DOCKETED	
Docket Number:	19-TRAN-02
Project Title:	Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure
TN #:	232893
Document Title:	Draft Concept Document BESTFIT
Description:	N/A
Filer:	Christina Cordero
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	5/1/2020 11:41:40 AM
Docketed Date:	5/1/2020

DO NOT DESIGN OR SUBMIT PROPOSALS ACCORDING TO THIS DRAFT
Comments are due Tuesday, May 26, 2020 at 5:00 p.m.

DRAFT SOLICITATION CONCEPT

Clean Transportation Program

Subject Area: BESTFIT Innovative Charging Solutions

No proposals are being accepted at this time. This is a draft compilation of solicitation concepts. Do not design or submit proposals according to this DRAFT. The actual solicitation is subject to change.

Staff will take comments and questions submitted to the docket, by phone or by email prior to the workshop. Comments on this DRAFT will be discussed at a Scoping Workshop on May 12, 2020. Comments are due by Tuesday, May 26, 2020 at 5:00 p.m. to the California Energy Commission (CEC) Dockets Unit. (See Section 13 of this document, and the Notice of Staff Workshop, for additional details on how to comment.)

http://www.energy.ca.gov/contracts/index.html
State of California
California Energy Commission
May 2020

Table of Contents

INTRODUCTION

This "draft solicitation concept" document details the concept under consideration for a competitive grant solicitation to be issued by the CEC's Clean Transportation Program. The solicitation is dubbed Built-Environment Electrification Solutions & Form Factors for Fitting Infrastructure to Transportation (BESTFIT) Innovative Charging Solutions, and will fund projects for transformative technology solutions for electric vehicle (EV) charging for both light-duty and medium- and heavy-duty (MD/HD) applications. The purpose of this solicitation is to demonstrate novel technologies or business models that highlight innovative charging solutions and form factors that are the "best fit" for the local built environment, use case, and vehicle type.

The draft solicitation concept follows:

1. AVAILABLE FUNDING

$7.5 million is available to fund innovative zero-emission EV charging for both light-duty and MD/HD sectors. The CEC reserves the right to increase or decrease the amount of funding available under this solicitation.

2. MAXIMUM AWARD

The maximum award will be based on the vehicle sector, as outlined in the table below.

Vehicle Sector	Area of Focus	Maximum Award Amount	Total Funding Available
Light-Duty	Increase Utilization	Up to $1 million per applicant	$3.5 million
	Minimize Cost for Purchase and Installation		
	Demonstrate Advancements in Customer or Charging Interface		
MD/HD	Minimize Cost for Purchase and Installation	Up to $2 million per applicant	$4 million
	Demonstrate Advancements in Customer or Charging Interface		

The CEC expects to award at least one project in each Area of Focus. Once the highest ranked projects in each Area of Focus are recommended for funding and if funding remains available, the CEC will award the next highest ranking project within the Vehicle Sector that has available funding. The CEC reserves the right to recommend a partial award based on available funding.

3. NUMBER OF APPLICATIONS

Applicants may submit multiple applications. However, the maximum award amount applies to each applicant, ***not*** each proposed project. Applicants who submit applications in both the light-duty and MD/HD sectors are eligible for the maximum award amount in each category (a total of $3 million). For each project, applicants must identify only ***one*** Area of Focus per the above table that their proposed project primarily addresses. This Area of Focus designation will be used to categorize and rank applications for funding. Each proposed project must be separate and distinct and adhere to all requirements contained in this solicitation.

4. ELIGIBLE APPLICANTS

This solicitation is open to all California automotive original equipment manufacturers (OEMs), electric vehicle charging equipment manufacturers, and electric vehicle service providers (EVSPs) for the demonstration of technologies and business models that need testing and validation to accelerate successful commercial deployment.

