HVIP Funding Board Comments December 7, 2020

# Company Comments

**Company Name: GreenPower Motor Company**

**Company Vision:** Advancing the adoption of electric vehicles by making battery-electric buses and trucks affordable, durable, and the most efficient.

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**Company Website:** [greenpowerbus.com](http://www.greenpowerbus.com/)

**Locations: Headquarters:** Vancouver, British Columbia, Canada

**Manufacturing Facility:** Porterville, California

**Sales and Administration Office:** Rancho Cucamonga, California

**Deliveries:** GreenPower has delivered **ninety-seven (97)[[1]](#footnote-1)** heavy and medium duty electric vehicles that include its EV Star Mini Bus, the EV250 and EV350 Transit Buses, Synapse School Bus, and EV Double-Decker Bus.

**Company Overview:**

GreenPower Motor Company (GP) is a zero emissions electric bus manufacturer that offers a full line of purpose-built battery-electric vehicles that cater to the transportation needs of public transit agencies, school districts, and private sector transit and shuttle operations. GreenPower was founded in 2010 with the purpose of bringing the most compelling zero emissions buses to market. In fact, GreenPower is the only manufacturer in North America that produces electric buses for transit, shuttle, tourist, and school operations.

The EV Stars (Class 4), GreenPower’s flagship model, have successfully been delivered to the Port of Oakland, UC San Francisco, the Sacramento Regional Transit District (SacRT), and the San Diego Airport Parking Company as well as others.

GreenPower designs, builds, markets, and supports electric vehicles that not only meet the operational demands of transporting passengers; our vehicles do so with unmatched safety, durability, and efficiency.

GreenPower’s buses are designed to be the most reliable vehicle of its class on the road. GreenPower has spent considerable time and money to ensure that all the systems in our electric buses use reliable and use state of the art components. The majority of these components have been sourced from manufacturers who have years of applicable experience in the manufacture of transit vehicles.

GreenPower’s electric buses well exceed any environmental compliance standards and safety regulations.

GreenPower has spent a considerable amount of time and resources in developing its production and supply chain vendors and processes to have a streamlined procedure with quality parts while aiming to achieve a highly efficient performing product.

# Background:

# Regulations supporting the acceleration of the MHD sector to Electrify all Fleet Vehicles beginning at Class 2 to Class 8 Commercial Trucks and Buses.

# Governor Gavin Newsom on 9-23-20

# Announced that he will aggressively move the state further away from its reliance on climate change-causing fossil fuels while retaining and creating jobs and spurring economic growth – he issued an executive order requiring sales of all new passenger vehicles to be zero-emission by 2035 and additional measures to eliminate harmful emissions from the transportation sector. It shall be a further goal of the State that 100 percent of medium- and heavy-duty vehicles in the State be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks.[[2]](#footnote-2)

1. **The ZEV Power Train Certification (ZEVPC) Resolution 19-15** [[3]](#footnote-3)

Staff believes the vehicles that would be targeted by these measures operate in applications that are well-suited, both technically and economically, for the first launch of zero-emission technologies in the heavy-duty sector. In fact, the proposal for the Innovative Clean Transit Regulation was presented at the Board’s September 2018 hearing and the proposal for the Zero-Emission Airport Shuttle Regulation was considered at the same February 2019 and June 2019 hearings as this regulatory action. That said, the heavy-duty zero-emission industry is still relatively new and thus is subject to many of the issues associated with any emerging market. For example, there is still substantial variability in vehicle quality and support; purchasers are still relatively unfamiliar with zero-emission technology and its operational impacts; and there is limited historical information available by which to judge manufacturers. Given time, staff believes the market could eventually resolve these issues on its own. However, considering California’s near-term zero-emission goals, it is necessary to take actions today to help stabilize the industry as the state begins to roll out its suite of heavy-duty zero-emission measures. In order to provide this needed support, the regulatory action builds upon existing certification requirements set forth in California’s Heavy-Duty Phase 2 Greenhouse Gas Standards (Phase 2)8 for on-road heavy-duty electric and fuel-cell vehicles and establishes an alternative certification procedure that helps ensure such vehicles are well-supported once deployed and consistent and reliable information is available to fleets when making purchase decisions. In addition, the regulatory action establishes new standards with certification requirements for zero-emission powertrains installed in heavy-duty electric and fuel-cell vehicles that certify to the alternative procedure. Specifically, the Zero-Emission Powertrain Certification Regulation (ZEPCert)

**APPENDIX E OF THE REGULATION STATES THE PURPOSE AND RATIONALE FOR EACH REGULATORY PROVISION**

The sections below highlight this purpose to ensure fleets have product that is reliable and safe in the Nascent MHD sector as there have been failures that can be avoided by the development and implementation of improvement in the technology.

