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SENT VIA USPS AND ONLINE:
http://SSFL.DTSC.commentinput.com
SSFL CEQA Comments
California Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

November 28, 2017

Draft Program Environmental Impact Report (PEIR) for the Santa Susana Field Laboratory Project (SCH No. 2013111068)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final PEIR.

SCAQMD Staff's Summary of Project Description and Air Quality Analysis

The Lead Agency proposes to remediate 2,850 acres of contaminated soil and groundwater at the Santa Susana Field Laboratory (Proposed Project). The Proposed Project is located in the southeastern most part of Ventura County and adjacent to Los Angeles County. Approximately 3.2 million cubic yards of contaminated soil are expected to be exported over a period of 10 to 15 years. While remediation and excavation activities will occur within the jurisdiction of the Ventura County Air Pollution Control District (VCAPCD), on-road mobile source emissions from the proposed project will primarily transverse the SCAQMD's jurisdiction. A daily maximum of 96 trucks are expected each day, resulting in 192 total trips[1]. In the Air Quality Section, the Lead Agency quantified the Proposed Project's construction and operational emissions and compared those emissions to SCAQMD's regional and localized air quality CEQA significance thresholds to determine the significance of air quality impacts in addition to comparing to VCAPCD's CEQA significance thresholds. Based on the analyses, the Lead Agency found that the Proposed Project's construction and operational air quality impacts from PM10 and PM2.5 emissions would be significant and unavoidable in SCAQMD after incorporating Mitigation Measures AQ-1, AQ-3, and GHG-2[2].

General Comments

On March 3, 2017, the SCAQMD's Governing Board adopted the 2016 Air Quality Management Plan (2016 AQMP)[3], which was later approved by the California Air Resources Board on March 23, 2017. Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and the challenges facing the South Coast Air Basin. The most significant air quality challenge in the Basin is to achieve an additional 45 percent reduction in nitrogen oxide (NOx) emissions by 2023 and an additional 55 percent NOx reduction beyond 2031 baseline emissions for ozone attainment.

The Proposed Project plays a role in contributing to Basin-wide NOx and PM emissions. As described above, achieving NOx emission reductions in a timely manner is critical to attaining the National Ambient Air Quality Standard (NAAQS) for ozone before the 2023 and 2031 deadlines. SCAQMD is committed to attaining the ozone NAAQS as expeditiously as practicable. To further reduce NOx and

[1] Draft PEIR. Section 3 – Project Description and Section 4.2.4.1 – Cleanup Emissions.
[2] Draft PEIR. Section 4.2.5.2 – Table 4.2-10 – Mitigated Overall Site Cleanup Emissions. Pages 4.2-39 and 40.
[3] South Coast Air Quality Management District. March 3, 2017. *2016 Air Quality Management Plan*. Accessed at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

PM emissions during construction and operation, Attachment A includes SCAQMD staff's comments on mitigation measures which the Lead Agency should include in the Final PEIR. Details regarding zero emission truck technologies are included in Attachment B.

Pursuant to Public Resources Code Section 21092.5 and CEQA Guidelines Section 15088, SCAQMD staff requests that the Lead Agency provide SCAQMD staff with written responses to all comments contained herein prior to the certification of the Final PEIR. SCAQMD staff is available to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Jack Cheng, Air Quality Specialist, CEQA IGR Section, at (909) 396-2448, if you have any questions regarding the enclosed comments.

Sincerely,

Michael Krause
Planning and Rules Manager
Planning, Rule Development & Area Sources

Attachment
MK:LS:JC
ODP170915-02
Control Number

ATTACHMENT A

COMMENTS ON THE DRAFT PEIR

Health Risk Assessment (HRA) Analysis

1. The HRA analysis involved the use of 300-meter grid placed over sensitive receptors located along the haul routes traveling through SCAQMD. SCAQMD staff recommends that the Lead Agency revise the HRA and use a receptor grid of no more than 100-meter spacing (pursuant to SCAQMD's AERMOD Modeling Guidance[4]) over the sensitive receptor areas starting at the property line in order to ensure that the maximum potential health impacts are properly analyzed and disclosed in the Final PEIR.