All corporations, limited liability companies (LLCs), limited partnerships (LPs) and limited liability partnerships (LLPs) that conduct intrastate business in California are required to be registered and in good standing with the California Secretary of State prior to its project being recommended for approval at a CEC Business Meeting. If not currently registered with the California Secretary of State, applicants are encouraged to contact the Secretary of State's Office as soon as possible to avoid potential delays in beginning the proposed project(s) (should the application be successful). For more information, contact the Secretary of State's Office via its website at www.sos.ca.gov. Sole proprietors using a fictitious business name must be registered with the appropriate county and provide evidence of registration to CEC prior to their project being recommended for approval at a CEC Business Meeting.

5. ELIGIBLE PROJECTS

All projects must demonstrate novel technologies or business models that highlight innovative charging solutions and form factors that are the "best fit" for the local built environment, use case, and vehicle type.

All demonstrations must be installed for public or private use, real-world operating conditions at least at the bench scale, and must demonstrate how the novel technology and/or business model could be deployed at scale in the future and become commercially viable.

Applicants must identify only ***one*** Area of Focus, defined in Section 2, that their proposed project primarily addresses. This Area of Focus designation will be used to categorize and rank applications for funding. The Areas of Focus are expanded upon below:

1) **Increase utilization**

This category addresses projects designed to increase or maximize efficient utilization of charging infrastructure. The goal of increasing utilization is to increase the throughput of electric miles serviced to EVs by each charger through the creation of new business models that leverage innovative placement and locations, user sharing, queueing, vehicle management technologies, and other strategies.

2) **Minimize cost for purchase and installation**
This category addresses efforts to maximize the benefits of charging installations by avoiding costly grid impacts. The goal for innovative charging solutions like smart charging and discharging or distributed energy resources (DERs) is to defer or outright avoid grid capacity upgrades and associated costs otherwise incurred with traditional approaches.

3) **Demonstrate advancements in customer or charging interface**
This category addresses technological advances to facilitate the adoption of EVs by making the charging experience seamless for drivers and users through standardized interfaces and streamlined customer services. The goal for these advanced interfaces is to simplify charging today, but also lay the foundation for emerging electric transportation applications including autonomous, shared, and connected vehicles.

Examples of project types across the three categories include, but are not limited to:

- **Fast charging plazas** – High-powered (> 150 kW), urban-sited direct current (DC) fast charger plazas allow a faster turnover of vehicles and provide a convenient option for drivers that may not have home charging.

- **Novel sharing business models** – Examples include private workplace chargers that become publicly available after work hours and software solutions to match charging demand to available chargers in real time.

- **High-level communication adapter** – Modification for an SAE J1772 electric vehicle supply equipment (EVSE) connector to enable smart charging or metering.

- **Energy management system** – Management of power loading between an EVSE and other appliances, using plug-based controllers and optimization systems to avoid necessitating electrical upgrades associated with coincident loading consistent with National Electric Code Article 625 for Load Management Systems or Underwriters Laboratory 916 for Energy Management Equipment.

- **Lamp or utility pole** – Curbside or parking lot-based charging leveraging existing lighting, electrical, or communications infrastructure fixtures to minimize ground excavation and resurfacing. Furthermore, these fixtures could be targeted to

minimize electric grid upgrades if installation is coordinated with a local energy management effort (e.g. simultaneous light-emitting diode (LED) lamp or building efficiency retrofits).

- **Intra-site storage** – Storage-based charging systems that can move about an individual site challenged by conditions that prevent the construction of stationary EVSE (e.g. expansive and un-assigned parking facilities, constrained electrical grid, or facility operational requirements) to provide on-demand services to drivers.

- **Inter-site storage** – Storage-based charging systems that can move about multiple sites (e.g. workplaces, public locations, or street-side in urban neighborhoods) to provide on-demand services to drivers.

- **Vehicle-to-vehicle charging** – Grid upgrade avoidance through a service where one vehicle discharges energy for the purpose of sharing charge power with another vehicle. This may use a direct vehicle-to-vehicle charging interface or may optionally use an intermediate off-grid storage system.

