

DOCKETED

Docket Number:	18-TRAN-01
Project Title:	School Bus Workshops
TN #:	224398
Document Title:	The Lion Electric Co. Comments Discussion Questions for July 24th Concept Workshop
Description:	N/A
Filer:	System
Organization:	The Lion Electric Co.
Submitter Role:	Public
Submission Date:	8/3/2018 1:59:22 PM
Docketed Date:	8/3/2018

Comment Received From: Marie Bedard
Submitted On: 8/3/2018
Docket Number: 18-TRAN-01

Discussion Questions for July 24th Concept Workshop

Additional submitted attachment is included below.



Discussion Questions for July 24th Concept Workshop

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Date of Submission: July 24, 2018



To: Mrs. Jessica Martinez

Re: School Bus Workshops

Date: July 24, 2018

Dear Mrs. Martinez,

The Lion Electric Co would like to thank the California Energy Commission for the opportunity to present our responses to the Discussions Questions for July 24th Concept Workshop. Below are detailed responses as well as additional information on Lion's experience with all-electric school buses.

About Lion

The Lion Electric Co. is an innovative manufacturer of zero emission vehicles. Since its foundation in 2008, Lion's mission has been to develop durable, integrated solutions while reducing its environmental footprint.

Always actively seeking new technologies, Lion vehicles have unique features that are specifically adapted to its users and their everyday needs. The Company believes that transitioning to all-electric vehicles lead to major improvements in our society, environment and overall quality of life.

LionC – all-electric Type C school bus

The LionC is a zero-emission solution currently available and on our roads. Lion already has hundreds of electric Type C school buses in North America with more than 2 million miles driven.

LionA – all-electric mini school bus

The LionA is a zero-emission mini school bus that is a viable solution with 150-mile range and can hold up to 30 passengers.

Other Products

We are also developing an all-electric minibus to meet customer needs in paratransit, school and public transportation. Furthermore, Lion will be broadening its vehicle offering by developing class 5 to 8 all-electric trucks.

We look forward to partnering with the you to deploy additional all-electric school buses in the foreseeable future.

Nate Baguio
Vice President of Sales
The Lion Electric Co. – USA



Concept Workshop: Solicitation to Establish Bulk Purchase Pricing for Electric School Buses
Discussion Questions
July 24, 2018

SOLICITATION DESIGN

1. What is missing from our proposed design concept?
 - a. Is there an option if CNG funds are not used to transfer the funds to electric school buses or charging infrastructure?
 - b. Add a presentation component to the evaluation process; either a short list of bidders can advance to a presentation phase or all bidders can be invited to present. The more specific information the CEC will receive, the better the results of the procurement.
 - c. Scoring criteria should be weighted by percentage showing the CEC priorities (more percentage allocated to specific, important criteria).
 - d. CEC originally included OEMs as potential bidders and should maintain both dealers and OEMs can submit proposals.
 - e. CEC to potentially allow alternative bids outside of the scope of RFPs, if scope is limited, OEMs and dealers should be able to submit an alternative bid in an RFP process. The CEC should consider allowing alternative bids to promote innovation not initially defined in the RFP scope or potentially left out of the RFP scope.
2. Are there additional evaluation criteria that should be requested that would be beneficial? Factors that should be considered: delivery timeline, experience in California, miles driven, successful deliveries, CHP certified, available range, bus life expectancy, training, technical support by the OEM / Dealer, history of battery performance, battery warranty, what vehicles is the OEM able to offer now;
3. What is the preferable approach to this solicitation:
 - a. Bulk purchase price negotiated with specific vendors?
 - b. Approved vendor list with a set price the Energy Commission will pay? This will allow customers to choose their product without having to go through an RFP
 - i. The CEC should accept different pricing scenarios and supply a range between 100-200 buses to allow multiple awards for individual purchase or bulk purchases
4. Is there any reason a district, COE or JPA would or could not accept a bus based on these proposed approaches?
5. Is bulk purchase pricing available? Yes, how many buses would be needed to lower the bus price? Bulk purchase pricing is available in incremental; the more buses are bought, the higher the discount is
6. Is bulk pricing available for add-on features? Solicitation should allow OEMs and dealers to provide base packages; one proposer may have more robust features than another



at a lower price; the solicitation should allow the private sector to bring innovation to the process and let proposers define base specifications; the solicitation should not restrict a more feature-rich vehicle to be proposed, the best bus should win.