**Section 3.1.3 of the California Provisions Purpose:**

The section is being added to the California Provisions to require manufacturers to make accessible on the vehicle information about the vehicle’s energy efficiency. Rationale: ***This requirement would allow fleets to compare the efficiency of different vehicle models and different vehicle operators[[4]](#footnote-4),*** which will facilitate fleet efforts to purchase the most-efficient vehicles and to maximize operator efficiency.

**Section 3.1.8 of the California Provisions**

Purpose: The section is being added to the California Provisions to require manufacturers to provide an attestation that the powertrain to be installed in the vehicle conforms to the design tolerances and performance specifications of all vehicle integration components. Rationale: Many heavy-duty battery-electric or fuel-cell vehicles sold to date were built by integrating an electrified powertrain into an existing vehicle driveline. ***Information staff gathered during the regulatory development process suggests that this build process has resulted in vehicle reliability issues[[5]](#footnote-5).*** This requirement is necessary because it would help ensure, especially in these cases, that manufacturers adequately assess the suitability of existing vehicle components before integrating a zero-emission powertrain.

**[Chapter 1. Motor Vehicle Pollution Control Devices](https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I88D727F0D46911DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)" \t "_blank)**

**[§ 1956.8. Exhaust Emissions Standards and Test Procedures -1985 and Subsequent Model Heavy-Duty Engines and Vehicles](https://govt.westlaw.com/calregs/Document/I6D9662602DDD11E197D9B83B68A61150?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)" \t "_blank)**, **13 CA ADC § 1956.8 [[6]](#footnote-6)**

(B) Phase-in Options.

(8) Zero-Emission Powertrain Certification Standards. Model Year (MY) 2021 and subsequent MY all-electric and hydrogen fuel-cell powertrains used in heavy-duty vehicles (over 14,000 pounds gross vehicle weight rating) and incomplete medium-duty vehicles (from 8,501 through 14,000 pounds gross vehicle weight rating) may be certified in accordance with the “California Standards

 and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains,” as adopted June 27, 2019, which is hereby incorporated by reference herein. Powertrains certified using these procedures shall be deemed to have exhaust emissions of zero for any criteria pollutant or greenhouse gas.

(i) Definitions Specific to this Section. The following definitions apply to this section 1956.8.

(12) “Zero-emission powertrain” means an all-electric or hydrogen fuel-cell powertrain assembly, which includes (if applicable) the electric traction motor, system controller, generator, on-board charger, battery management system, thermal management systems, energy storage system (batteries, capacitors, and flywheels), inverter, fuel-cell stack, and the interface at which electrical power is converted to tractive mechanical power or vice-versa (in the case of a regenerative braking system), certified pursuant to the requirements in subsection (a)(8).

# Fleet Vocations facing ZEV regulations

Subarticle 14. Zero-Emission Airport Shuttle Regulation, Resolution 19-16 [[7]](#footnote-7)

Article 4.3. Innovative Clean Transit[[8]](#footnote-8)

Advanced Clean Truck Regulation , [Resolution](https://ww3.arb.ca.gov/regact/2019/zepcert/res19-15.pdf)20-19[[9]](#footnote-9)

[**Title 40** - Protection of Environment](https://www.law.cornell.edu/cfr/text/40), [CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY](https://www.law.cornell.edu/cfr/text/40/chapter-I), [SUBCHAPTER U - AIR POLLUTION CONTROLS](https://www.law.cornell.edu/cfr/text/40/chapter-I/subchapter-U), [PART 1037 - CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES](https://www.law.cornell.edu/cfr/text/40/part-1037)

[Subpart I - Definitions and Other Reference Information](https://www.law.cornell.edu/cfr/text/40/part-1037/subpart-I)

1. **§ 1037.801 Definitions[[10]](#footnote-10)**

**Good engineering judgment** has the meaning given in [40 CFR 1068.30](https://www.law.cornell.edu/cfr/text/40/1068.30). See [40 CFR 1068.5](https://www.law.cornell.edu/cfr/text/40/1068.5) for the administrative process we use to evaluate [good engineering judgment](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=18ac409bb6075dcb58a6fcbac250edc2&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801).

**Greenhouse gas Emissions Model (GEM)** means the [GEM](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=c6f557c5f5644aa8d405d7f1a20826d7&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801) simulation tool described in [§ 1037.520](https://www.law.cornell.edu/cfr/text/40/1037.520) (incorporated by reference in [§ 1037.810](https://www.law.cornell.edu/cfr/text/40/1037.810)). Note that an updated version of [GEM](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=c6f557c5f5644aa8d405d7f1a20826d7&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801) applies starting in [model year](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=604b9ea6e7f4f57c08d1d0225edfbd7c&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801) 2021.

