



विज्ञान एवं प्रौद्योगिकी विभाग  
DEPARTMENT OF  
**SCIENCE & TECHNOLOGY**

**GENERAL INFORMATION AND FORMAT  
FOR SUBMISSION OF PROJECT PROPOSALS  
FOR FINANCIAL ASSISTANCE**

*For*

**ADVANCED MATERIALS AND ENERGY STORAGE  
TECHNOLOGY (AMEST) PROGRAMME**

*Under*

**(TECHNOLOGY MISSION DIVISION- Energy, Water & Others)**

**Last Date of Submission: 30<sup>th</sup> September, 2022**



सत्यमेव जयते

GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE & TECHNOLOGY  
DEPARTMENT OF SCIENCE & TECHNOLOGY  
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD  
NEW DELHI – 110 016

## **GENERAL INFORMATION**

The Department of Science and Technology (DST) is pleased to announce Advanced Materials and Energy Storage Technology (AMEST) Programme. The outcome of the call of this theme will lead to energy storage technologies ready for commercialization, with the perspective to capture specific systems integration opportunities.

### **IDENTIFIED AREAS:**

Following areas have been identified and project proposals may be submitted for research development and demonstration under AMEST.

- Innovative, Sustainable specific energy storage technologies, which are efficient, clean, high-energy density, low-cost, standalone or integrated for stationary mobile applications and electrical and electronic devices & appliances.
- Self-reliance in energy storage systems is an important agenda to achieve the fossil fuel independence and to sustain green energy. The requirements of energy storage are application specific with importance to high level of safety and low cost. Some application demands High Power Density, some high energy density, some Fast Charging and some high cycle life. The lists of applications envisaged in the present call are the following:
  - a. Electric Mobility: Safety, Fast Charging, High Energy Density, Decent Power Density, High Cycle life, Low Cost.
  - b. Stationary Storage for Renewable Energy: Safety, High Power Density, Decent Energy Density, High Cycle Life, Low Cost.
  - c. Electronic Toys: Safety, Fast Charging, Low Cost
- What is expected as outcome of the project is advanced energy storage systems with round trip efficiency >90%, specific energy >300 Wh/kg, energy density >800 Wh/l, power density 1 kW/l, cycle life >5000 and cost < \$ 200/kWh at individual cell or device and <\$ 300/kWh at system level. The above numbers specified will vary depending on systems chosen. (Batteries, Supercapacitors)
- This approach should ultimately lead to integration of high performance product at reduced cost of production.
- Innovative concepts and techniques are required with respect to packaging and application for energy storage systems.
- Researchers in collaboration with the Indian industries can come out with advanced materials production which are directly used in the storage applications.

## **WHO CAN SUBMIT PROJECT PROPOSALS**

The Project Proposal could be submitted for financial support through **ONLINE MODE ONLY** by Scientists/ Engineers/ Technologists working in universities and other Academic institutions; R&D institutions/ laboratories having adequate infrastructure and facilities to carry out R&D work. The PI(s) should have relevant experience as evident from previous prototype commercialization or development or practical experience in the chosen area/topic with field knowledge.

Financial support will be provided only for temporary staff salaries, equipment, consumables, domestic travel and other miscellaneous items. No support will be provided towards basic infrastructure, buildings and International travel. The investigators/ R&D Group should have adequate experience and expertise in the relevant area of proposal. Proposals submitted along with relevant Industry-partner will be eligible for the financial support. It may be noted that underlining importance of ***Atmanirbhar Bharat*** for all round growth and development of nation, objective of this call is to support activities related to indigenous development of new material and devices for energy storage for implementation of various applications for energy harvesting and storage technologies in the country. The project leading to develop a device/prototype with **Technology Readiness Levels (TRL) 5 & above** and having potential for commercialization will be preferred for financial support. Basic R&D proposal leading to only research publications will not be supported under this call. Besides, TRL level requirement, PIs should also look into Regulator Readiness Level (RRL) and Market Readiness Level (MRL) for implementation of the technology. The commercialization plan should be clearly spelled out with achievable milestones, timelines, justifiable budget requirement and engagement with prospective technology transfer partners or technology transfer facilitating bodies.

**Note:** The PI or groups already having ongoing projects under Technology Mission Division Programme of DST may apply after successfully completing the same only.

## **PROCEDURE FOR SUBMISSION OF PROJECT PROPOSALS**

The Project Proposal could be submitted in the enclosed format through **ONLINE MODE ONLY** ([www.onlinedst.gov.in](http://www.onlinedst.gov.in)) **NO HARDCOPY** of the project proposal should be submitted.

Please ensure that following documents have been completed and uploaded along with the proposal.

