



Energy Systems Integration Facility Annual User Call: Fiscal Year 2018

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1. Introduction

The U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE), established and designated as a DOE user facility the Energy Systems Integration Facility (ESIF) on the campus of the National Renewable Energy Laboratory (NREL).¹ The 182,500-ft² ESIF provides state-of-the-art laboratory and support infrastructure to optimize the design and performance of electrical, thermal, fuel, and information technologies and systems at scale.



NREL, 26217

The ESIF is DOE's first user facility that can conduct integrated megawatt-scale research, development, and demonstration of the components and strategies needed to safely and seamlessly integrate clean energy technologies into our existing energy infrastructure.

The annual user call for proposals is open from June 15–August 1, 2017, for projects focused on advancing grid modernization, energy systems integration, and renewable generation.

Allocation decisions are anticipated to be made in October 2017, and recipients of accepted proposals will be granted access to the ESIF's capabilities beginning as early as November 2017. Accepted proposals are **valid for two years**, provided that a summary and extension request demonstrates sufficient progress toward the first year's stated goals.

Proposals are due by August 1, 2017, at 11:59 p.m. Mountain Daylight Time and can be submitted online at <https://www.nrel.gov/esif/user-call.html>.

This document is a general guideline and resource to assist ESIF users and staff in locating policies, practices, and subject matter experts. It is not intended to replace or amend formal NREL policies.

2. Mission

NREL advances the science and engineering of energy-efficiency, sustainable transportation, and renewable power technologies by providing the knowledge to integrate and optimize energy systems. The mission of the ESIF as a national user facility is to provide integrated experimental and computational resources for energy systems integration research, development, and demonstration.

High-impact projects are of particular interest. Projects that meet the high-impact definition in the *Energy Systems Integration Facility (ESIF): Facility Stewardship Plan*² are given priority.

To be considered a high-impact project, the project must:

¹ NREL is managed and operated by the Alliance for Sustainable Energy, LLC under DOE contract number DE-AC36-08GO28308.

² <http://www.nrel.gov/docs/fy16osti/67166.pdf>, p. 38.

- Use multiple technologies by multiple program offices
- Solve challenges outlined in the DOE *Grid Modernization Multi-Year Program Plan*³
- Demonstrate impact of the companies and regions it supports
- Be scalable nationally
- Develop lessons learned that could be implemented nationwide.

3. ESIF User Types

The ESIF's capabilities simultaneously support two categories of use:

- **DOE projects.** As a DOE user facility, the ESIF offers technical domain assistance to help users effectively use the laboratory's resources. Allocations are determined via a request-and-review process. Within the user facility context, hardware and staff time are covered under the ESIF's operating budget. This includes all resources purchased or co-purchased by the ESIF's construction budget and/or the ESIF's operation budget. All DOE-funded projects are nonproprietary in nature and require publication of results.
- **Strategic partnership projects.** The ESIF can also support strategic partnership projects through proprietary or nonproprietary agreements. Users might provide funds to cover procurement, implementation, and ongoing hardware/software maintenance for experiments to be run by NREL staff and located in the ESIF. Expenses associated with basic setup and decommissioning of experiments are provided by the ESIF's operating budget. A detailed cost estimate is provided after initial project recommendations are made regarding the proposed scope. A proposer might withdraw an allocation request if the final cost is not acceptable.

4. Resource Availability

The ESIF's resources are closely monitored, and every effort is made to minimize disruptions and maximize availability to users; however, regular maintenance, unanticipated manufacturing issues, and failure of equipment might cause downtime. NREL staff takes all precautions to minimize the impact of such events.

Limited funding *may* be available for projects that meet the high-impact project definition, result in a lasting capability for ESIF, and include a dollar-for-dollar match to DOE funding.

5. User Definition

NREL has established a set of core principles to define and count users of the ESIF. For the purposes of reporting data, a **user** is an individual who employs the ESIF's resources as part of an active allocation. An individual is counted as a user only once per fiscal year, even if a particular user is part of multiple projects. Laboratory use by any individual at any time during

³ <https://energy.gov/downloads/grid-modernization-multi-year-program-plan-mypp>.

the fiscal year makes the user eligible for inclusion. Reports sent to DOE and NREL management typically contain year-to-date counts.

