Call for Proposals: Manufacturing Readiness R&D Challenge
NSF Energy Storage Engine in Upstate New York (NSF Award # 2315695)

Release Date: April 23, 2026
Application Process: Letter of Intent + Full Proposal + Interview
Applicant Eligibility: Leads from US based companies
Submission Window: Rolling basis
Award Size: From $200,000 to $600,000 per project
Anticipated Program Launch: June 1, 2026
Project Duration: 1-3 years (not to exceed February 28, 2029)
Funding Contingency (post-award): Completion of a techno-economic analysis within the first 2 months of the project showing viability of the proposed project.
APPLY TODAY!
Awards subject to the availability of funds

1. Introduction

The NSF Energy Storage Engine in Upstate New York (the Engine) invites US-based industrial partners to submit required Letters of Intent (LOIs) for funding under the Engine's Manufacturing Readiness Challenge. This program is designed to support high-impact engineering developments aimed at removing sector-wide barriers to domestic manufacturing of next-generation battery technologies. The Engine will support these efforts through funding, validation and scale-up through the Engine's Co-work environment and Battery-NY prototyping facility and connections to complementary programs and partners.

The program prioritizes technologies that present a clear vision for next generation of American battery technology, focusing on non-toxic, PFAS-free, and energy-efficient solutions, with a strong emphasis on manufacturing scalability. Interest is placed on innovations such as semi-dry to dry electrode processing or quasi-solid electrolyte systems. The overarching objective is to catalyze a new generation of American battery technologies/products that can compete globally while strengthening domestic production capacity.

2. Estimated Number of Awards

Each selected project will receive up to a total of $600,000, over a period of 1-3 years (all work must be completed and billed by 2/28/2029) to implement the project activities, subject to continued funding by the Prime Sponsor. Annual funding is capped at $200,000 per project. The Engine anticipates funding three to four projects, with a median funding level of $300,000 over two years.

3. Applicant Eligibility

- Lead: Each proposal must be led by an US based industrial partner (startups, small and medium-sized enterprises, or established corporations). Proposals from equipment manufacturers are encouraged.
- Partners: Partners are required, and maybe from academia, industry or other non-profit. Consortia of three or more partners are encouraged
- Federal Compliance:

- The lead organization must have a SAM.GOV or Unique Entity Identifier and be eligible to receive federal funding, through a created NSF account.
- Senior personnel on awards must have the Research Security training completed prior to full proposal being submitted.

4. Program Purpose

Program Objective

The objective of this program is to remove systemic barriers to building an American battery manufacturing capability, that will improve national security, grid resilience and energy dominance. One area of interest is scaling semi-dry to dry-processing lithium-ion battery manufacturing by developing and validating non-toxic, PFAS-free solvent-less electrode fabrication methods that are compatible with high-throughput, low cost, energy-efficient production. Technologies must demonstrate clear techno-economic viability in the first two months of the award term to be eligible for future funding.

In this program, the projects may leverage the Battery-NY facility and the Engine's Co-Work experimental environment within it to accelerate validation, de-risk scale-up, and demonstrate manufacturability of emerging battery technologies under realistic conditions. This flexible, high-throughput manufacturing capabilities at Battery-NY support diverse battery chemistries, formats, reducing commercialization risk and accelerates deployment within the U.S. battery ecosystem.

The project should address one or more of the following challenges:

- Supply chain constraints: Dependence on costly and high-risk materials (like cobalt) and limited domestic production of key cell components.
- Regulatory and environmental burdens: Use of toxic materials (e.g., NMP, PFAS) that increase compliance costs and slow adoption.
- Cost and Energy-intensive manufacturing processes: Reduce the 40-80 kWh of energy currently required to produce 1 kWh cell by eliminating energy-intensive steps such as drying, solvent recovery, and conventional electrode fabrication.
- AI-enabled manufacturing: Development and integration of metrology tools with AI-driven diagnostics for real-time quality control, process optimization, and predictive maintenance.
- Lack of scalable, high-throughput manufacturing technologies: Includes lack of high-throughput equipment, powder handling and dispersion systems, binder systems suitable for dry processing, ensuring validation of safety, yield, and cost targets under realistic manufacturing conditions.
- Lack of safer and stable battery technologies: Fragmented approaches across chemistry, mechanical design, and electrical systems limit overall safety; improved validation methods for anti-propagation and system-level performance are needed.

These areas highlight priority opportunities but do not represent an exhaustive list. The overarching goal is to develop transformative manufacturing technologies that enable a competitive American-based battery industry.

Out of Scope

Proposals focused on battery recycling and recovery, next-generation chemistries beyond lithium or lithium-ion, power electronics, or work that does not significantly advance beyond current lithium-ion technology are not responsive to this RFP. Certification will not be funded.

5. Application Process: APPLY TODAY!

Step 1: Letter of Intent (LOI)

LOIs will be accepted on a rolling basis and serve as the initial step in the application process.