- i. Certificate from the investigator (in the enclosed format); and
- ii. Endorsement from Head of the institution on Letter Head (in the enclosed format)
- iii. A signed certificate for the Conflict of Interest (in the enclosed format)
- iv. Bio data of PI/Co-PI

Application received without above documents with incomplete information will not be entertained. **Soft copy in pdf format is also to be emailed to [ranjith.krishnapai@gov.in](mailto:ranjith.krishnapai@gov.in) on or before 30<sup>th</sup> September, 2022 (05:30pm).**

**Contacts:** Any enquiries related to this call should be directed to:

**Dr. Ranjith Krishna Pai**

Director/Scientist 'E'

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## **POINTS TO BE KEPT IN MIND WHILE SUBMITTING PROJECT PROPOSALS**

### **1. Involvement of industries**

It is envisaged that the end product of development shall be transferred to industries for commercial production. Hence, it is desirable that industry (ies) may be associated with project right from the beginning with defined participation in technical terms.

As far as possible the proposed prototype/device should have sufficient users in the country and there should be adequate demand for the product.

### **2. Project Duration:**

The projects should be time-bound normally for duration of 2-3 years depending upon the prototype/device to be developed.

### **3. Funding Available: 3 Crore maximum**

### **4. Monitoring of the Project:**

Implementation of the projects will be monitored regularly through Progress Reports, Financial Statements and Committee of Experts in Group review meetings and onsite as well. DST approved committee may visit the organization periodically to review the progress of the work being carried out and suggest suitable measures to ensure realization of the objectives of the project.

### **5. Fund support under non -recurring grant for required equipment's will be given only if the same facility is not available in the PI' institution or nearby institutions. The laboratories and institutions should be well-equipped and preferably have all the essential equipment and infrastructure for the prototype development. No major infrastructure will be funded.**

## **GENERAL TERMS AND CONDITIONS FOR THE GRANT**

1. Information regarding Proof of Concept and Early prototype should be provided in the project proposal.
2. The PI can submit only one proposal against this call. Submission of more than one proposal from a PI would be liable to be disqualification of all the submitted proposal.
3. The Institution where project will be implemented, will assume financial and other administrative responsibilities of the project.
4. In case of multi-institutional project, the Principal Investigator has to obtain formal agreement from the collaborating Institutions/Scientists.
5. International travel is normally not permissible under the project.
6. The manpower recruited for the project should be paid as per the rules of the institute and guidelines of the Government of India (**OM. No. SR/S9/Z-08/2018 dated 30.01.2019 and SR/S9/Z-05/2019 dated 21.08.2019**). The posts which are not covered under the guidelines but permissible under projects at host institute are also permitted.

The temporary staff employed for the project by the organization is not treated as employees of Government of India and the deployment of such staff at the time of termination of the project will not be the concern / responsibility of the Government of India.

7. It is the policy of DST to maximize the use of equipment. In this light, investigator shall permit the use of spare or idle capacities of equipment procured under the project by bona fide users (research workers in other DST funded projects or other projects of the institute).
8. All the assets including equipment acquired and prototypes fabricated from the grant will be the property of Government of India and should not be disposed of, or utilized for purposes other than those for which the grant has been sanctioned, without the prior sanction of the Department of Science & Technology.
9. The Principal Investigator/ Organization will be required to furnish progress report every six months on the progress made on all aspects of the project including expenditure incurred on various approved items during the period.
10. The Comptroller and Auditor General will have the right to access to the books and accounts of the organization for Grants received from the Government.
11. The organization would maintain separate account for the project. The grant should be kept in an interest earning bank account and the interest earned should be reported to the Department of Science & Technology. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

12. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. [www.bharatkosh.gov.in](http://www.bharatkosh.gov.in)), immediately after finalization of accounts, as it shall not be adjusted towards future release of Grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/ Utilization Certificate for considering subsequent release of Grant/ Closure of Project accounts.
13. Grant can be terminated by DST at any stage if it is convinced that the Grant has not been properly utilized or appropriate progress is not being made.
14. If the Principal Investigator wishes to leave the organization where the project is based, the organization/investigator will inform the same to DST and with its consultation evolve steps to ensure successful completion of the project, before relieving the Principal Investigator. The Investigator should submit three copies of complete and detailed report of the work done by them on the project before leaving the organization.
15. Sale proceeds, if any, of the components, prototypes, pilot plants etc. fabricated as a result of the development of the project arising directly from funds granted by the Department of Science & Technology shall be remitted to the Government of India. The Government of India, may, at its discretion allow a portion of such receipt to be retained by the organization.
16. The know-how generated from the project would be the property of the Government of India and any receipts by way of sale of know-how, utilization of know-how for production, royalties etc. shall belong to the Government of India. The Government of India, may, at its discretion, allow a portion of such receipts to be retained by the organization.
17. The Principal Investigator / organization will prepare all the documents that would be required for the transfer of know-how to the production agency/agencies and submit them to DST as and when required. The organization will be responsible to transfer the know-how developed to the production agency/ agencies and supply all the needed information to the production agency/ agencies as and when required.
18. No financial support for manpower and equipment will be provided to the industry. However, industry can hire the manpower through academic institution. Industrial SIROs recognized by DSIR, the release is restricted to 50% of sanctioned amount. The balance 50% is released on the successful completion of the project as the reimbursement.

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