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Notice of Funding Opportunity

Title: Research Hub for Electric Technologies in Truck Applications (RHETTA)
Website: <https://www.energy.ca.gov/solicitations/2020-12/qfo-20-306-research-hub-electric-technologies-truck-applications-rhetta>
Funding: Total: \$23,000,000. Maximum awards: \$5M-\$13M, depending on phase.
Dates: Pre-Application Workshop: January 14, 2021
Deadline for Written Questions: January 19, 2021
Application Submission Deadline: March 29, 2021

Summary: The purpose of this solicitation is to fund applied research and development (AR&D) and technology demonstration and deployment (TD&D) activities through the creation of a Research Hub for Electric Technologies in Truck Applications. The research hub will engage stakeholders to advance high power charging systems and to plan, design, and deploy innovative corridor charging strategies that extend the range and increase the operational flexibility of battery electric trucks. This solicitation supports the following 2018-2020 EPIC Triennial Investment Plan initiatives: 2.3.1 (TD&D) "Development of Customer's Business Proposition to Accelerate Integrated Distributed Storage Market"; and 3.2.1 (AR&D) "Grid-Friendly PEV Mobility".

Project Topic Areas:

The purpose of this solicitation is to create a California research hub to facilitate and accelerate the transformative electrification of California's heavy-duty vehicle market in a targeted geographic area. The project will be completed in two phases, with Phase 2 funding contingent upon project performance in Phase 1, California Public Utilities Commission (CPUC) approval of future EPIC investment plans and Legislative budget authorization, further environmental review, and approval of Phase 2 by the Energy Commission at a Business Meeting. The research hub will engage port authorities, fleet operators, truck OEMs, electric utilities, equipment manufacturers, community-based organizations, and other stakeholders to accomplish the following goals:

- Assess freight routes and operational conditions for which commercial or near-commercial BEV trucks need access to public charging infrastructure to increase range or operational flexibility by conducting a fleet needs, vehicle, and high-power charging technology maturity assessment.
- Develop new high-power charger prototypes that reduce heavy-duty vehicle charging time, increase charging system efficiency, reduce hardware costs, enable interoperability, and support grid-beneficial corridor charging.
- Accelerate electrification of drayage trucks by conducting an initial pilot deployment of public charging infrastructure and DERs that increases the operational flexibility of BEV drayage trucks, tests and helps harmonize emerging HD charging standards, and evaluates the costs and benefits of DERs and VGI strategies.
- Guide efficient, strategic charging infrastructure deployment that supports near-term fleet needs while positioning the state for long-term transformative electrification by developing a stakeholder-driven "Phase 2 Plan" for sequential deployment of public charging infrastructure to support BEV trucks in a heavily trafficked freight corridor(s).
- Disseminate project learnings and best practices for deployment of public corridor charging infrastructure by creating a guidebook that provides detailed instructions that will guide stakeholders through the planning, design, and deployment process and includes companion materials, checklists, process diagrams, and timelines to inform and streamline future deployments.
- Leverage learnings from the initial pilot deployment, Phase 2 Plan, and guidebook to deploy additional corridor charging sites and further enable electrification of the targeted freight corridor.

Funding:

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There is up to \$23,000,000 available for grants awarded under this solicitation. The minimum funding amount for the selected project in Phase 1 is \$8,000,000 with the maximum funding amount of \$13,000,000. The minimum funding amount for Phase 2 is \$8,000,000 with the maximum funding amount of \$10,000,000. Only one grant will be awarded through this solicitation. Match funding is required in the amount of at least 25% and 50% in Phase 1 and 2, respectively, of the requested project funds. Match funding commitment letter(s) for match funding for Phase 1 are due with the application. Match funding commitment letter(s) for Phase 2 are due prior to the CPR Towards Phase 2. Only CEC reimbursable funds counts towards funds spent in California total.

Project	Available funding	Minimum award amount	Maximum award amount	Minimum match funding (% of EPIC Funds Requested)
Research Hub for Electric Technologies in Truck Applications: Phase 1	\$13,000,000 (\$5M AR&D and \$8M TD&D)	\$8,000,000	\$13,000,000	25%, commitment letter(s) due with application
Research Hub for Electric Technologies in Truck Applications: Phase 2	\$10,000,000 (TD&D)	\$8,000,000	\$10,000,000	50%, commitment letter(s) due with CPR Towards Phase 2

Project Requirements:

Projects must fall within the “applied research and development” stage, which includes activities that support pre-commercial technologies and approaches that are designed to solve specific problems in the electricity sector. Applied research and development activities include early, pilot-scale testing activities that are necessary to demonstrate the feasibility of pre-commercial technologies. By contrast, the “technology demonstration and deployment” stage involves the installation and operation of pre-commercial technologies or strategies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments to enable appraisal of the operational and performance characteristics and the financial risks. Projects must fall within the “technology demonstration and deployment” stage, which involves the installation and operation of pre-commercial technologies or strategies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments to enable appraisal of operational and performance characteristics, and of financial risks. The research and demonstration can be conducted by the prime recipient and/or subcontractors that can include public or private entities and community-based organizations. All demonstration or deployment sites must be located in an IOU service territory.