- **Distributed energy resources** – A DER system provides power to EVSE independent of the electric system to support rapid installation of charging in remote locations without reliable or available electrical capacity. This may include fuel cell systems operating with low-carbon renewable fuels. With these DERs, electrical grid interconnection of the charging system is optional.

- **Pantograph connection** – Automated charging for MD/HD vehicles via overhead connections that mitigate ground egress requirements and enable space-efficient use of parking facilities. Pantograph systems may resolve driver handling of couplers or connections to autonomous vehicles.

- **Wireless charging** – Automated charging using ground-based systems while the vehicle is parked and stationary or dynamically while it is driving. Wireless systems mitigate potential user burdens or physical reliability (e.g. tampering, equipment management) by automating user interactions necessary for payment and load controls.

- **Robotic connection** – Automated charging using devices that articulate a conductive connection between the vehicle and electricity supply. The articulation of the connector may be EVSE-based (with the inlet on the vehicle) or vehicle-based (with the inlet on the EVSE). EVSE-based robotic connections could be operated as part of a larger system or apparatus used to facilitate the connection with the vehicle.

- **Automated parking garage** – Parking garages designed to accept and convey vehicles into a densely organized structure to store vehicles should also be prepared for transportation electrification. Existing automated garages can be retrofitted with electrical wiring and EVSE or a new garage design could be optimized for various charging and energy management. Further, automated parking garages could help resolve real estate constraints as cities increase density to support broader sustainable transportation goals.

- **Interoperability for MD/HD vehicles** – Standardized and interoperable charging interfaces are needed for MD/HD vehicles, which currently lack a widely-adopted conductive charging option useful for both private and public charging.

Projects must include deployment of chargers and may include deployment of renewable DERs or energy storage systems for supplying power to EVs or EV chargers provided the applicant demonstrates that the DER is a component of the system necessary to address their designated Area of Focus.

Each project must provide a minimum of 12 months of data collection on deployed infrastructure, submitted electronically on a regular basis, rather than in a summary report at the conclusion of the 12 months. Applicants shall describe in detail plans to ensure EVs will utilize their infrastructure and enable them to collect 12 months of data on charging events for deployed infrastructure, including but not limited to:

- Charge and session duration
- Energy delivered (kWh)
- Power delivered (kW)
- Cost of electricity for the session
- Payment method
- Type of vehicle that charged
- Number of unique vehicles and frequency of "repeat vehicles"
- Energy delivered back to grid or facility if a bidirectional charging use case (kWh)

In addition, the applicant should identify and develop a plan for providing other relevant data and information to the CEC throughout the duration of the funding agreement, including but not limited to:

- Lessons learned
- Best practices (e.g. permitting and installation processes)
- Potential job creation
- Economic development
- Increased state revenue

The following project types ***are not*** eligible:

- Market, literature, or technology surveys, or meta-analysis studies
- Basic research and development
- Projects which include DER for purposes other than supplying power to EV chargers
- Tests for regulatory compliance
- Marketing and promotional activities
- Software development with no research or validation component
- Lab-scale research and validation
- Research and development that is not EV-related and has no clear market connection
- Proof of functions

6. MATCH FUNDING REQUIREMENTS

Applications must include at least 25 percent of total project costs as match share. Of this match share, at least 50 percent should be cash match.

Total project cost is defined as the CEC reimbursable amount plus match share amount. Cash match is defined as the net of any funds actually expended by the Applicant for the project after any sort of discount or rebate is applied. Expenditures for Applicant's compensated labor hours, including allowable fringe benefit and overhead rates, travel, materials, supplies, equipment, subcontractor costs, and other miscellaneous expenditures may be claimed as cash match if the expenditures are included in the approved agreement budget, paid in full with funding sources other than grant funds, and supported with appropriate documentation, including proof of payment. For indirect overhead, backup documentation, such as a cost allocation plan based on actual expenditures incurred and paid, is required. Cost allocations must be reasonable and allocable to the proposed project.

