

DOCKETED

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19-TRAN-02 Zero-Emission Transit Fleet Infrastructure Deployment

Additional submitted attachment is included below.



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RE: Docket #19-TRAN-02 Zero-Emission Transit Fleet Infrastructure Deployment

Dear Ms. Odufuwa,

Thank you for the opportunity to provide comments on your draft solicitation for Transit Infrastructure. On behalf of the Center for Transportation and the Environment (CTE), I would like to share the following comments on your proposed solicitation.

Funding Commitment and Performance-Based Evaluation

California Transit agencies are under the mandate of the Innovative Clean Transit Regulation to transform their fleets to Zero-Emission by 2040. They will need both Battery-Electric Buses (BEBs) and FCEBs to accomplish this transformation. Unfortunately, due to competing demands on Cap and Trade revenues, grant funds to assist with the construction of hydrogen infrastructure for transit are no longer available through CARB funding programs. While subsidies for electric charging infrastructure are aided by utility ratepayers as a result of SB 350, funds for hydrogen infrastructure are extremely limited, except for local air district grants and what eventually will be made available through CEC.

CTE believes that CEC would more effectively leverage its funding in the proposed GFO by allocating the full amount of \$20 million exclusively for hydrogen fueling, in order to advance the commercialization of fuel cell electric buses on par with battery-electric buses. The cost/benefit ratio of hydrogen fueling infrastructure is considerably less than charging infrastructure, particularly with regard to larger fleets. The OCTA station that CTE built with Trillium and Air Products supports 50 buses, and the CapEx was \$105,000 per bus. The cost per bus is projected to fall below \$100,000 for 100 or more buses. This compares favorably to consultant estimates for charging infrastructure of \$300,000 (Foothill Transit) to \$400,000 per bus (LA Metro) for large fleets of 300 or more buses.

Evaluations should be based on performance of infrastructure evaluating the metrics of cost/benefit ratios, vehicle throughput (fueling/charging speed), operational efficiencies, station footprint, redundancy, resiliency, renewable supply, and scalability.

Cost Share

CEC is proposing a cost share requirement of 50%. During the workshop on April 10, CTE noted that transit agencies are typically required to cover 10% to 20% of facility costs with local share, when they apply for federal funding. Transit agencies are now experiencing ridership losses in excess of 90%, and more significantly, losses in sales tax, bridge tolls, and local tax revenues due to the economic impacts of the coronavirus. The \$25 billion Congress has allocated to transit agencies through the recently passed Rescue bill – the CARES Act – will be used to sustain operations and prevent transit agencies from becoming insolvent. It's doubtful that any of these funds will be used for funding new capital projects. The burden of cost share will be challenging.

If CEC were to allow the capital cost of purchasing buses and the operating costs associated with in-service operations, maintenance, and fueling as eligible cost share, transit agencies could apply for the full capital cost of infrastructure at 50% cost share without having to match the capital grant with additional cash. This would significantly leverage CEC's money. CARB and FTA both recognize operating expenses as cost share for their grants, allowing it to accrue over time after capital grant funds have been expended, providing the cost share is fully realized during the term of the grant agreement.

If CEC were to allocate \$20 million for hydrogen infrastructure grants, as many as three or four transit agencies could install fueling stations and related facility upgrades to safely maintain their buses. An expansion of this magnitude would result in expanding fuel cell electric bus purchases across the transit industry, resulting in a 30% or greater reduction in the unit price of buses, to less than \$900,000.

Eligible Applicants

The draft concept suggests that transit agencies would be the only eligible applicants. CTE would recommend that this be open to non-profits, who would play a critical role as Project Managers (PM), either representing a single agency or proposing multiple projects in support of two or more agencies.

There is more complexity to successful execution of infrastructure projects than simply administration and coordination. In the case of fuel cell electric buses, there is a steep learning curve for transit agency staff. Experienced PMs are able to guide agencies and vendors through a comprehensive set of steps to introduce and fully integrate new and unfamiliar advance technologies successfully. This encompasses vehicle procurement, fueling station development, and facility upgrades to safely maintain fuel cell electric vehicles.

Critical elements of effective Project Management, include: modeling routes and vehicle duty cycles to determine range and fuel requirements; establishing vehicle and infrastructure requirements and specifications; assisting with procurements and manufacturing and construction activities, including quality control and quality assurance processes; managing project schedules to ensure timelines associated with vehicle and infrastructure rollouts are

closely coordinated and timed to match; and assisting end users and local jurisdictions with the startup of advanced ZEV projects.

Eligible Costs

As previously stated, effective Project Management is critically important to successful outcomes, especially given the required coordination between vehicle procurement and deployment, station construction and commissioning, and facility upgrades. Project Management costs should be included as eligible expenses.

Applicant Team

CTE would recommend that you give applicants the option of submitting proposals without identifying station providers, enabling successful applicants to manage an RFP process to select station vendors through a competitive process, if so desired.