Mitigation Measures

2. CEQA requires that all feasible mitigation measures go beyond what is required by law to minimize any significant impacts. To further reduce the significant adverse construction and operational emissions, particular from NOx and PM, SCAQMD staff recommends the following changes to mitigation measures that the Lead Agency should include in the Final PEIR. Additional information on potential mitigation measures as guidance to the Lead Agency is available on the SCAQMD CEQA Air Quality Handbook website[5].

Recommended Changes to the Existing Mitigation Measures AQ-3 and AQ-4

3. Mitigation Measure AQ-3: Fugitive Dust Control

   The Lead Agency proposes to monitor and control fugitive dust emissions by measures prescribed by VCAPCD Rule 55 – Fugitive Dust. To further reduce PM emissions in SCAQMD, SCAQMD staff recommends incorporating additional particulate matter mitigation measures such as those identified in Tables 2 and 3 from SCAQMD Rule 403- Fugitive Dust[6] to supplement the existing Mitigation Measure AQ-3 and VCAPCD Rule 55. A combination of fugitive dust control strategies and limitations from SCAQMD Rule 403 and VCAPCD Rule 55 would ensure that fugitive dust emissions are minimized to the maximum extent feasible.

4. Mitigation Measure AQ-4: Soil Management Plan

   The Lead Agency proposes that soils shall be monitored and controlled by measures prescribed by VCAPCD Rule 74.29 – Soil Decontamination Operations. SCAQMD staff recommends that the Lead Agency incorporate the requirements from SCAQMD Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil[7] to supplement the existing Mitigation Measure AQ-4 and VCAPCD Rule 74.29. The combination of requirements from SCAQMD Rule 1166 and VCAPCD Rule 74.29 would ensure that ROCs emissions to the atmosphere are minimized to the maximum extent feasible.

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[4] SCAQMD's AERMOD Modeling Guidance.
http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/modeling-guidance
[5] SCAQMD CEQA Handbook. http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.
[6] SCAQMD Rule 403 – Fugitive Dust. http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.
[7] SCAQMD Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil.
http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1166.pdf.

Recommended New Mitigation Measures

5. SCAQMD staff recommends that the Lead Agency limit the daily number of trucks allowed at the Proposed Project to levels analyzed in the Final PEIR (i.e., 96 trucks or 192 total trips). If higher daily truck volumes are anticipated to visit the site, the Lead Agency should commit to re-evaluating the Project through CEQA prior to allowing higher activity level.

6. The Lead Agency included a discussion of the Feasibility of Alternative-Fueled Cleanup Equipment and Trucks in the Draft PEIR[8]. While the Lead Agency concluded that biogas, CNG/LNG, and ZE/NZE alternative fuel vehicles are not currently feasible for the Proposed Project, technology is transforming transportation at a rapid rate. As it continues to advance, the Lead Agency should take this opportunity to develop a pathway to ensure the deployment of the lowest emission technologies possible during the life of the Proposed Project (10 to 15 years). To facilitate this deployment, SCAQMD staff recommends that the Lead Agency assess equipment availability, equipment fleet mixtures, best available emissions control devices, and truck technologies every two years beginning two years after the Proposed Project is approved, and specify performance standards and implementation schedule for the technology assessment. The schedule for assessing and implementing truck technologies should be consistent with the timelines and goals of the 2016 AQMP since the proposed project could have an adverse impact in our region meeting the ozone attainment goals without the deployment of cleaner mobile source technologies.

[8] Draft PEIR. Appendix D – AQA Appendix – Section 9.

ATTACHMENT B

ZERO EMISSION TRUCK TECHNOLOGIES

Overview

Zero emission trucks, including heavy-duty trucks, are developing rapidly with some of the technologies ready for near-term deployments. Zero emission trucks can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or by "wayside" electricity from outside sources such as overhead catenary wires, as is currently used for light rail and some transit buses. All such technologies eliminate fuel combustion and utilize electric drive as the means to achieve zero emissions and higher system efficiency compared to conventional fossil fuel combustion technologies. Hybrid electric trucks with all-electric range (AER) can provide zero emission operations in certain corridors and flexibility to travel extended distances powered by fossil or renewable fuels (e.g. natural gas) or hydrogen for fuel cells. In collaboration with regional stakeholders and partners as well as leveraging funding support from both federal and state agencies, SCAQMD has been supporting a number of projects, as described below, to develop and demonstrate zero emission cargo transport technologies to promote and accelerate its market acceptance and deployment.