7. ELIGIBLE PROJECT COSTS

Costs incurred for the following are eligible for CEC's reimbursement or as the applicant's match share. Distribution grid or other equipment costs that are otherwise covered by programs or tariff rules of the electric utilities are excluded.

Examples of eligible costs include but are not limited to:

- EVSE
- Transformer
- Electric panels
- Conduit
- Wiring
- Meters
- Energy storage equipment

- Photovoltaic solar panels separately metered for electric charging
- Installation costs
- Planning and engineering design costs
- Stub-outs
- Demand management equipment

The following are ***not*** eligible for CEC's reimbursement or as the applicant's match share:

- Vehicle Purchases
- Processes to comply with otherwise applicable legal requirements (e.g., permits from the local authority having jurisdiction (AHJ) and compliance with the Americans with Disabilities Act (ADA))
- Utility service upgrade costs covered by the utility

8. How Award Is Determined

Applicants passing administrative and technical screening will compete based on evaluation criteria and will be scored and ranked based on those criteria. Unless the CEC exercises any of its other rights regarding this solicitation (e.g., to cancel the solicitation or reduce funding), applications obtaining at least the minimum passing score will be recommended for funding in ranked order until all funds available under this solicitation are exhausted.

If the funds available under this solicitation are insufficient to fully fund a grant proposal, the CEC reserves the right to recommend partially funding that proposal. In this event, the applicant / proposed awardee and Commission Agreement Manager (CAM) shall meet and attempt to reach an agreement on a reduced scope of work commensurate with the level of available funding.

9. Application Administrative Screening Criteria

Applications will be screened according to the following administrative criteria. Applications not meeting the following requirements will be disqualified and not eligible for funding:

- The application is received by the CEC's Contracts, Grants, and Loans Office by the due date and time specified.
- The applicant provides the required authorizations and certifications.
- The applicant has not included a statement that is contrary to the required authorizations and certifications.

10. Application Technical Screening

Applications will be screened according to the following technical criteria. Applications not meeting the following requirements will be disqualified and not eligible for funding:

- The applicant is eligible to apply.
- The project is an eligible project.
- The project meets the minimum match share requirement.

11. Application Evaluation Process

Applicants must use the options provided in the Areas of Focus found in Section 2 to define one Area of Focus the proposed project will primarily address. Applications will be categorized and ranked based on this designation (e.g., an application in *Light-Duty: Increase Utilization* will not be ranked against an application in *Light-Duty: Minimize Cost for Purchase and Installation*).

The evaluation process will follow two phases.

a. **Pre-Application Abstract Screening and Technical Scoring**: Applicants will submit a pre-application abstract, **limited to 5 pages**, that will be screened according to the administrative and technical screening criteria. Abstracts that pass screening will be scored in accordance with the Pre-Application Abstract Evaluation Criteria.

b. **Full Application Screening and Scoring**: Pre-application abstracts receiving a passing score will be eligible to submit a full application. Full applications will be screened according to the administrative and technical screening criteria. Applications that pass screening will be scored in accordance with the Full Application Evaluation Criteria. ***Full applications must be consistent with previously submitted and passing pre-application abstracts. Applicants may not change the designated Area of Focus between the pre-application abstract and the full application.***

For the Full Applications:

- Applications will be ranked according to final overall score and Area of Focus category.
- Final overall score for each application will be the average of the combined scores of all Evaluation Committee members.
- A minimum of 70% is required to be eligible for funding.
- Ties, if any, will be broken in the following order:
  - The proposal with the highest Innovation score will be ranked higher.
  - If still tied, the proposal with the highest Project Readiness and Implementation score will be ranked higher.

- If still tied, an objective tie-breaker will be utilized.

- The CEC will recommend awards to the highest ranked project within each Area of Focus category. With the remaining funding, the CEC will recommend awards to the next highest-ranked projects across all Area of Focus categories, until available funding for this solicitation has been exhausted.

12. EVALUATION CRITERIA

Note: The following Evaluation Criteria are deliberative and subject to change. Do not design or submit proposals according to this draft evaluation criteria.

