NEW HYBRID VEHICLE/HYBRID VEHICLE CONVERSION ELIGIBILITY APPLICATION

This is an application for new hybrid vehicle/hybrid vehicle conversion manufacturers to have a hybrid vehicle make/model listed as eligible for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). This application must be completed and submitted to CARB, and the vehicle must receive written approval from CARB prior to the vehicle being eligible for a voucher.

The new hybrid vehicles/hybrid vehicle conversion vehicles identified in Appendix A of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) and Low NOx Engine Incentives administered through HVIP Implementation Manual are eligible for HVIP. Other hybrid vehicle make/models must fall into one of the following five categories to apply for HVIP-eligibility. This application is for (check box below that applies):

☐ A hybrid vehicle which is a physically equivalent version of an existing CARB-certified or HVIP-eligible vehicle (and may have a newer engine and/or vehicle model year). This hybrid vehicle utilizes the same make/model engine, hybrid system, emission control strategies, and other key components as the existing CARB-certified or HVIP-eligible vehicle. (Complete Parts I, II, III, and VI only) Please also include copies of CARB Executive Orders for the engine used in the existing HVIP-eligible vehicle and the vehicle requested to become HVIP-eligible.

☐ A hybrid vehicle of greater than 14,000 lbs gross vehicle weight rating (GVWR) which is certified by the California Air Resources Board (CARB).
(Complete Parts I, II, III and VI only)

☐ A hybrid vehicle over 14,000 lbs GVWR which falls in none of the categories identified above (Complete all parts of this application)

☐ A hybrid vehicle from 8,501 to 14,000 lbs GVWR which is CARB-certified to be sold in California. (Complete Parts I, II, III, and VI only)

☐ A hybrid vehicle conversion that has obtained a CARB aftermarket parts certification and free from additional conditions (Complete all parts of this application).

This application must be completed by the original vehicle manufacturer or its legal representative. An application must be submitted for each combination of vehicle engine and model years (i.e. a 2015 MY vehicle with a 2014 MY engine and one with a 2015 MY engine require separate applications) and for each distinct GVWR range identified in Table 5, Table 8 or Table 9 of the Implementation Manual (i.e. separate applications are required for a 14,001 to 19,400 lbs GVWR vehicle and a 19,501 to 26,000 lbs GVWR vehicle). CARB reserves the right to request additional information or clarification of responses provided in this application. CARB may require additional information from the

vehicle manufacturer or Final Stage Vehicle Manufacturer before listing a vehicle as eligible for funding.

Part I: Original Manufacturer Information

1. Company Name/Organization Name/Individual Name:		
2. Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone:	E-mail:	

Part II: Vehicle Description

Please identify the hybrid vehicle and its baseline (non-hybrid) equivalent in Tables 1 and 2, respectively. These vehicles must be of the same make, model, drive configuration (4 x 2 or 4 x 4), frontal area, and gross vehicle weight and use the same CARB-certified engine.

Table 1: Hybrid Vehicle Information

Vehicle MY	**Engine MY**	**Hybrid Vehicle Description** (vehicle type, vehicle model, drive configuration (4 x 2 or 4 x 4), frontal area, engine model, and hybrid system)	**Gross Vehicle Weight Range**

Table 2: Baseline Vehicle Information

Vehicle MY	**Engine MY**	**Equivalent Non-Hybrid Vehicle Description** (vehicle type, vehicle model, drive configuration (4 x 2 or 4 x 4), frontal area, and engine model)	**Gross Vehicle Weight Range**

What is the typical California pre-tax cost of the hybrid vehicle (identified in Table 1) with normal dealer profit?

$_____

What is the typical California pre-tax cost of this equivalent baseline vehicle (identified in Table 2) with normal dealer profit?

$_____

Potential Voucher Enhancements (hybrid vehicle conversions not eligible, please check Yes or No)

a. Manufacturer requests approval of exportable power option (per Section D(5)(f) of the and Low NOx Engine Incentives administered through HVIP Implementation Manual). ☐Yes ☐No
b. Manufacturer requests approval of extended warranty option (per Section D(5)(g) of the and Low NOx Engine Incentives administered through HVIP Implementation Manual). ☐Yes ☐No

Part III: Self-Certification of Hybrid Vehicle and Engine Parameters
Please check the box next to each statement if the statement is correct. **Do not check the box if the statement is not correct.**

☐ This vehicle utilizes a CARB-certified engine.

Engine Model Year: _____ Engine Family:_____
CARB Executive Order Number: _____

Engine type (check one):
☐ Light-heavy duty engine
☐ Medium-heavy duty engine
☐ Heavy-heavy duty engine
☐ Other (please describe):_____

☐ The vehicle draws propulsion energy from both of the following on-vehicle sources of stored energy: 1) consumable fuel, and 2) a rechargeable energy storage system.

☐ If the vehicle is a new hybrid vehicle (identified in Table 1), the vehicle must achieve at least a 30 percent fuel economy benefit relative to its equivalent baseline vehicle (identified in Table 2) as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html) or other CARB approved procedure. CARB suggests that manufacturers follow the procedure outlined in ITR once final approval of the regulation occurs to determine the 30 percent fuel economy benefit relative to the equivalent baseline vehicle.

