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Notice of Funding Opportunity

Title: California Energy Commission – Mobile Renewable Backup Generation (MORBUGs)
Website: <https://www.energy.ca.gov/solicitations/2021-03/gfo-20-310-mobile-renewable-backup-generation-morbugs>
Funding: Total: \$14,000,000. Maximum awards: \$1M-\$3M, depending on group.
Dates: Pre-Application Workshop: March 12, 2021
Questions Deadline: March 16, 2021
Application Submission Deadline: April 9, 2021

Summary: The purpose of this solicitation is to provide \$8 million of Technology Demonstration and Deployment (TD&D) and \$6 million of Applied Research and Development (AR&D) funding to support the 2018-2020 EPIC Investment Plan Strategic Initiative S7.2.3 to Integrate Climate Readiness into Electricity System Operations, Tools, and Models. This solicitation will fund projects to advance clean energy mobile backup systems or Mobile Renewable Backup Generation Systems (MORBUGs) that increase the resiliency of the electricity system to climate change and extreme weather events.

Project Topic Areas:

MORBUGs Technology Demonstration and Deployment

Two groups will demonstrate existing mobile clean energy systems in different field operating conditions with different electrical load demands. Because there is so little experience with these systems, a key learning from the research will be the duration of support in various applications and operational conditions. Technologies in this area must be in Technology Readiness Level (TRL) 6 - 8.

- Group 1: Demonstrating Smaller-scale MORBUGs: This group will solicit projects that can address loads up to 9 kW. Applications may include charging personal electronic devices and batteries for medical devices. They may also power Wi-Fi or cellular extenders. These systems must demonstrate a simple transportable system to get to the demonstration site with easy set up and easy removal.
- Group 2: Demonstrating Larger-scale MORBUGs: This group will solicit projects that can address loads above 10kW. These systems would be able to temporarily replace or augment a mobile fossil fuel generator and will demonstrate how long they can defer the use of fossil fuel generators. Applications may include such uses as medical support tents. It is not required that these systems fully replace diesel generation. These systems must demonstrate a simple transportable system to get to the demonstration site with easy set up and easy removal.

MORBUGs Applied Research and Development

Recipients in this group will design a mobile system that can fully replace a mobile fossil-fuel system. It will need to be designed to leverage existing transportation mediums without compromising equipment durability. Technologies in this area must be in TRL 4 and should move up at least one level by the end of the project term.

- Group 3: Developing Independent MORBUGs: This group will be for applied research on technologies to provide reliable mobile renewable backup generation. The systems must be able to support a minimum of 35 kW of continuous load for a minimum of 48 hours. Applied research is expected in system designs to increase renewable generation and storage capacity while ensuring the system meets weight and size requirements for mobility. Systems need to meet the applicable California Department of Transportation weight limit without a waiver, based on the transport vehicle selected to deliver the system to the demonstration site (category and number of wheels). Additionally, applied research may be necessary to enable systems to be combined (daisy chained) to enable greater load coverage. This may also require software development to coordinate and control multiple systems when combined. These systems must demonstrate a simple transportable system with easy set up and easy removal. Additionally, these systems must be self-contained and able to operate for the timeframe in the proposal without needed additional



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equipment or replacements from off the demonstration site. If a hydrogen system is proposed, the system demonstrated must contain all the required hydrogen in tanks or another suitable storage vessel so that the proposed energy level and duration can be met without needing additional hydrogen tanks during the proposed demonstration duration. Additionally, for hydrogen systems, if the proposed system does not use green electrolytic hydrogen for the demonstration system, the proposal must address how the system will eventually be transitioned to all green electrolytic hydrogen as defined in Public Utilities Code section 400.2 (SB1369, 2018).

Funding:

There is up to \$14,000,000 available for grants awarded under this solicitation. Match funding is required in the amount of at least 20% minimum for Groups 1 and 2 of the requested project funds. Match funding for Group 3 will be extra credit.

Project Group	Available funding	Minimum award amount	Maximum award amount	Minimum match funding (% of EPIC Funds Requested)
Group 1: Demonstrating Smaller-scale MORBUGs	\$3,000,000	\$500,000	\$1,000,000	20%
Group 2: Demonstrating Larger-scale MORBUGs	\$5,000,000	\$1,000,000	\$2,000,000	20%
Group 3: Developing Independent MORBUGs	\$6,000,000	\$1,000,000	\$3,000,000	Not Required. Extra credit score for Match share up to 100 percent.

Project Requirements:

Groups 1 and 2

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.

Group 3

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.

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.