**Gross vehicle weight rating** (GVWR) means the value specified by the [vehicle](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=3db168f6780894216d8277b49a0609c1&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801) [manufacturer](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=07c599c2787f390bd22f68ab7635b7b5&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801) as the maximum design loaded weight of a single [vehicle](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=3db168f6780894216d8277b49a0609c1&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801), consistent with [good engineering judgment](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=18ac409bb6075dcb58a6fcbac250edc2&term_occur=999&term_src=Title:40:Chapter:I:Subchapter:U:Part:1037:Subpart:I:1037.801).

# Covid-19 Impact son Transportation

**California industry un-employment rate, Year Over Year differences as of August 2020[[11]](#footnote-11):**

Due to the recent change in the economy the Labor force decline has substantially impacted ***Transportation*** which further supports a reasonableness for support of funding. As of Aug. 2020, San Diego’s unemployment rate is 9.9% and Imperial County (bordering neighbor) is 22.9%, the highest in the State. 2nd is Los Angeles at 16.6%.

**California Transportation industry employment, Year Over Year differences as of August 2020:**

Motor Vehicle Manufacturing -48%, Auto Rental -22%, Trucking -9.75%, Auto Dealer -12.5% & other -16%, Gasoline Stations -9.9%, Hospitality -32%. For **Resource** see: State of California, EDD Labor Force and Unemployment Interactive Map.

# HVIP OEM’s as per Mapping tools year over year[[12]](#footnote-12)

# Quality, Reliability and Standards should be supported in the Funding Tables as modification as recommended below by GP should be implemented to support all the above.

# Recommended Modifications to the Funding Table and HVIP by GP

1. Plus-up option for durability testing such as Altoona
2. Plus-up on Advanced charging integration such as Wireless
3. Higher Funding Table for small business and minority business facing ZEV mandated regulation by a vocation (Transit, Airport Shuttle, Drayage)
4. Higher Funding Table for OEM's testing and certifying to resolution 19-15 the ZEV Powertrain Cert.  Should incent higher performing standards and support of the technology to implement failure remedies while capturing more data about the technology.
5. Create a higher incentive CAP for ZEV OEM's that demonstrate high deliverable volumes in the program (GP is #2 behind BYD).
6. Correct the Tables and consider the vehicles by Class and Efficiency not just weight or size.  Compare vehicles in Classification by Curb Weight & kWh battery capacity size to the results of the EV Efficiency & Range.  This determines reduced GHG on the grid, and a benchmark for kWh/mile for the EV efficiency by Class.  This will establish a benchmark for the technology.  Highly efficient technology should be incented over building larger and heavier vehicles that do not achieve a good economy for its Classification and Application.  Without setting a standard for efficiency--- EV vehicles may not be developed with the same benefits as other OEM's accomplish and could be higher to operate by the mile.   EV technology should aim to achieve EV efficiency standards the same as SAFER or CAFE economy has historically achieved.
7. The purpose of the program is to support the investment by reducing the incremental cost and for the fleet to have a benefit when driving the technology.  Societal benefits are achieved from better air quality.  Higher performing and reliable vehicles by OEM's that are trusted is a key purpose for the ZEV PT Cert which begins 2021 and there should be alignment to support higher standards by OEM"s as fleets expect durability, reliability and efficiency in their commercial vehicles.

# Conclusion

Thank you for this opportunity.

Sincerely,

Lisa McGhee

1. HVIP Mapping tools effective 11-30-20. GP has delivered 97 EV MHD to date, the second behind BYD. [↑](#footnote-ref-1)
2. <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf> [↑](#footnote-ref-2)
3. <https://ww3.arb.ca.gov/regact/2019/zepcert/res19-15.pdf> and see

<https://ww3.arb.ca.gov/regact/2019/zepcert/uid.pdf> [↑](#footnote-ref-3)
4. Emphasis added by GP [↑](#footnote-ref-4)
5. Emphasis added by GP [↑](#footnote-ref-5)
6. https://govt.westlaw.com/calregs/Document/I6D9662602DDD11E197D9B83B68A61150?viewType=FullText&originationContext=documenttoc&transitionType=StatuteNavigator&contextData=(sc.Default) [↑](#footnote-ref-6)
7. https://ww3.arb.ca.gov/regact/2019/asb/res1916.pdf [↑](#footnote-ref-7)
8. https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IB28B357F6D914C079B5491D46E5D1F7E&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default) [↑](#footnote-ref-8)
9. https://ww3.arb.ca.gov/regact/2019/act2019/finalres20-19.pdf [↑](#footnote-ref-9)
10. https://www.law.cornell.edu/cfr/text/40/1037.801 [↑](#footnote-ref-10)
11. <https://www.labormarketinfo.edd.ca.gov/data/interactive-labor-market-data-tools.html> [↑](#footnote-ref-11)
12. See HVIP Attachment Tables downloaded from the Raw Data and tables created to obtain a snapshot of the results as these given time periods. [↑](#footnote-ref-12)