The LOI is limited to *one page (11 pt font)* and must include:

- Project title and team: Include project title, PI(s), lead organization, partners, and key personnel roles and expertise relevant to scale-up manufacturing
- Project overview: Briefly describe the technology and its alignment with grand challenges
- Scale-up and potential Battery-NY utilization: Explain how the technology will be validated and scaled leveraging the Engine's Co-Work facility and/or Battery-NY, including pathway from lab to pilot-scale manufacturing.
- Techno-economic analysis (TEA) and impact: Outline the required 2-month TEA plan and summarize expected commercialization potential and U.S. manufacturing impact.

LOIs will be reviewed for responsiveness to the RFP and fit to program goals. Applicants will be notified of their status and, if selected, invited to submit a full proposal. Feedback will be provided to strengthen invited applications.
Full Proposal deadline: Invited applicants must submit a full proposal within 10 calendar days of notification (by 5:00 PM). Only invited applicants are eligible.

Step 2: Full proposal
Accepted LOIs will then be invited to submit a full proposal as the second step of the application process. Full Proposals is limited to *three pages (11 pt font)* and must include:

- Project Abstract: Describe the technical problem and systemic barrier being addressed
- Project Description: Precisely describe the technology and quarterly measurable milestones and performance targets, scale-up pathways, key risks with mitigation strategies
  Note: Award disbursements will be aligned with milestone completion
- Techno-Economic Analysis (TEA) Plan: Provide a detailed plan for the mandatory two-month TEA phase and how TEA results will guide go/no-go decisions for release of remainder of funding.
- Manufacturing Readiness: Describe how available infrastructure will be used for validation, high-throughput processing, and testing.
- Commercialization Pathway: Describe initial commercialization strategy and potential industry partners or adopters
- Competitive Landscape: Provide a brief assessment of competing technologies or organizations and how the proposed solution is differentiated.
- Supporting Documents (not included in the three pages):
  - Bio sketches of key personnel - NSF required format created using SciENcv
  - Relevant current and pending (other) support - NSF required format created using SciENcv
  - Summary of institutional capabilities and facilities available to project
  - Letter of Commitment from each partner organization
  - Budget and Justification
  - Workforce Development Plan: Include a short plan to support 1-2 interns with hands-on industrial experience (funded by the Engine).

Step 3: Final Interview Step
Following the review of full proposals, invited teams will participate in an interview process with the Engine's leadership and industry experts to assess commercialization pathways and team qualifications as the final application step.

6. Proposal Review
The proposals will be evaluated based on the extent to which they address the required program elements through the components described in Section 4, including:

- Technical innovation and differentiation: Degree of advancement beyond current state-of-the-art (e.g., elimination of solvents like NMP, PFAS-free processing, improvements in energy use, cost, or throughput).
- Alignment with program goals: Relevance to Grand Challenges such as cost/energy reduction, toxic material elimination, supply chain resilience, and safety improvement.
- Techno-economic viability**:** Strength and clarity of TEA approach and likelihood that results will support commercialization and investment decisions.
- Manufacturing scalability and readiness: Feasibility of scaling from lab to pilot production and effective use of available infrastructure (including co-work dry room).
- Risk management**:** Identification of key risks (materials, processing, scale-up), and mitigation strategies.
- Team capability: Expertise and prior-experience of the PI and team in relevant fields (battery manufacturing, materials, scale-up engineering).
- Commercialization and impact potential**:** Likelihood of adoption in real manufacturing environments, clarity of market pathway, and potential to strengthen U.S. domestic battery manufacturing capacity.

7. Post-Award Terms and Conditions

- Initial Milestone: Funding is contingent upon the successful completion of a Techno-Economic Analysis (TEA) within the first two months of the award.
- Progress Reports: All awardees will be required to provide quarterly progress reports and a final report upon completion of the project. There will be an annual in-person review.
- Financial Administration: Awardees must follow all applicable regulations in the Office of Management and Budget Uniform Guidance (2 CFR 200) for administration of Federal awards by non-profit organizations and Prime Award Terms and Conditions.
- Conflict of Interest Policy: Awardees must have an established conflict of interest policy for Federal awards. Awardees must disclose in writing any potential conflict of interest to the Federal awarding agency or pass-through entity in accordance with National Science Foundation policy.
- Termination Clause: Sponsor reserves the right to terminate funding if the TEA is not completed within the first 2 months agreement; failure to meet progress milestones; failure to meet NSF-required reporting criteria; to suspend or terminate the award with or without cause when it believes such action is reasonable to protect its interest or the interests of the Federal Government.
- IP clause: Inventions must be disclosed to the Federal Government with applicable requirements. Awardees are expected to retain ownership of their IP.
- NDA agreement: If needed, the administering organization may enter into non-disclosure agreements (NDAs) to facilitate the review of project progress. Any proprietary information must be clearly identified in all proposals and reports.

8. Additional Terms of the Call for LOI

- The NSF Energy Storage Engine in Upstate New York reserves the right to withdraw this call for LOI at any time, at the Engine's sole discretion, for any reason.
- Funds being issued are subject to prior approval by the prime sponsor, the National Science Foundation.
- Continued support beyond Year 1 is subject to funding being available from the NSF.