☐ If the vehicle is a hybrid vehicle conversion (identified in Table 1), the vehicle must achieve at least a 20 percent fuel economy benefit relative to its equivalent baseline vehicle (identified in Table 2) as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html) or other CARB approved procedure. CARB suggests that manufacturers follow the procedure outlined in ITR once final approval of the regulation occurs to determine the 20 percent fuel economy benefit relative to the equivalent baseline vehicle.

☐ The vehicle complies with applicable air quality provisions of California and federal law.

☐ The vehicle complies with motor vehicle safety provisions of 49 USC Sections 30101 through 30169.

☐ The vehicle meets the original engine manufacturer's build requirements.

☐ The vehicle meets the HVIP minimum 3 year warranty requirements, as described in Section C(1)(a) of the HVIP and Low NOx Engine Incentives administered through HVIP Implementation Manual.

☐ The vehicle manufacturer agrees to the telematics requirement as stated in Section C(1)(k) of the HVIP and Low NOx Engine Incentives administered through HVIP Implementation Manual.

☐ No modifications have been made to the engine hardware or after-treatment device(s).

☐ No modifications have been made to the engine's original software calibrations.

☐ The hybrid vehicle operation does not change the engine's certified regeneration cycles/events for emission control devices such as filters.

☐ The emission control sensors or signals to or from the engine control module haven't been modified.

☐ There is at least one service provider for the hybrid vehicle in California. Please provide name and city of primary service provider: _____

☐ This vehicle's electric drive or software calibrations shall be installed or modified at a Truck Equipment or Final Stage Manufacturer (TEM). If answer is "yes", please indicate:

Truck Equipment Manufacturer Name:			
Contact Name and Title:			
Street Address:		State:	Zip Code:
Phone:	E-mail:		

Part IV: Application Attachments to be Provided by Original Vehicle Manufacturer

- If any of the statements in Part III are not true and correct (i.e., if any of the boxes above are not checked), please attach a narrative explaining why.
- For new hybrid vehicles over 14,000 GVWR, provide information that the vehicle is a CARB certified hybrid. If the vehicle is not CARB certified, then provide in-use or chassis dynamometer criteria testing data to ensure the hybrid vehicle does not

result in increased NOx emissions compared to an equivalent baseline vehicle. Only vehicles for which the hybrid platform, engine, and after-treatment system continue to function as required will be approved. NOx emissions data resulting from in-use or chassis dynamometer testing must demonstrate no increase in NOx emissions compared to an equivalent baseline vehicle.

- If requesting HVIP approval of exportable power option, provide manufacturer's vehicle marketing flyer, including vehicle and exportable power specifications and justification for export power usage in proposed vehicle vocation.
- Minimum warranty provisions.
- After sales service provisions.
- MSRP price sheets.
- If requesting HVIP approval of extended warranty option, provide copy of warranty and originally signed letter on manufacturer letterhead committing to meet, at a minimum, warranty requirements identified in HVIP and Low NOx Engine Incentives administered through HVIP Implementation Manual Section D(5)(g).
- For plug-in hybrid vehicles only, provide proof of compliance with the all-electric range requirements identified in Section C(2)(j) of the HVIP and Low NOx Engine Incentives administered through HVIP Implementation Manual.
- Briefly describe what information is provided to hybrid vehicle dealers/purchasers regarding proper disposal of the hybrid vehicle battery and how this information is conveyed.

Part V: Minimum Requirements for Emissions Testing

New hybrid and hybrid vehicle conversion manufacturers unwilling to pursue full vehicle certification shall conduct in-use (Portable Emissions Measurement System (PEMS) or chassis dynamometer emissions testing to ensure the hybrid vehicle does not result in increased NOx emissions compared to the equivalent baseline (non-hybrid) vehicle. The emission testing of a hybrid vehicle and the comparable baseline vehicle following the same emission test method is referred to as A to B testing, and will be required using PEMS or dynamometer testing. Vehicles will be required to present a PEMS or chassis dynamometer testing plan that identifies duty cycle, testing parameters, and third-party or manufacture testing. CARB will review and approve the testing plan. Once testing is complete, the vehicle manufacture shall submit all test data along with a completed HVIP application to the CARB project liaison. Before HVIP eligibility is granted, CARB will review test data and will verify that no increase in NOx occurred and all HVIP requirements have been satisfied. For hybrid vehicles, achieving zero-emission range, emission testing must occur while the engine is running.