7. Is there anything infeasible to provide, in terms of the proposed evaluation criteria? Is there anything that is missing? **Nothing is not feasible**
8. For bidding purposes, what key elements are necessary in the Commission's agreement with bus manufacturers/dealers to be able to order buses to satisfy a school's procurement processes? **Factors that should be considered: delivery timeline, experience in California, miles driven on school routes, successful deliveries, CHP certified, available range, bus life expectancy, training, technical support by the OEM / Dealer, history of battery performance, battery warranty, what vehicles is the OEM able to offer now.**

Additionally, the RFP should include a pre-bidder presentation that both school districts and bidders could attend. A strict silence period should be implemented upon RFP release to protect integrity of the process.

Lastly, this grant is focused on implementation of zero-emission vehicles and delivery timeline is critical. If awarded vendors fail to meet delivery time, there should be consequences not limited to the next bidder being awarded the vehicles. Upon delivery, inspections should be set for an order to be considered delivered.

9. Can the proposed solicitation act as the school's competitive bid process? **Other elements should be considered to create the best competitive bid process for customers and the CEC. For example, points should be allocated based on manufacturer's ability to deliver, assist with end-to-end services (training, infrastructure, etc.), experience and CHP certification success, just to name a few.**

DELIVERY TIMEFRAME

10. What is a reasonable time period for bus delivery? Is 6 months reasonable? **This grant is based on implementation; thus, faster deliveries are recommended. However, deliveries timing may depend on volume. Lion has the capability to deploy all-electric school buses 12 weeks upon PO reception from school district. We also recommend that all funding be used by September 2019 to accelerate implementation and meet CEC targets. Accelerating the deployment of electric school buses will demonstrate CEC's commitment to replacing the maximum diesel buses in a short amount of time and showing that the product is readily available.**
11. Will any additional features/accessories prolong the delivery timeframe? If so, which ones? **No features would prolong delivery timeframe as Lion has been in regular production schedule for more than 3 years now and can produce up to 1000 buses per year.**



STANDARD FEATURES

12. What are considered standard or customary features of an electric school bus? [Spec sheets can be provided with based features and additional options; we offer wide range options that are standard. However, clients must choose the best range options for their routes and needs.](#)
13. What standard features would fleet like to see included in the purchase of an electric bus? [California has specific regulations that fleets must meet; Lion is currently CHP certified and has passed all inspections \(refer to attached California Title 13 school bus regulation\). Additionally, we recommend the following standard features:](#)
 - a. [Proven product and technology in school bus operation](#)
 - b. [Proven track of operation and maintenance costs \(economic benefits and fuel economy\)](#)
 - c. [Minimum of 1 million miles driven](#)
 - d. [8-year battery energy retention warranty](#)
 - e. [Fully Original Equipment Manufacturer \(OEM\) assembled electric school bus \(chassis, battery packs and batteries fully integrated and made by 1 single OEM\)](#)
 - f. [Energy efficient air conditioning system](#)
 - g. [Energy efficient braking system \(Standard regenerative braking system\)](#)
 - h. [Up to 71 passengers](#)
 - i. [Up to 155-mile range](#)
 - j. [V2G capabilities should be available as an option](#)

BATTERY/RANGE

14. What is the expected range for each type of bus? [Up to 155 miles range](#)
15. What type of battery management system is included with the bus and how often does it record data? (Remaining battery range, battery pack health, etc.) [Lion offers a customized battery management system \(BMS\) for school bus operations which includes live data on a telematics screen. We offer a purposed built touch screen and clusters to provide driver, mechanics and technicians easy readings at all time of the state of charge, remaining range, battery health, driver's driving performance stats \(for EV specifically\), etc. We can provide a full list of data registered live during routes. Lion BMS also climate controls all battery packs to maintain steady and optimal operating temperatures for all California climate conditions and to minimize battery degradation.](#)

WARRANTY/REPAIR

16. What are the warranty lengths, including battery, and what is covered? [Lion's battery warranty is 8 years \(standard Lion warranty document to be provided\). We offer a 5-year limited warranty on chassis and body.](#)
17. How do you manage your supply chain to ensure that parts are available when required for maintenance? [Lion has long-term relationships with its suppliers such as international battery producer LG Chem, electric motor and powertrain supplier TM4 and other industry top suppliers. Parts are readily available from local / regional service partners to assist our California clients.](#)



18. Will technicians come out to fix issues under warranty or will the bus need to be taken in to a service center? Lion authorizes and trains its clients to work on our electric buses which allows our clients' technicians to fix 90% of the issues encountered. Otherwise, Lion can remote-connect into the bus to provide diagnosis and assist clients. Finally, Lion has technicians that can go to the client and has service centers where clients can come to get their buses fixed.
19. Will repair/maintenance manuals and wiring diagrams be provided to the school district/COE/JPA upon delivery of the bus? Yes, a complete set of manuals (chassis, body, battery, etc.) are provided upon delivery. Also, Lion trains its clients on maintenance, repairs, preventive maintenance, electrical schematics, EV, electric school bus, etc. prior to delivery. On top of that, we now offer a Lion Academy training to all clients before, during and after delivery allowing technicians to become EV certified. The Lion Academy also offers our clients a set of training videos available online that are easy to review. Our Lion Academy team is available everyday to answer questions and diagnose any issues as well as answer questions. We have trained over 10 technical experts all over North America to assist our clients with their everyday needs. Additional technical experts are currently in formation to assist our growing clientele.
20. What kind of training is available for fleet staff to be able to perform basic repairs and maintenance, especially towards the end of the warranty? We offer electric school bus training on general maintenance, repairs and preventive maintenance. Our technical team is always ready to facilitate warranty questions and offer tips / additional trainings when needed. Because Lion uses industry standard components, the regular maintenance schedule and repair procedures are very similar to a traditional school bus. Therefore, all technicians will have the ability to perform all required work on the buses.

WORKFORCE TRAINING

21. In addition to buses, what additional options, such as technical assistance, may be included in the manufacturing package? Technical assistance, training, parts, service, customer support and EV specific training are available as part of the manufacturing package. We also assist with charging infrastructure recommendations and can help with involving local utilities when implementing new charging infrastructures.
22. What are schools asking for in terms of training opportunities? Driver training? Schools typically want end-to-end training; their drivers, mechanics, technicians and fleet managers want to understand electric school buses and develop the best processes around them to better use the bus and technology it offers. For example, we typically recommend training drivers for 1 day and technical/maintenance for 2 days. We dive into various topics to get them comfortable with their vehicle. We also want our clients to leverage all that the bus has to offer; for example, pre-heat or pre-cool the bus before leaving for a school bus route, manage driver's driving habits to best fit EV (and thus increase the mileage available), leverage the brakes regen, etc. The mentioned



features are usually new to fleets and it is crucial for everyone within the organization to understand what it made available to them.

23. What type of workforce training would be beneficial for fleet staff? What type of training is being requested by staff? Fleet staff need to understand the economics of the bus and leverage the data available on the telematics system to really see the electric benefits. We thus train staffs and fleet staffs to collect data that matches the information they would typically collect on a regular diesel bus; again, it is crucial for clients to leverage what is made available to them to truly grasp the operational, economical, maintenance and environmental benefits an all-electric school bus has to offer.

INFRASTRUCTURE

24. Is any charging infrastructure provided by the manufacturer with the purchase of a bus? Lion recommends charging infrastructure that have been tested and proven in the last few years. Lion can provide charging solutions that includes equipment and install service through partnership made over the last years in California.
25. What type of infrastructure support is provided to customers? Lion takes an active role in ensuring a seamless transition to EV by working with charging vendors and utilities.
26. Will these buses be equipped with a universal charging system? Yes, Lion uses a north American standard J1772 protocol on all its product. DC fast charging can be used to charge the buses with a SAE-Combo protocol. However, DC Fast charging comes as an option on the buses.
27. Is there any infrastructure, outside of charging equipment, that schools or dealers would like the Commission to consider? Smart charging and DC fast chargers should be considered. Also, working with the utility ahead of time will really help the implementation of charging infrastructure at the client's site. Getting the right charging infrastructure and considering long-term needs are crucial for a successful deployment. Furthermore, considering adding Vehicle-to-Grid or Vehicle-to-Building as an option on buses as a phase 2 of the deployment process can ultimately provide revenue sources and energy storage for the schools and utilities.
28. How long would it take to get the charging site ready for bus delivery? Each school district, based on their location, will have a different experience with their utilities and energy provider. We recommend starting the conversation and implementation as soon as electric school buses are awarded to school districts.

ADDITIONAL FUNDING OPPORTUNITIES

29. What other incentive opportunities are available to dealers to leverage funds to maximize the number of old school buses to be replaced?