

**Mobile Launcher (ML) Battery Charge / Discharge Equipment (BCDE)  
Supporting Space Launch System Core Stage Battery Units  
Request for Information (RFI)**

**NNK14ZMS001L**

NASA Kennedy Space Center is hereby issuing a Request for Information (RFI) for the purpose of seeking sources and soliciting information from private industry on **Battery Charge/Discharge Equipment (BCDE)**. This document is for information and planning purposes and to allow industry the opportunity to verify reasonableness and feasibility of the requirement, as well as promote competition.

This RFI is used solely for information planning purposes and does not constitute a solicitation. In accordance with FAR 15.201(e), responses to this RFI are not offers and cannot be accepted by the Government to form a binding contract. The Government is under no obligation to issue a solicitation or to award any contract on the basis of this RFI. The information provided in responses to this RFI will not be made public in an effort to protect any propriety company information. Nonetheless, respondents should clearly and properly mark any propriety or restricted data contained within its submission so it can be identified and protected. Respondents are solely responsible for all expenses associated with responding to this RFI. Responses to this RFI will not be returned, and respondents will not be notified of the result of the review.

Potential vendors should review all documents; a summary of the information is as follows:

The Vendor would provide a piece of equipment that will be capable of charging and discharging four (4) each 36VDC, 21.6 Amp Hour Li Ion Battery Units (referred to as BUs) with a maximum input current of 3 Amps. This piece of equipment will be referred to as the Battery Charge/Discharge Equipment (BCDE) hereafter. This BCDE will communicate to the four Li Ion batteries through a RS-422 serial data bus to retrieve the temperature and cell voltage data from the batteries and be capable of sending commands to each BU. A piece of equipment is requested that will be capable of charging and discharging four (4) each 36VDC, 21.6 Amp Hour Li Ion Battery Units (referred to as BUs) with a maximum input current of 3 Amps. This BCDE will communicate to the four Li Ion batteries through a RS-422 serial data bus to retrieve the temperature and cell voltage data from the batteries and be capable of sending commands to each BU.

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**Battery Charge / Discharge Equipment (BCDE) High Level Requirements**

- Provide Standard Charge to four BUs
- Provide Standard Discharge for four BUs
- Perform Maintenance Routines on four BUs, and Perform a Capacity Check on up to 4 BUs through a Standard Cycle
- Provide Open Circuit Voltage (OCV) to four BUs
- Provide Temperature monitoring of 4 temperature sensors within four BUs
- Provide Voltage monitoring of virtual cells of four BUs
- Provide State of Charge (SOC) for four BUs
- Provides data capture and storage
- Provide human-machine user interface (HMI) at BCDE rack
- Provide simultaneous communication to four BUs over RS-422 serial data bus.
- Provide external data communications via Ethernet
- Provide power for four BUs Local Data Acquisition and Control (LDAC) cards
- Interface with BU charge and discharge circuits
- Provide HMI for Emergency Power Off (EPO) of BCDE charge or discharge functions
- The software developed for the BCDE shall meet the requirements of “Class A” designation per Appendix E of NPR 7150.2A NASA Software Engineering Requirements. The software development structure will abide by the guidelines in NASA-STD-8719.13 Software Safety Standard.
- The BCDE shall be capable of performing all required functions within the following environments outlined in SLS-SPEC-159 Cross-Program Design Specification for Natural Environments (DSNE).
- The BCDE product delivery shall include the following documentation:
  - 1) Integrated electrical schematic of all circuits, wires, connections within BCDE. Only interface connections are required for items considered “COTS”, for example a power supply.
  - 2) Mechanical drawings of integrated rack
  - 3) Parts list
  - 4) Parts qualification list
  - 5) Environmental testing report
  - 6) Software source code
  - 7) Software pseudo code operations
  - 8) User’s manual

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Responders to this RFI are encouraged to comment on any or all of the foregoing and to express their interest for any proposed acquisition by submitting the following information:

- 1) Lead Times – Describe typical lead times required for hardware procurement, assembly and testing.
- 2) The Vendor will specify any support, material, equipment, and/or permitting needed from NASA.
- 3) The Vendor should indicate any Requirements noted in this RFI that cannot be met with their capabilities. Should also indicate what needs to be provided by NASA so they can meet those requirements.
- 4) The Vendor should explain any other proposed methods/capabilities they feel would meet or closely compare to the NASA Requirements based on their expertise/experience.
- 5) Cost: Although not mandatory for responding to this RFI, NASA requests the Vendor provide a ROM (Rough Order of Magnitude) cost estimate for this effort that can be used to develop budgetary forecasting. This information will be secured as proprietary information and not retained as a quote or for any potential procurement that may or may not be realized in the future.
- 6) A KSC Design package document, entitled "Mobile Launcher (ML) Battery Charge / Discharge Equipment (BCDE) Supporting Space Launch System Core Stage Battery Units" has been provided in this RFI for clarification purposes, but is not intended to limit design space. All diagrams are notional mission concepts and subject to change.