Overhead Catenary Truck Project

Project Description

Siemens Mobility is working with Volvo to integrate a pantograph system into a Class 8 heavy duty trucks. Siemens has designed and provided an adaptable pantograph system that will allow seamless connection and detachment from the catenary power source, while the vehicle is mobile. A catenary track of approximately one mile segment has been installed along Alameda Street in the city of Carson, extending north to south from E. Lomita Blvd to the Dominguez Channel. Corresponding with the operational range of the pantograph, two parallel catenary wires are installed above the roadway one mile in each direction. The connection to the grid occurs at the middle of the system where a power supply has been placed.

In addition to the Volvo truck, TransPower also developed and delivered two drayage trucks with catenary accessibility. The first truck is an existing vehicle that utilizes a battery electric drive system and has been converted to operate on the catenary system. The second truck is a CNG-hybrid truck that incorporates TransPower electric drive system on a major OEM chassis. TransPower has integrated pantographs and associated components into both vehicles. Specifically, they modified one truck currently being built with their electric drive system to operate on catenary power. The current electric truck has two 150 kW motors and 700 Ah battery pack (modified truck will have a 300 Ah battery pack). Integrating the pantograph system enabled the truck to operate on wayside power while also recharging the batteries. The second truck is new truck with a CNG hybrid drive system architecture that enables the vehicle to operate in three modes –battery-only, catenary and CNG to extend the operating range. The battery-only mode will allow the truck to have a short AER to operate without the engine for short durations while the CNG hybrid allows the truck to have regional applicability as well.

Cost

The incremental cost of the catenary battery electric truck over 8.9 L natural gas truck is approximately $250,000. This is based on limited production, however, and full production is anticipated to result in reduced costs.

Timeline and Commercialization
The project vehicles and infrastructure has been developed and is currently undergoing a 6-month demonstration with completion date by Q4 2017. Based on the project outcome, a Phase 2 demonstration with a longer track and subsequent commercialization may be considered.

TransPower Catenary Truck on the OCS Track

Volvo Catenary Truck

2012 DOE Zero Emission Cargo Transport Demonstration Project (ZECT I)

Project Description
With an award of approximately $4.2 million from the DOE in 2012, SCAQMD has contracted two local EV integrators, TransPower and US Hybrid, to develop and demonstrate a total of 11 zero emission capable heavy-duty drayage trucks, based on four different architectures, consisting of two battery electric vehicles and two plug-in hybrid electric drivetrains with AER capability. These trucks are deployed in real world drayage operations with fleet partners operating at the Ports of Los Angeles and Long Beach for demonstration up to two years. Vehicle performance and operational data is being collected and analyzed by National Renewable Laboratory (NREL) to evaluate both technical feasibility and market viability of the technologies to support drayage operations. The four demonstration technologies are summarized as follows:

Battery Electric Trucks (BETs)

a. TransPower developed four Class 8 BETs on International Prostar chassis, incorporating improvements and lessons learned from the operation of their prototype, ElecTruck. The drive system is powered by a dual motor unit, rated at 300 kW and the trucks are equipped with an innovative Inverter-Charger Unit (ICU) that combines the function of both vehicle inverter and battery charger. TransPower has installed an automated manual transmission with proprietary software to control the transmission shift mechanism, enabling operation in multiple gears to maximize vehicle efficiency. The battery pack can provide 215 kWh of energy to support 70-100 miles in operating range and can be fully recharged within 3 hours. These trucks have been in revenue service, meeting the daily duty cycle needs of the trucking companies.

b. US Hybrid also developed two BETs on International Prostar chassis. Each vehicle is equipped with a 320kW traction motor, powered by a 240 kWh battery pack with lithium-ion cells for highly efficient and reliable performance, capable of 70-100 miles of operating range per charge.

A 60 kW on-board charger is capable of fully recharging the truck within 3-4 hours. These trucks have also been in revenue service with local fleet operators.

Plug-In Hybrid Electric Trucks (PHETs)

c. Two Class 8 PHETs are being developed by TransPower with a targeted operating range of 150-200 miles, including 30-40 all-electric miles. The hybrid technology is based on the ElecTruck™ system TransPower has developed for their BETs, augmented with a CNG auxiliary power unit for extended range and power. TransPower is utilizing commercially available and widely used components, including Ford 3.7L CNG engine-generator, to ensure that these trucks are cost-competitive and well-positioned for commercialization. As in their BETs, these trucks are equipped with a 300 kW traction motor with an automated transmission. A 115 kWh battery pack on-board will support zero emission operations when traveling through the communities around the Ports that are heavily impacted by diesel traffic and activities.

d. US Hybrid is also developing three Class 8 PHETs for demonstration in this project. US Hybrid converted exiting LNG trucks with 8.9L ISLG engine into PHETs with all-electric range capability. The hybrid system is designed to provide comparable power and torque to those from larger Cummins 12L engines to support a full range of drayage operations. The trucks are capable of providing a combined power of 600 HP between the LNG engine and a 223 kW traction motor, with a targeted operating range of 250 miles, including 30-40 miles in all-electric range. Two of these trucks are currently deployed in drayage service with local fleet operators.

Cost

The incremental cost of the BETs over a natural gas truck is approximately $200,000, and the incremental cost of the PHETs is estimated to be around $250,000. These estimates are based on limited productions, and the costs are expected to be substantially reduced in larger volume production.

Timeline and Commercialization

Seven of the 11 demonstration trucks are currently in deployment with participating fleets at the Ports. The remaining trucks are expected to be deployed soon and the overall project will be completed by Q3 2018. Overseas truck OEMs have commercial products that are already eligible for incentive funding from the state, such as the HVIP, and other truck OEMs are anticipating commercialization pathways by 2019.

TransPower BETs

US Hybrid PHET

US Hybrid BET

2014 DOE Zero Emission Cargo Transport Demonstration Project (ZECT II)

Project Description

In August 2014, the SCAQMD received an award of approximately $9.7 million from the DOE to develop and demonstrate seven zero emission drayage trucks in real world drayage operations at the Ports of Los Angeles and Long Beach. Six of them will be of fuel cell range extended electric trucks and the remaining truck will be built on a hybrid electric drive platform using a CNG auxiliary power unit as described below:

Fuel Cell Range Extended Trucks (FCREs)

a. Under project management by Center for Transportation and Environment, Kenworth and BAE Systems are developing a battery electric truck with hydrogen fuel cell range extender. This project will leverage the expertise of BAE Systems to test their hybrid electric fuel cell propulsion system, currently used for transit buses, in drayage applications. The power output of the electric drivetrain is comparable to currently used Class 8 truck engines power output. AC traction motors will be mounted one on each rear drive axle and the electric drivetrain in the architecture is set up to be fully redundant. The vehicle will operate primarily from the batteries, engaging the fuel cell system only when the batteries reach a specified state of charge. BAE anticipates that the 30 kg of hydrogen (25 kg usable) will provide approximately 110 to 120 miles of range between re-fueling.

b. Hydrogenics will develop a hydrogen fuel cell drayage truck powered by their latest advanced fuel cell drive technology (Celerity Plus fuel cell power system) and Siemens' ELFA electric drivetrain, customized for heavy duty vehicle applications. The proposed fuel cell drayage truck is designed to be capable of delivering over 150 miles of zero emission operation with 10-15 minutes fast refueling of hydrogen. The fuel cell drivetrain will be customized, tested and optimized for port applications.

c. TransPower will develop two battery electric trucks with hydrogen fuel cell range extenders. The fuel cell range extender project is to use TransPower's proven ElecTruck™ drive system as a foundation and add fuel cells provided by Hydrogenics, one of the world's leading suppliers of hydrogen fuel cells. The Proposed Project will result in the manufacturing and deployment of two demonstration trucks, one with a 30 kW fuel cell and one with a 60 kW fuel cell, enabling a direct comparison of both variants. The higher power output of the 60 kW systems is expected to be better suited for trucks carrying heavy loads over longer distances that might exceed the average power capacity of the 30 kW systems. The system will store 25-30 kg of hydrogen

onboard based on an estimated 7.37 miles per kg fuel economy. TransPower's system also includes a bi-directional J1772-compliant charger that can recharge the vehicle batteries or provide power export.

d. U.S. Hybrid will develop two battery electric trucks with an onboard hydrogen fuel cell generator. U.S. Hybrid has been involved with fuel cell-powered vehicles for several years (including cargo vans, transit/shuttle buses and heavy-duty military vehicles) and believes the technology and product has reached maturity beyond feasibility and is ready for commercial demonstration deployment. The truck is powered by a lithium-ion battery with an 80 kW hydrogen fuel cell generator in charge sustaining mode, eliminating the need for charging. The fuel cell power plant is sized to sustain continuous operation based on average power demand for drayage applications. As a result, the battery size is significantly reduced, as is the required charging infrastructure. The proposed technology will provide a 150-200 mile range between refueling. Each truck will carry approximately 20 kg of hydrogen storage at 350 bar with an estimated fueling time of less than 10 minutes.

The fuel cell Class 8 trucks are expected to initiate demonstration at local trucking fleets over the next 3-18 months.

Plug-In Hybrid Electric Trucks (PHETs)

e. Under project management by Gas Technology Institute, Kenworth and BAE Systems will develop a PHET with a CNG range extender. The proposed technology is capable of providing a well-balanced blend of all electric and CNG-based hybrid operations. The electric drivetrain will be based on BAE Systems HybriDrive® Series (HDS) propulsion system hardware. The electric drivetrain will be capable of combined propulsion power output of 320 kW (430 hp) continuous using two AC traction motors. The power output of the electric drivetrain is comparable to currently used Class 8 truck engines power output. The truck will be designed to provide an operating range of 150 miles with 30 all-electric miles.

Cost

The incremental cost of the FCREs and the PHET over 8.9 L natural gas truck is estimated to be $250,000 or higher. These estimates are based on limited productions, and the costs will be substantially reduced in full production, and state incentives funds are anticipated for the trucks and associated refueling infrastructure.

Timeline and Commercialization

The demonstration phase of this project is expected to start by Q1 2018 with at least two trucks, one each from TransPower and US Hybrid. The project is set be completed by Q3 2019 and the commercialization of these truck technologies can be expected after 2019.

CARB Zero Emission Drayage Truck Demonstration Project

Project Description

SCAQMD received an award of approximately $23.6 million to develop and demonstrate zero emission drayage trucks under CARB's Low Carbon Transportation Greenhouse Gas Reduction Fund Investments Program in 2016. The project is to develop a total of 44 Class 8 drayage trucks based on a portfolio of most commercially promising zero- and near-zero emission truck technologies for statewide demonstrations, across a variety of real world drayage applications in and around the Ports of Long Beach, Los Angeles, Oakland, Stockton and San Diego, in collaboration with four other air districts: BAAQMD, Sacramento Metropolitan AQMD, SJVAPCD and SDAPCD. The SCAQMD has contracted with three major U.S. OEMs and an international OEM, with necessary resources and networks to support

future commercialization efforts, to develop and demonstrate four different types of battery and hybrid electric drayage truck technologies in this project, including: two battery electric platforms (BYD and Peterbilt), and two plug-in hybrid electric platforms (Kenworth and Volvo) as summarized below:

Battery Electric Trucks (BETs)

a. BYD, a global company with over $9 billion in revenue and 180,000 employees, will develop 25 battery electric drayage trucks for demonstration with multiple fleet partners across the state. The BET is optimized to serve near-dock and short regional drayage routes with a range of 70-100 miles, supported by 207 kWh batteries on board. The truck is designed to provide similar operating experience compared to equivalent diesel and CNG trucks with matching or exceeding power and torque, powered by two 180 kW traction motors. BYD will utilize 80 kW on-board charger to fully recharge the truck within 3-4 hours. These trucks are already eligible for incentive funds under CARB's HVIP.

b. Peterbilt, in partnership with TransPower, will develop 12 BETs in this project, building on a platform developed under the DOE ZECT I project, incorporating lessons learned from ongoing demonstrations to further refine and optimize the electric drive system. Eight trucks will be designed to provide 80 to 100 miles in range, powered by a 215 kWh battery pack to support near-dock drayage operations, and four longer range BETs will incorporate a new battery design that allows for 120 to 150 miles of operation per charge with a 311 kWh battery pack at the same system weight with similar volume as the 215 kWh battery pack. These longer range BETs will be well suited for regional drayage routes such as from port terminals to Inland Empire and from the Port of Oakland to Sacramento and the San Joaquin Valley.

Plug-In Hybrid Electric Trucks (PHETs)

c. Kenworth expands its partnership with the BAE Systems to develop four PHETs with natural gas range extenders, leveraging the prototype development under the DOE-funded ZECT II project. These vehicles will target longer regional drayage routes. The team will continue refining the hybrid drivetrain to provide a system that can operate in a zero emissions (all-electric) mode and in a conventional hybrid electric mode to meet customer range needs and flexibility. The powertrain includes a 200 kW genset using a recently-certified 8.9L NZ CNG engine and two AC traction motors that produce 320kW (430 hp) continuous, with comparable power output to what is typically found in Class 8 truck engines. The hybrid system will be designed for an operating range of 250 miles with approximately 30-40 miles of all-electric range to operate in zero emissions mode in sensitive areas and disadvantaged communities.

d. Volvo will build on the success of past projects to develop three commercially attractive, highly-flexible hybrid trucks, with all-electric mode capability for zero emission operations in the most heavily emissions-impacted communities. Volvo offers a unique approach to system-focused hybrid powertrain improvements, utilizing a suite of innovative technologies such as energy and emission optimized driveline controls; aerodynamics and weight improvements; vehicle energy management and driver coaching systems optimized for port drayage operation; and a complete suite of NOx reduction technologies, including engine and exhaust after-treatment innovations. Furthermore, Volvo, in partnership with Metro and UC Riverside, will also integrate ITS connectivity solutions, such as vehicle-to-infrastructure and vehicle-to-vehicle communication technologies, to improve dynamic speed harmonization and reduce idling, for better fuel economy and reduced emissions.

Cost

The incremental cost of the BETs over 8.9 L natural gas truck ranges from $150,000 to $200,000. No estimate is available for the Kenworth or Volvo PHETs. As noted earlier, the cost estimates are based on

limited production, and the costs are expected to be substantially reduced once these trucks reach a full-production phase.

Timeline and Commercialization
The demonstration phase of this project is expected to start by Q4 2017 with BYD trucks and the rest to follow over time throughout 2018 and 2019. This project is set be completed by Q2 2020 and the commercialization of these truck technologies can start as early as 2019 for BYD trucks with the rest taking place in the 2020-2021 timeframe.

BYD Prototype Drayage Truck

Volvo PHET

CEC Sustainable Freight Transportation Project

Project Description
SCAQMD recently received a $10 million award from the CEC under the Alternative and Renewable Fuel and Vehicle Technology Program to develop and demonstrate zero and near-zero emission freight transportation technologies. One of the awarded technologies is electric drayage trucks, to be built on the PowerDrive™ platforms developed by Efficient Drivetrains, Inc., (EDI), a global leader and innovator of advanced, high-efficiency electric drivetrains and vehicle control software.

Under project management by Velocity Vehicle Group, this project is to develop and demonstrate four electric drayage trucks, consisting of one BET and three PHETs, with EDI serving as the technical lead and vehicle integrator, and Freightliner providing necessary engineering resources and expertise in vehicle design and glider manufacturing. Both battery electric and hybrid electric drive platforms will be designed to meet end-user fleet requirements. The platforms will be also designed so that it can be easily integrated by post-production truck modification service companies and serviced by Freightliner dealerships. Based on the proposed technical concept, the BET will be capable of 100 miles in operating range and the PHETs will utilize Cummins 8.9L natural gas engine as a range extender to provide 250 miles in operating range per fueling with up to 35 miles in all-electric range.

Cost
Cost estimates are not available for these trucks but it is expected to be in line with other similar technologies, and the costs are expected to be substantially reduced once these trucks reach a wide-scale deployment and full-production phase.

Timeline and Commercialization
This project is to be completed by Q4 2020 and the commercialization of these truck technologies can be expected in the 2021-2022 timeframe.