A. Portable Emissions Measurement System (PEMS) Testing

Manufacturers wishing to use PEMS testing for HVIP eligibility must propose a PEMS testing protocol to CARB for approval. The A to B emission testing of a hybrid vehicle and the comparable non-hybrid vehicle (also known as the baseline vehicle) following the same emission test method will be required. For the purposes of HVIP eligibility, the use of PEMS measurement instrumentation is an option in On-Road testing in lieu of Chassis Dynamometer screening for new hybrid and hybrid vehicle conversion manufacturers to

demonstrate that vehicles will not increase NOx emissions compared to a comparable non-hybrid baseline. If a manufacturer would like to pursue Chassis Dynamometer A to B emission testing screening, please refer to Section 1 of the most recent amended version of the *CALIFORNIA INTERIM CERTIFICATION PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HYBRID-ELECTRIC AND OTHER HYBRID VEHICLES, IN THE URBAN BUS AND HEAVY-DUTY VEHICLE CLASSES* document. Only testing of NOx emissions are required.

The following test requirements will need to be addressed in the proposed testing protocol:

1. The manufacturer must determine, using good engineering judgement, the two defined routes for the two drive cycles (Urban Drive Cycle and Rural/Intracity Drive Cycle). Each drive cycle will require two runs of the hybrid vehicle and two runs of the baseline vehicle. The first test will require the hybrid and baseline vehicles to be fully loaded, and the second test will require the hybrid and baseline vehicles to be partially loaded as defined below. In total, four hybrid vehicle test runs and four baseline vehicle test runs per HVIP eligibility application will be required. All testing must occur on asphalt or concrete.
    a. Urban Drive Cycle: The Urban Drive Cycle represents activity of vehicles with lower vehicle miles traveled (VMT) and average speed with significant stop and start activities.
        i. Speeds not to exceed 35 miles per hour (mph).
        ii. At a minimum, 20 stops with idling time of 5 minutes representing deliveries. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).
        iii. At a minimum, 15 stops representing stop signs, traffic lights and traffic. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).
    b. Rural/Intracity Drive Cycle: Rural/Intracity Drive Cycle represents activity of vehicles with high VMT with higher average speed marked by a combination of urban and highway traffic.
        i. Vehicles must travel at 55 mph (±5 mph) for no less than 20 minutes.
        ii. At a minimum, 10 stops with idling time of 5 minutes representing deliveries. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).
        iii. At a minimum, 7 stops representing stop signs, traffic lights and traffic. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).

2. Both test vehicles (hybrid and baseline) must accrue at least two hours of engine operation per drive cycle including vehicles with zero-emission range.
3. Both test vehicles (hybrid and baseline) must be fully loaded (100 percent of payload) for each drive cycle. After both drive cycles have been completed with the fully loaded vehicles, then both test vehicles (hybrid and baseline) must complete each drive cycle partially loaded (50 percent of payload).
4. The hybrid and baseline vehicles must follow the same pre-determined routes. A side-by-side (lead-following) comparison is preferable; thus, the same weather conditions will be observed for both vehicles. If a manufacturer cannot perform side-by-side testing, the manufacturer may present to CARB a justification explaining why side-by-side testing cannot be accomplished.
5. The PEMS must be properly calibrated, used and maintained, as required by 40 CFR Part 1065 Subpart J, and as recommended by the PEMS manufacturer.
6. In order to ensure test repeatability, consistency of results and data quality, weather conditions must be recorded (e.g., weather data collection, variation in weather conditions between tests and between test segments, etc.). The ambient temperature levels encountered by the test vehicles shall be no less than 40 º F and no greater than 100 º F, and shall change no more than 30 º F during a test. Ambient temperatures shall be recorded at the beginning and end of the test period. Testing can be conducted at any humidity level; however, an optimal range is between 35 percent and 75 percent relative humidity. Testing shall occur when wind speeds are at or below 12 mph, with gusts no greater than 15 mph.

The data from all four test run pairs (hybrid and baseline vehicles) must be submitted to CARB. CARB will evaluate all four test runs. However, if one of the four test run pairs demonstrated that the hybrid vehicle produced more NOx over the baseline test vehicle, CARB will evaluate three of the four test run pairs and disregard the pair containing the hybrid that produced excessive NOx compared to the baseline vehicle. In order for the hybrid vehicle to be HVIP eligible, no increase of NOx may occur in three of the four test run pairs, and the vehicle must meet all other HVIP requirements as stated within the Implementation Manual.

At any time, CARB has sole discretion to modify these requirements.

B. Chassis Dynamometer Testing

Manufacturers that choose chassis dynamometer testing may perform A to B testing using Section 1 of the most recent amended version of the *CALIFORNIA INTERIM CERTIFICATION PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HYBRID-ELECTRIC AND OTHER HYBRID VEHICLES, IN THE URBAN BUS AND HEAVY-DUTY VEHICLE CLASSES* document or other CARB approved test procedure. Only testing of NOx emissions are required. Please refer to the following CARB website, Heavy-Duty Hybrid Electric Vehicle Certification Procedures for additional information (www.arb.ca.gov/msprog/onroadhd/hdhev/hdhevtesting/hdhevtesting.htm).

For A to B testing, manufacturers may elect to use the dynamometer testing performed for aftermarket parts certification as part of the test for hybrid vehicle conversions. The conventional vehicle must then be tested using the same drive cycles and test procedure used during certification.

Part VI: Applicant Signature

I certify under penalty of perjury that all information provided in this application and any attachments are true and correct.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:
City:	State: