

# Credit Allocations for Acquiring Alternative Fuel Vehicles

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## Preface

This document explains the U.S. Department of Energy’s (DOE) position under the Standard Compliance method of DOE’s Alternative Fuel Transportation Program (Program; 10 C.F.R. Part 490) regarding alternative fuel vehicle (AFV) credits and how to determine whether a vehicle is an AFV in the context of covered fleet acquisitions of certain electric drive vehicles, including:

- Neighborhood electric vehicles (NEVs)
- Light-duty hybrid electric vehicles (HEVs)
- Light-duty fuel cell electric vehicles (FCEVs)
- Medium- and heavy-duty HEVs
- Medium- and heavy-duty plug-in hybrid electric vehicles (PHEVs) <sup>1</sup>
- Medium- and heavy-duty FCEVs.

## Credit Allocation Summary

Under the Program, each light-duty vehicle that is an AFV and that a covered fleet acquires during a model year is either counted toward the fleet’s light-duty AFV-acquisition requirements or accorded one AFV credit as an excess acquisition. Once the fleet’s acquisition requirement has been met, each medium- or heavy-duty AFV acquisition is accorded one AFV credit as an excess acquisition. Consistent with DOE’s final rule under section 133 of the Energy Independence and Security Act of 2007 (EISA; Pub. L. No. 110- 140),<sup>2</sup> since Model Year (MY) 2014, a covered fleet that acquires a light-duty or medium- or heavy-duty HEV or FCEV that is not an AFV has been eligible for ½ AFV credit while an NEV acquisition has been eligible for a quarter of an AFV credit. A covered fleet, however, cannot earn AFV credit for medium- or heavy-duty vehicle acquisitions until the fleet has met its light-duty AFV-acquisition requirements.

## Background

To be considered an AFV under the Program, a “motor vehicle” must be one of the following:

1. A dedicated vehicle
2. A dual-fueled vehicle.

These terms are defined in 10 C.F.R. section 490.2. Definitions of the terms “fuel cell electric vehicle,” “hybrid electric vehicle,” “plug-in electric drive vehicle,” “medium- or heavy-duty electric vehicle,” “medium- or heavy-duty fuel cell electric vehicle,” and “neighborhood electric vehicle” can be found in 10 C.F.R. section 490.501.

A dedicated vehicle is a motor vehicle—regardless of its gross vehicle weight rating (GVWR)—that operates solely on one or more alternative fuels, and therefore *not* on conventional petroleum fuel (i.e., gasoline or diesel). A dedicated vehicle is an AFV under the Program. Examples of such AFVs include: (i) a light-duty or medium- or heavy-duty HEV or PHEV equipped with an engine that operates only on compressed natural gas (CNG); (ii) a light-duty or medium- or heavy-duty FCEV fueled only by hydrogen; or (iii) a light-duty or medium- or heavy-duty battery electric vehicle.

A dual-fueled vehicle is a motor vehicle—regardless of its GVWR—that is capable of operating on alternative fuel and also on gasoline or diesel. A dual-fueled vehicle, like a dedicated vehicle, is an AFV under the Program.

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<sup>1</sup> For DOE’s position on light-duty PHEVs, [https://epact.energy.gov/pdfs/hybrid\\_electric\\_and\\_low-speed\\_vehicles.pdf](https://epact.energy.gov/pdfs/hybrid_electric_and_low-speed_vehicles.pdf)

<sup>2</sup> See 79 FR 15881 (Mar. 21, 2014) (EISA section 133 final rule)

For a light-duty or medium- or heavy-duty HEV equipped with a conventional gasoline or diesel engine to be a dual-fueled vehicle, and thus an AFV, the engine must also be capable of operating on liquid or gaseous alternative fuel, whether in flex fuel or bi-fuel mode.<sup>3,4</sup> Similarly, a light-duty or medium- or heavy-duty FCEV is a dual-fueled vehicle, and thus an AFV, if the vehicle's fuel cell can be fueled by an alternative fuel (e.g., hydrogen) and also by gasoline or diesel.