Pre-Application Abstract Evaluation Criteria

Scoring Criteria	Points
(P1) Project Summary *NOTE: Pre-application abstracts must obtain a minimum passing score of 17.5 points within this evaluation criterion to be eligible to submit a full application.*	25
(P2) Project Readiness and Implementation *NOTE: Pre-application abstracts must obtain a minimum passing score of 10.5 points within this evaluation criterion to be eligible to submit a full application.*	15
(P3) Funding Request and Cost Effectiveness *NOTE: Pre-application abstracts must obtain a minimum passing score of 7 points within this evaluation criterion to be eligible to submit a full application.*	10
TOTAL POSSIBLE POINTS:	**50**
Minimum Passing Score (70%)	**35**

(P1) Project Summary: Pre-application abstracts will be evaluated based on the degree to which:

- The proposed project addresses the ***one*** Area of Focus designated by the applicant, with supporting evidence and justification.
- The proposed project is innovative and provides competitive advantages over conventional charging solutions.
- Key indicators demonstrate the market opportunity for the proposed project to provide a successful, scalable solution that fills a niche in California's charging solutions. Indicators could include but are not limited to: cost of purchase and installation conventional solutions, demand for charging, availability of charging, interoperability of conventional solutions, availability of parking, permitting processes, etc.

- The qualifications, experience, capabilities, and credentials of the key team members are suitable to the tasks described in the proposed Scope of Work and will lead to the successful completion of the project.

(P2) Project Readiness and Implementation: Pre-application abstracts will be evaluated based on the degree to which:

- The technology and/or business model within the proposed project has been successfully demonstrated before, with details including size or capacity, number of previous installations, location and duration, results, etc.
- The proposed project has an aggressive but achievable schedule for completing all tasks necessary.
- The proposed project contains realistic and sufficient plans to work with local utilities, permitting agencies, or other stakeholders to ensure the project progresses in a smooth and timely manner.
- Support or commitment letters (from site hosts, project partners, match funding, or others) indicate a strong level of support or commitment for the proposed project.
- The required permitting for the proposed project has been completed or a feasible schedule for obtaining the required permitting has been provided.

(P3) Funding Request and Cost Effectiveness: Pre-application abstracts will be evaluated based on the degree to which:

- The avoided costs associated with the proposed project, compared to charging solutions conventionally employed in the use case, are quantified, and underlying assumptions are explained.
- The proposed project demonstrates the need for CEC funding, including an explanation of why the proposed work is not adequately supported by the private sector.
- The proposed project results in a high benefit-cost score defined as the ratio of grams of CO_2 equivalent reduction per dollar of CEC investment.
- The proposed project's match funding commitments are documented, verifiable, and will support the successful completion of the project.

Full Application Evaluation Criteria

Scoring Criteria	Points
(1) Innovation	45
(2) Project Readiness and Implementation	25
Total Possible Points for criteria (1) and (2) (Minimum Passing Score for criteria (1) and (2) is 45.50)	**65**
(3) Economic, Social, and Environmental Benefits	15

(4) Team Experience, Qualifications, and Resources	10
(5) Budget	10
TOTAL POSSIBLE POINTS:	**100**
Minimum Passing Score (70%)	**70**

(1) Innovation: Applications will be evaluated based on the degree to which:

- The proposed project addresses the ***one*** Area of Focus designated by the Applicant, with supporting evidence and justification.
- The proposed project is innovative and provides competitive advantages over conventional charging solutions.
- The proposed project includes a comprehensive and realistic data collection plan detailing what data will be collected, how the data will be collected.
- The proposed project includes a comprehensive and realistic plan that maximizes the dissemination of data, results and lessons learned from the project for knowledge advancement.