Station Size and Vehicle Deployments

More than likely, transit agencies will not be able to deploy a fleet of 50 to 100 buses at the same time a station with a 50- or 100-bus capacity is commissioned. Transit agencies on average replace approximately 8% to 9% of their fleet annually. The federal government is the primary source of funding for bus capital and requires agencies to operate buses purchased with federal funds for at least 12 years before retirement. Many transit agencies have extended the operating and economic life of their vehicles to 15 or more years because of reduced ridership and lost revenues. Transit agencies are further impacted financially by losing more than 90% of their ridership and a reduction in sales tax receipts and other local state and local taxes because of the recession associated with the coronavirus.

CTE recommends that proposals for large-scale fueling stations, with a capacity of 50 or more buses, require a minimum deployment of at least 10 zero-emission buses and a procurement plan that would increase their zero-emission fleet by at least five buses per year for a 50-bus capacity station, and 10 buses per year for a 100-bus capacity station.

Shared Major Corridor

A shared fueling station between two or more transit agencies would be unprecedented in the transit industry and is likely to be extremely difficult, without compromising the logistical requirements of each agency. Transit agencies are able to achieve operational efficiencies by maintaining, fueling, and dispatching their fleets from centralized operating bases that are conveniently located to nearby routes. This minimizes labor costs and deadhead time to shuttle buses from one location to another, prior to entering revenue passenger service. A more feasible option might be a shared hydrogen fueling station between a fuel cell light rail train and buses, if the station site on the rail head were conveniently located to a bus operating division.

CTE would suggest that CEC allow a single proposal for two or more fueling stations at two or more transit agencies within the same geographical region, or within the same air district.

Facility Upgrades

You've identified "Facility Upgrades" as an eligible cost. This should include maintenance facility upgrades to mechanical and electrical systems and the installation of hydrogen detection and alarm systems to safely service Fuel Cell Electric Buses.

Blueprint Grants

Blueprint grants that are project specific could provide valuable assistance with the planning phase of transit-related projects, providing there is time to utilize the findings from those studies to prepare applications for capital funding. However, CEC's proposed timeline for executing Blueprint grants is October 2020, whereas CEC's proposed application deadline for transit infrastructure capital grants is August 2020. CTE suggests that the schedules for these two funding programs be coordinated to leverage the benefits of one with the other. In order to expedite projects, it would be preferable if the Blueprint solicitation could be accelerated, in line with the proposed schedule for the Transit Infrastructure GFO.

Resiliency

Resiliency is especially important in California, where essential services associated with transit and freight movement must be available to respond to natural disasters, such as earthquakes and wildfires. Transit buses will be needed to transport people in need of help during and after catastrophic events, possibly long distances from one region to another. Additionally, as heavy-duty battery electric and fuel cell electric buses deploy more widely, their onboard energy storage could also serve as a source of exportable power to support facilities in need of off-grid power, if the grid is unavailable. As an example, a 40' fuel cell electric bus stores as much as 600 kWh of energy on board. A 60' fuel cell electric bus stores more than one MWh of energy. Each of these vehicles can be refueled in a matter of minutes.

Fueling infrastructure in support of zero-emission buses will play a critical role during natural disasters, and CEC should evaluate project proposals in terms of their resiliency and capabilities to readily provide fuel for needed transport, and ultimately, as a source of backup power.

Station Timeline

In the very best of circumstances station design, permitting, construction, and commissioning can take 12 months after a Notice to Proceed has been issued by the transit agency to design and build a fueling station. A more realistic timeline is 18 to 21 months, including three months for an RFP process to select a firm to design and build the station. Accelerated timelines and project readiness to build projects sooner than later should be given priority in the evaluation process.

Task	Task Summary	Duration (months)	Transit Agency infrastructure Timeline												1Q			2Q			3Q		
			1Q			2Q			3Q			4Q			1Q			2Q			3Q		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
	Fueling Station	21																					
1	RFP Process	3																					
2	Notice to Proceed	0					●																
3	Design and Engineering	3																					
4	Permitting	4																					
5	Equipment Procurement	12																					
6	Construction and Installation	3																					
7	Commissioning	2																					
8	Startup	0																					●
	Maintenance Facility Upgrades	12																					
9	Design RFP Process	2																					
10	Notice to Proceed	0			●																		
11	Design and Engineering	2																					
12	Permitting	3																					
13	Construction IFB	2																					
14	Notice to Proceed	0														●							
15	Equipment Procurement	3																					
16	Construction and Installation	3																					
17	Commissioning and Startup	0																●					

Budget Allocation

Zero-emission technology advances in the transit industry have been significant, paving the way for freight and other heavy-duty vehicle and fueling applications. While zero-emission buses are proving their value, the biggest roadblock to increased volumes, lower prices, and achieving the goals of commercialization is affordable and efficient supporting infrastructure. To that end, if CEC should realize additional funding in support of its programs, CTE strongly recommends that those funds be allocated to the Transit Infrastructure GFO.

CTE appreciates CEC's request for feedback on your draft solicitation concept for transit infrastructure. We look forward to working with CEC as you refine your proposed solicitation to facilitate the development of infrastructure that will support the commercialization and market acceptance of Zero-Emission transit buses.

Sincerely,

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