 1684.20. The proposed rule only creates one new type of report: an annual DF verification report to be submitted by each HD engine manufacturer (16 respondents) until their DF validation is complete (maximum of 8 years). In addition, EPA estimates that approximately 177 respondents from across industries may submit a special request (e.g., requests for test variances, policy determinations, etc.) during the first year of the rule, should it become final. Therefore, the estimated number of responses for this collection is approximately 193 (16 + 177). Including the responses already accounted for in other ICRs would duplicate the number of responses and artificially increase the burden in the total inventory of burden.

6(e) Bottom Line Burden Hours and Cost Tables*6(e)(i) Respondent Tally*

- Number of Respondents: 279
- Total Hours per Year: 24,214
- Total Labor Cost per Year: \$1,964,708
- Total Capital Costs per Year: 0
- Total O&M Costs per Year: \$3,729,550
- Total Costs: \$5,694,258

6(e)(ii) Government Tally

- Number of Respondents: 279
- Total Hours per Year: 5,720
- Total Labor Cost per Year: \$285,823
- Total Capital Costs per Year: 0
- Total O&M Costs per Year: \$103,500
- Total Costs: \$389,323

6(f) Reasons for change in burden

This is a new collection related to a proposed rule; therefore, there is a net increase of 24,214 in burden due to government action.

6(g) Burden Statement

¹The annual public reporting and recordkeeping burden for this collection is estimated to average 72 hours per respondent. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. EPA-HQ-OAR-2019-0055, which is available for online viewing at www.regulations.gov, or in person viewing at the Air and Radiation Docket in the EPA Docket Center (EPA/DC), WJC Federal Building West, Room 3334, 1301 Constitution Avenue, NW, Washington, D.C. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742. An electronic version of the public docket is

available at www.regulations.gov. This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select "search," then key in the Docket ID Number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Office for EPA. Please include the EPA Docket ID No. EPA-HQ-OAR-2019-0055 and OMB control number 2060-NEW in any correspondence.