## Medium- and Heavy-Duty Plug-in Hybrid Electric Vehicles

A medium- or heavy-duty PHEV equipped with a conventional gasoline or diesel engine is a dual-fueled vehicle, and hence an AFV under the Program. As with other medium- and heavy-duty AFVs (e.g., battery electric vehicles and FFVs), AFV credit is not accorded for the acquisition of these medium- or heavy-duty vehicles unless the fleet has already met its light-duty AFV-acquisition requirements.<sup>5</sup>

## Neighborhood Electric Vehicles

DOE does not consider an NEV to be a "motor vehicle" under the Energy Policy Act of 1992, as amended (EPAAct).<sup>6</sup> Because it can never be driven on highways, an NEV also does not qualify as an "automobile" as that term is defined under the Program. Consequently, although they do not use any petroleum (i.e., they operate solely on electricity), NEVs are not AFVs. At the same time, however, NEVs that a covered fleet acquires do not count as light-duty vehicle (LDV) acquisitions under Standard Compliance and, as a result, reduce the fleet's AFV-acquisition requirements if the NEVs are acquired in lieu of non-excluded LDVs.

Since MY 2014, the acquisition of an NEV has been eligible for ¼ AFV credit. To obtain credit, a fleet must include the following vehicle-specific information in its credit activity report, as specified in 10 C.F.R. section 490.508(b):

- Vehicle make and model
- Model year of manufacture
- Vehicle identification number
- Acquisition date.

In addition, covered fleets are encouraged to employ NEVs as a petroleum-reduction strategy under the Program's Alternative Compliance option.

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<sup>3</sup> A flexible fuel vehicle (FFV) is a motor vehicle that can operate on any mixture of two or more different liquid fuels, at least one of which is an alternative fuel. Virtually all of the FFVs on the road today can operate on gasoline, E85, and any mixture of these fuels. A bi-fuel engine is an engine that can operate on two fuels, of which one is an alternative fuel, but not at the same time. For example, a bi-fuel engine might be an engine that can operate on either gasoline or CNG but not on both at the same time. Vehicles equipped with such engines typically have a separate fuel storage system for each fuel.

<sup>4</sup> Unlike light-duty vehicles (see 49 C.F.R. § 538.5) Notably, there is no minimum driving range requirement applicable to the alternative fuel capability of medium- and heavy-duty vehicles.

<sup>5</sup> See 10 C.F.R. § 490.503(a)(2).

<sup>6</sup> Section 301(13) of EPAAct defines "motor vehicle" to have "the meaning given such term under section 216(2) of the Clean Air Act (42 U.S.C. 7550(2))." In interpreting section 216(2), which states that a "motor vehicle" is "any self-propelled vehicle designed for transporting persons or property on a street or highway," DOE defers to the U.S. Environmental Protection Agency, which has found that "[a] vehicle shall be deemed not a motor vehicle [and excluded from the Clean Air Act if it] cannot exceed a maximum speed of 25 miles per hour over level, paved surfaces . . ." 40 C.F.R. § 85.1703(a).

## Hybrid Electric Vehicles

### Current Light-Duty HEVs

With respect to the light-duty HEV models on the market as of the end of calendar year 2017, these LDVs (e.g., Toyota Prius, Honda Accord Hybrid) have not qualified and do not qualify as AFVs under the Program. All of these HEVs “obtain their electric power from their onboard conventional gasoline engine and energy captured through regenerative braking.”<sup>7</sup> Because they cannot operate without gasoline, they do not qualify as dedicated vehicles. They also do not qualify as dual-fueled vehicles, for two reasons. First, the electricity that can propel them—at low speeds for short distances—is not derived from an off-board source (e.g., the electric grid). Second, all the past or presently available HEV models lacked/lack an engine that is capable of operating on liquid or gaseous alternative fuel.<sup>8</sup>

Since MY 2014, the acquisition of a light-duty HEV that is not an AFV has been eligible for ½ AFV credit. To receive credit, the following vehicle-specific information must be included in a fleet’s credit activity report:

- Vehicle make and model
- Model year of manufacture
- Vehicle identification number
- Acquisition date.

### Future Light-Duty HEVs

For any future (i.e., not yet commercially available) light-duty HEV model, unless it qualifies as an AFV because it has an engine that operates solely on alternative fuel (e.g., CNG), the dual-fueled vehicle definition will be key. Whether a future light-duty HEV equipped with a conventional petroleum engine will qualify as a dual-fueled vehicle and, hence, an AFV, will depend on whether the engine can operate on liquid or gaseous alternative fuel, either in flex fuel or bi-fuel mode. As previously indicated, a covered fleet that acquires a light-duty HEV that is not an AFV is eligible for ½ AFV credit.