Vendors having the capabilities necessary to meet or exceed the stated requirements are invited to submit appropriate documentation, literature, brochures, and references. The vendor will be required to submit documentation demonstrating their Company's core competencies (skill, knowledge, expertise, and vessels) and brief examples of past performance building similar equipment. Response to the RFI shall be limited to no more than 20 pages. Please advise if the requirement is considered to be a commercial or commercial-type product. A commercial item is defined in FAR 2.101.

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All responses to this RFI shall be submitted to Christopher Zuber, no later than 4:00PM EST December 19, 2013. Please use reference number NNK14ZMS001L in any response. The response may be sent as one printed hardcopy or electronically as single Microsoft Word .doc and/or Microsoft EXCEL .xls file for each response. Any referenced notes may be viewed at the following URLs linked below.

In addition to whatever information the responder chooses to provide, each RFI response shall include a cover sheet with the following information:

1. RFI Solicitation Number and Title
2. Responding Organization (including address, POC and phone number)
3. A brief synopsis of the RFI response in less than 20 words
4. Section number your response is addressing
5. Potential partnerships (industry, international, US government agencies)
6. Whether your company would be available for a site visit

Additional information to be added as applies:

Responses must include the following: name and address of firm, size of business; average annual revenue for past 3 years and number of employees; ownership; whether they are large, or any category of small business\*, number of years in business; affiliate information: parent company, joint venture partners, potential teaming partners, prime contractor (if potential sub) or subcontractors (if potential prime); list of customers covering the past five years (highlight relevant work performed, contract numbers, contract type, dollar value of each procurement; and point of contact - address and phone number).

**IMPORTANT INFORMATION ABOUT EXPORT CONTROL DOCUMENTATION: (EAR 99)**

This RFI contains Export Controlled documentation. Access to RFI details will only be granted through Federal Business Opportunities (FBO) [www.FBO.gov](http://www.FBO.gov) requests. Please register on FBO site to obtain all RFI information.

Note: Sources that have not previously registered for access to Export Controlled documentation in FBO will first need to submit documentation to the U.S./Canada Joint Certification Office. See <http://www.dlis.dla.mil/jcp/Default.aspx> for details on required documentation. Please ensure the company address submitted on the DD2345 is EXACTLY the same as the address registered in SAM ([www.SAM.gov](http://www.SAM.gov)); any deviation in address will cause the form to be returned to the contractor for correction. This complete process can take a few weeks and can only be done through the mail due to original signature. Since electronic transmission is not permitted by the Joint Certification Program (JCP), it is advised that interested parties submit their documentation to JCP as soon as possible. Certification by JCP is valid for a 5-year period.

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Once approved by the JCP, sources will then need to contact FBO's Federal Service Desk to have their registration updated with export control access (JCP certified) and complete the process <https://www.fsd.gov/> . This takes approximately 3 days to complete the process. Once your FBO registration has been updated, please submit your request for access for the documentation of this requirement using your Marketing Partner Identification Number (MPIN). For more information please see the Vendor User Guide sections in reference to "Request Explicit Access to View a Document", "Viewing Export Controlled Documentation" or "Explicit Access and Export Controlled Documents" as applicable, found on the FBO website at [https://www.fbo.gov/downloads/FBO\\_Vendor\\_Guide\\_v1.7.pdf](https://www.fbo.gov/downloads/FBO_Vendor_Guide_v1.7.pdf).

NASA Clause 1852.215-84, Ombudsman, is applicable. The Center Ombudsman for this acquisition can be found at [http://prod.nais.nasa.gov/pub/pub\\_library/Omb.html](http://prod.nais.nasa.gov/pub/pub_library/Omb.html).

The solicitation and any documents related to this procurement will be available over the Internet. These documents will reside on a World Wide Web (WWW) server, which may be accessed using a WWW browser application. The Internet site, or URL, for the NASA/KSC Business Opportunities home page is <http://prod.nais.nasa.gov/cgi-bin/eps/bizops.cgi?gr=D&pin=76> It is the offeror's responsibility to monitor the Internet cite for the release of the solicitation and amendments (if any). Potential offerors will be responsible for downloading their own copy of the solicitation and amendments, if any.