(2) Project Readiness and Implementation: Applications will be evaluated based on the degree to which:

- The technology or business model within the proposed project has been successfully demonstrated before, with details including size or capacity, number of previous installations, location and duration, results, etc.
- The proposed project has an aggressive but achievable schedule for completing all tasks.
- The proposed project contains realistic and sufficient plans to work with local utilities, permitting agencies, or other stakeholders to ensure the project progresses in a smooth and timely manner.
- Support or commitment letters (from site hosts, project partners, match funding, or others) indicate a strong level of support or commitment for the proposed project.
- The required permitting for the proposed project has been completed or a feasible schedule for obtaining the required permitting has been provided.
- The proposed project is prepared to address risks, barriers, and limitations that are critical for the success of the project (e.g. loss of demonstration site).
- A complete and feasible Scope of Work, Budget and Project Schedule are included.
- The proposed project and equipment demonstrate the ability to operate beyond the term of the CEC's funding agreement.

(3) Economic, Social, and Environmental Benefits: Applications will be evaluated based on the degree to which:

- Key indicators demonstrate the market opportunity for the proposed project to provide a successful, scalable solution that fills a niche in California's charging solutions. Indicators could include but are not limited to: cost of purchase and installation conventional solutions, demand for charging, availability of charging, interoperability of conventional solutions, availability of parking, permitting processes, etc.
- Impacted market segments in California are identified, including size and penetration or deployment rates. Underlying assumptions are documented and reasonable.
- The avoided costs associated with the proposed project compared to charging solutions conventionally employed in the use case are quantified. Underlying assumptions are documented and reasonable.
- The proposed project makes charging more accessible, particularly to those in multi-unit dwellings, rural areas, and disadvantaged communities.
- The proposed project will accelerate the adoption of electric vehicles needed to achieve the State's transportation goals.
- The proposed project will provide cost savings to a variety of stakeholders, including drivers, site hosts, and utilities.
- The proposed project results in a high benefit-cost score defined as the ratio of grams of CO_2 equivalent reduction per dollar of CEC investment.

(4) Team Experience, Qualifications, and Resources: Applications will be evaluated based on the degree to which:

- The qualifications, experience, capabilities, and credentials of the key team members are suitable to the tasks described in the proposed Scope of Work and will lead to the successful completion of the project.
- The facilities, infrastructure, and resources available to the team will aid in the successful completion of the project.
- The proposed project's team has a history of successfully completing projects and commercializing and/or deploying results/products.
- The proposed project identifies any collaborations with utilities, industries, site hosts, or others, and explains the nature of the collaboration and what each collaborator will contribute.
- The applicant has performed satisfactorily under other Energy Commission funded agreements and describes how the applicant has fulfilled/is fulfilling the agreement requirements.

(5) Budget: Applications will be evaluated based on the degree to which:

- The proposed project demonstrates the need for CEC funding, including an explanation of why the proposed work is not adequately supported by the private sector.
- The proposed project budget is justifiable and reasonable relative to the project goals, objectives, and tasks.

- The proposed project minimizes administrative and overhead costs for reimbursement.
- The proposed match funding commitments are documented, verifiable, and necessary to support the successful completion of the project.

13. WRITTEN AND ORAL COMMENTS

Comments on this "draft solicitation concept" document are due by Tuesday, May 26, 2020 at 5:00 p.m.

Please submit comments to the CEC using the e-commenting feature by accessing the comment page for this docket at https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=19-TRAN-02. A full name, e-mail address, comment title, and either a comment or an attached document (.doc, .docx, or .pdf format) is mandatory. Please include "BESTFIT Innovative Charging Solutions" in the comment title. After a challenge-response test is used by the system to ensure that responses are generated by a human user and not a computer, click on the "Agree & Submit Your Comment" button to submit the comment to the CEC's Docket Unit.

Please note that written comments, attachments, and associated contact information included within the documents and attachments (e.g., your address, phone, email, etc.) become part of the viewable public record. This information may become available via Google, Yahoo and any other search engines.

Interested stakeholders are encouraged to use the electronic filing system described above to submit comments. If you are unable to submit electronically, you may email your comments to: DOCKET@energy.ca.gov and include "BESTFIT Innovative Charging Solutions" in the subject line.