Given the Program’s regulatory framework, set forth above and explained in detail in DOE’s final rule under EISA section 133, for any future light-duty HEV, it must be clear to DOE that the vehicle qualifies as an AFV *before* DOE will count it towards the fleet’s AFV-acquisition mandate (or, if applicable, accord the vehicle 1 AFV credit as an excess acquisition) rather than allocate ½ AFV credit for a non-AFV HEV acquisition. Publicly available information provided by automobile manufacturers typically indicates whether a vehicle has either an engine that operates solely on a liquid or gaseous alternative fuel (thus making it a dedicated vehicle) or one that can operate on petroleum as well as on a liquid or gaseous alternative fuel (thus making it a dual-fueled vehicle), and DOE will have access to that information. Fleet managers may check on whether their vehicle is an AFV using DOE’s Alternative Fuel and Advanced Vehicle Search at (<https://afdc.energy.gov/vehicles/search/>).

### Medium- and Heavy-Duty HEVs

As indicated above, medium- and heavy-duty HEVs equipped with an engine that operates solely on liquid or gaseous alternative fuel are dedicated vehicles while medium- and heavy-duty HEVs equipped with an engine that operates on liquid or gaseous alternative fuel as well as on conventional petroleum fuel are dual-fueled vehicles. When acquired under the Program, these medium- and heavy-duty AFVs are treated as excess AFV acquisitions once the covered fleet has met its light-duty AFV-acquisition requirements, with the fleet banking the resulting AFV credit.

Since MY 2014, a medium- or heavy-duty HEV that is not an AFV has been eligible for ½ AFV credit. As with medium- and heavy-duty AFVs, credit is not allocated unless the fleet has already met its light-duty AFV-

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<sup>7</sup> 75 FR 58078, 58104 (Sept. 23, 2010).

<sup>8</sup> See 76 FR 67288, 67293 (Oct. 31, 2011) (EISA section 133 proposed rule).

acquisition requirements. To obtain credit, a fleet must include the following vehicle-specific information in its credit activity report:

- Vehicle make and model
- Model year of manufacture
- Vehicle identification number
- Acquisition date.

In addition, covered fleets are encouraged to employ non-AFV light-duty and medium- and heavy-duty HEVs as a petroleum-reduction strategy under the Program's Alternative Compliance option. DOE also encourages the voluntary use of non-AFV light-duty HEVs for that portion of a covered fleet's LDV acquisitions that does not need to be AFVs because such vehicles typically are more energy efficient than the conventional LDVs they replace.

## Fuel Cell Electric Vehicles

As indicated above, a light-duty or medium- or heavy-duty FCEV fueled solely by hydrogen is a dedicated vehicle, and hence an AFV, as is an FCEV that can be fueled by hydrogen and by conventional petroleum fuel (because it is a dual-fueled vehicle). Like other medium- and heavy-duty AFVs, these vehicle acquisitions are not treated as excess AFV acquisitions eligible for AFV credit until the covered fleet has met its light-duty AFV-acquisition requirements.

Since MY 2014, a light-duty or medium- or heavy-duty FCEV that is not an AFV (e.g., because its fuel cell is powered by gasoline or diesel only) has been eligible for ½ AFV credit. For medium- and heavy-duty vehicles, credit is not allocated unless the fleet has already met its light-duty AFV-acquisition requirements. To obtain credit, a fleet must include the following vehicle-specific information in its credit activity report:

- Vehicle make and model
- Model year of manufacture
- Vehicle identification number
- Acquisition date.

In addition, as with non-AFV HEVs, covered fleets are encouraged to employ non-AFV light-duty and medium- and heavy-duty FCEVs as a petroleum-reduction strategy under the Program's Alternative Compliance option. DOE also encourages the voluntary use of non-AFV light-duty FCEVs for that portion of a covered fleet's LDV acquisitions that does not need to be AFVs because such vehicles typically are more energy efficient than the conventional LDVs they replace.

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