

Special Notice 13-SN-0023
Special Program Announcement for 2013 Office of Naval Research
Research Opportunity:
Select Topics in Power Generation and Energy Storage

The purpose of this amendment is to respond to questions submitted from 13 AUG 2013 to 29 AUG 2013.

(Answers to questions did not require the Office of Naval Research to revise the content of the Special Notice itself.)

Questions and Answers are provided as follows:

Question 1: Topic 1: Please clarify from the topic description, whether you were looking more for new battery chemistries or would also consider engineering approaches (e.g., physics-based electrochemical models combined with state-of-the-art control solutions) to expand the performance/lifetime envelope of existing chemistries?

Answer 1: As described in the Special Notice, approaches should focus on development and demonstration of enhanced cell-level performance and safety, which could include new chemistries and/or engineering approaches.

Question 2: Topic 1: Would performance and safety advances in lithium rechargeable or lithium-ion rechargeable batteries qualify under Topic #1 ONR BAA Special Notice 13-SN-0023?

Answer 2: ONR will consider lithium and lithium-ion rechargeable solutions under Topic #1.

Question 3: Can performers team with a national laboratory that has specialized capability?

Answer 3: In accordance with ONR BAA 13-001, Section III. ELIGIBILITY INFORMATION), “Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.”

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Question 4: Topic 1: Can you define goals for specific power, specific energy, cycle life, temperature range?

Answer 4: Approaches should demonstrate capabilities for these metrics that surpass currently available chemistries and cell designs (e.g. power or energy cell of a specific type), and the basis should be provided. Given the metrics mentioned in 13-SN-0023, deep discharge at high rates, and at elevated temperatures beyond traditionally “accepted” values are desired.

Question 5: Topic 1: Would an approach that develops a new separator (but does not include anode or cathode development) and conducts testing using button cells with existing state-of-the-art cathode and anode materials be considered?

Answer 5: As described in the Special Notice, cell demonstration at the 5-10 Ah laboratory/proof-of-concept level is expected. Approaches may include a combination of new and existing anode, cathode, separator and other materials.

Question 6: Topic 1: What is the operating temperature range?

Answer 6: The notice specifies the desire for stability with cell temperatures approaching 80°C. Approaches should demonstrate low temperature capabilities that meet or surpass currently available chemistries and cell designs. Offerors should indicate the anticipated high and low storage and operational temperature range capability of the proposed technology and the scientific basis for the estimate.

Question 7: Topic 1: Would this be a primary or rechargeable battery?

Answer 7: Only rechargeable batteries are being considered under this topic.

Question 8: Topic 1: Please provide more details about each application - beyond battery specification, i.e. where is the end use for the batteries?

Answer 8: There are many potential end uses for the proposed battery technology to support high power loads in either a continuous or transient fashion. Application-specific details are outside the scope of this topic, which is focused on the development and demonstration of improved cell-level technology.

Question 9: Topic 1: What does Navy need that the industry can't currently supply?

Answer 9: Current, lithium-ion technology has limitations in terms of safety and performance (energy and power density) for many Navy applications. Many existing methods for safety mitigation result in a significant decrease in energy and power density at the system level.

Question 10: Topic 1: Is a non-flammable electrolyte at the expense of some energy density a benefit?

Answer 10: Many existing methods for safety mitigation result in a significant decrease in energy and power density at the system level. Cell-level approach trade-offs that offer benefit with minimal negative effect or improved system-level capability are desired.

Question 11: Topic 1: We would need to partner with a battery manufacturer since we are primarily a battery materials company. Is there a preferred US-based battery vendor?

Answer 11: Navy does not have a preferred battery vendor.

Question 12: Topic 1: How important is the high C rates versus high energy capability?

Answer 12: As indicated in the topic description, a C rate of 15C or better is desired; however, approaches that enable a combination of both higher C rates and energy densities in an individual cell than current state of the art technologies will be considered.

Question 13: Can I submit a white paper if I am already funded on another ONR program?

Answer 13: Yes.

Question 14: How do you feel about industrial partners?

Answer 14: As described in 13-SN-0023 (Section V. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION) and ONR BAA 13-001(Section III. ELIGIBILITY INFORMATION and Section V, EVALUATION CRITERIA), teaming with industry is encouraged.

Question 15: Is cost sharing required or encouraged?

Answer 15: The Long Range BAA neither requires nor encourages cost sharing.

Question 16: Topic 1: Could you describe or provide an exemplary power or rate profile?

Answer 16: There are many potential end uses for the proposed battery technology to support high power loads in either a continuous or transient fashion, with varying load profiles. Application-specific details such as load profiles are outside the scope of this topic, which is focused on the development and demonstration of improved cell-level technology.

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Question 17: Would you consider efficient supercapacitor (with high energy density and power density) technologies under the Topic #1 - Safe Energy and Power Dense Battery Technology?

Answer 17: As mentioned in 13-SN-0023, deep discharge at high rates, and at elevated temperatures beyond traditionally “accepted” values are desired. Cell-level approaches capable of demonstrating capabilities for these metrics that surpass currently available technologies will be considered.

Question 18: Topic #3. Can you let us know what generator size you are targeting for this technology?

Answer 18: Navy generators tend to fall into the range of hundreds of kW for emergency generators, a few MW for most ship power generation, and tens of MW for ships with very high electrical demands such as IPS ships and recent CVNs.

Question 19: Is there any restriction as to the number of proposals that a company may team on? We are considering being a sub on one proposal and would like to lead our own proposal in addition to this.

Answer 19: No, there is no restriction to the number of proposals that an offeror may submit as the lead and/or participate on as a team member.

Question 20: Topic 1: What is the desired storage time and state-of-charge during storage?

Answer 20: The storage time and state-of-charge during storage will differ depending on the application, and those details are beyond the scope of this Special Notice. Offerors should indicate the anticipated storage time and preferred state-of-charge during storage of the proposed technology and the scientific basis for the estimate

Question 21: Topic 1: Is hard packaging required for the deliverable cells or can these be pouch cells?

Answer 21: No, hard packaging is not required for the cell deliverables. Pouch cells are acceptable.

Question 22: Will our white paper be rejected if the funding limits are exceeded by 50%?

Answer 22: All white papers submitted under the Special Notice will be considered, with award recommendations based on the evaluation criteria listed in BAA 13-001 and program balance to provide overall value to the Government.

Question 23: Topic 1: Is fast charge desirable?

Answer 23: Yes, fast charge is desirable and should be considered within the trade space of the other desired metrics.

Question 24: Topic 1: What are the targets for cell-level specific energy and power at the 15C rate?

Answer 24: See questions 4 and 12

Question 25: Topic 1: Are there targets for volumetric power or energy density at the 15C rate?

Answer 25: See questions 4 and 12

Question 26: Topic 1: What is the ultimate battery Ah size and voltage requirement?

Answer 26: See question 8

Question 27: Topics 2 and 3: Would improved diesel combustion technologies be considered under this topic?

Answer 27: Topics 2 and 3 relate only to generators, not prime movers (engines). Improved fuel combustion technology development is not sought under this Special Notice.

Question 28: Topic 1: Would a hybrid high-energy/high-power system be of interest under this topic?

Answer 28: No, this topic is focused on cell-level improvements to high rate technology and is not considering systems approaches.

Question 29: Topic 1: The call does not state explicitly whether the battery will be used in the water or not. Will this be operated in the water, or on land/ship surface?

Answer 29: There are many potential end uses for the proposed battery technology. Application-specific details are outside the scope of this topic, which is focused on the development and demonstration of improved cell-level technology.