California Public Resources Code Section 25711.5(a) requires EPIC-funded projects to: (1) benefit California IOU ratepayers by increasing reliability, lowering costs, and/or increasing safety; and (2) lead to technological advancement and breakthroughs to overcome barriers to achieving the state’s statutory energy goals. To maximize the impact of EPIC projects and to promote the further development and deployment of EPIC-funded technologies, a minimum of 5% of CEC funds requested should go towards technology/knowledge transfer activities. The Project Narrative (Attachment) must include a Measurement and Verification Plan that describes how actual project benefits will be measured and quantified, such as by identifying pre and post-project energy use (kilowatt hours, kilowatts), and cost savings for energy, and other benefits.

Additional details on project requirements supporting program goals include the following:

1. Fleet Needs and Technology Maturity Assessment (AR&D)
Applicants must describe how they will engage stakeholders and access data to collect detailed information on fleet operational needs and assess the market status of BEV drayage trucks, high-power charging equipment, and supporting infrastructure. This assessment will inform the development of advanced charging systems and a stakeholder-driven Phase 2 Plan to evaluate and sequentially deploy high-power charging infrastructure in a heavily traveled freight corridor(s) with broader applicability across the state. Applicants should target a freight corridor based on truck routes that contribute significantly to poor air quality and resultant health impacts to surrounding communities (e.g., I-710 corridor in the SCAB region).
2. Advanced High-Power Charger System Research and Development (ARD)



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Applicants must describe how they will build from technology gaps identified in the fleet needs and technology maturity assessment to develop new high-power charging systems with lower costs and improved functionality. Applicants must propose activities in projects to demonstrate the improved high-power charger system in real world operation as part of the Phase 1 or Phase 2 pilot deployment of public corridor charging infrastructure.

3. Phase 1 Pilot Deployment, Evaluation, and Data Reporting (TD&D)

Applicants must describe how they will conduct an initial pilot deployment of public charging infrastructure to support BEV drayage trucks along a targeted heavily trafficked freight corridor. The pilot deployment must inform quantification of corridor charging infrastructure costs and benefits, optimization and scale-up planning, and guidebook development. Projects are recommended, but not required, to consider supporting medium-duty and other non-drayage HD BEVs with the pilot deployment to increase utilization and accelerate electrification of multiple vehicle types. Applications must identify at least two initial pilot deployment sites in a targeted heavily trafficked freight corridor, explain why the sites are advantageous for pilot deployment, provide an estimate or estimated range of peak electrical capacity (kW or MW) needed at each proposed pilot deployment site along with additional information, discuss the interconnection approval timeframe required, and provide documentation of site owner commitment. Deployment sites must be located in a California IOU service territory.

4. Plan for Phase 2 for Advanced Technology Deployment to Create a Public Corridor Charging Network in a Targeted Freight Corridor (TD&D)

Applicants must describe how they will use the fleet needs and technology maturity assessment and learnings from the initial pilot deployment to produce a stakeholder-driven, sequential plan for the deployment and scale-up of advanced technology for a public corridor charging network in the targeted freight corridor. The plan must guide Phase 2 deployment activities and should serve as a template for future public corridor charging infrastructure investments necessary to accelerate deployment of BEV trucks in California.

5. Knowledge Transfer and Guidebook Development (TD&D)

Applicants must describe how they will leverage project findings and the stakeholder team to disseminate lessons learned to the appropriate stakeholders, evaluate best practices, identify opportunities for streamlining, and facilitate the design and implementation of future corridor charging infrastructure deployment. Knowledge transfer activities and guidebook development must target stakeholders such as other fleets adopting HD BEVs, charging station developers, AHJs, and utilities that each play a key role in future deployment.

6. Critical Project Review Towards Phase 2

Applicants shall commit to participating in a Critical Project Review (CPR) Towards Phase 2 meeting in which Phase 1 project progress and plans for continued Phase 2 work will be evaluated by the Commission Agreement Manager (CAM) and other individuals selected by the CAM to provide support to the CEC. The CEC will not disburse Phase 2 funding unless the Recipient meets these milestones and participates in the CPR Towards Phase 2 meeting. Should the Recipient fail to meet the Phase 1 milestones, exhibit severe performance issues, or fail to adequately address comments received from the CPR Towards Phase 2 meeting, the CEC reserves the right to withhold approval of Phase 2 funds.

7. Phase 2 Plan Implementation to Deploy a Public Corridor Charging Network (TD&D)

Applicants must describe a vision for implementing a public corridor charging network in the targeted freight corridor that will accelerate electrification of large weight class vehicles by deploying additional charging sites using Phase 2 funds. The Phase 2 corridor charging sites must build on learnings from Phase 1 and incorporate innovations reflective of vehicle and charging system technology advancement since Phase 1.

Eligible Applicants:

This solicitation is open to all public and private entities with the exception of local publicly owned electric utilities. In accordance with CPUC Decision 12-05-037, funds administered by the CEC may not be used for any purposes associated with local publicly owned electric utility activities.