6. Eligibility and Submission Process

Allocation decisions are made by DOE and NREL management based on a review process designed to identify the highest impact research projects that align with DOE and NREL priorities.

6.1. Eligibility

Allocation of the ESIF’s resources is available via the request-and-review process to any funded researcher or engineer engaged in research-and-development activities relevant to DOE and NREL missions. An individual’s access to the ESIF and specific funding sources must be approved by DOE before users arrive at NREL.

6.2. Submission Process

Requests to use the ESIF’s resources are typically made on an annual basis. An allocation is the designation of a specific laboratory work station and equipment for use under a particular project. To request an allocation, users submit required information about the project and the resources needed. Templates and forms are available at <https://www.nrel.gov/esif/user-call.html>.

6.2.1. Timeline

The process for requests, review, and allocation of resources follows the steps shown in Table 1 below. Off-cycle allocations may be considered if resources are available.

Table 1. Allocation Timeline

Call for allocation requests for upcoming period	June 15
Request forms due (submission deadline)	Aug 1
Review period	August–October
Award memos sent	November
User agreements finalized	November–December
Allocation period of performance (subject to annual continuation review)	Up to 24 months

6.2.2. Submitting a Request

Participants who are listed in the allocation requests and associated with a particular project are considered users as defined above. The point of contact for the allocation request is defined as the project leader. Allocation requests should have only one project leader. No limit is placed on the number of users associated with a particular project.

Responsibilities of the project leader during the request-and-review period are to:

- Fill out the online for and resource request template available at <https://www.nrel.gov/esif/user-call.html> and submit the request by the submission deadline

- Ensure the accuracy of the request content, including the names and contact information of all users associated with the project
- Respond in a timely manner to any requests from the ESIF’s operation team or members of the review committee.

After receiving an allocation, the project leader’s responsibilities are to:

- Execute the appropriate agreement associated with the project
- Complete all necessary forms to safely and securely use the ESIF’s resources
- Distribute sub-allocations to project teams when relevant
- Provide an annual report.

Upon receipt of an ESIF allocation, a project leader may delegate these responsibilities to one of the project users.

Example user agreements, request template, and instructions for requesting ESIF resources are available at <https://www.nrel.gov/esif/user-call.html>.

Projects that require High Performance Computing (HPC) allocations must fill out the allocation request located at <https://hpc.nrel.gov/users/allocations/fy18-allocations>.

6.2.3. Screening

The ESIF’s operation staff screens all allocation requests to assess their alignment with the DOE and NREL missions and the technical readiness of the laboratory or equipment requested.

Questions to be addressed are:

1. Is the described work consistent with DOE and NREL mission objectives? Interpretation of mission is intended to be broad in this initial screening.
2. Are the proposed methods and required equipment available and are they appropriate for ESIF resources?

This screening process is intended to address such issues as dependence on nonexistent hardware or software that cannot run on existing hardware. The screening is not an assessment of the maturity or the merits of the domain work being proposed.

7. Review Process

Requests that pass the initial screening are subject to review by the ESIF’s User Call Review committee. Reviewers rate the projects on a scale from 1 (lowest score) to 5 (highest score) according to the criteria described below.

7.1. Criteria

Reviewers assess requests and assign scores based on technical impact, mission alignment, and the quality of the team and resources. Projects that meet the high-impact definition in the *Energy*

*Systems Integration Facility (ESIF): Facility Stewardship Plan*⁴ are given priority. High-impact projects must:

- Use multiple technologies by multiple program offices
- Solve challenges outlined in the DOE *Grid Modernization Multi-Year Program Plan*⁵
- Demonstrate impact of the companies and regions it supports
- Be scalable nationally
- Develop lessons learned that could be implemented nationwide.

7.2. Ratings and Weighted Scores

Table 2 shows examples that are intended to help distinguish among the scores, but these descriptions are not intended to constrain the reviewers' evaluations or comments. Scores are weighted based on criteria and summed to generate an overall composite for each request.

⁴ <http://www.nrel.gov/docs/fy16osti/67166.pdf>, p. 38.

⁵ <https://energy.gov/downloads/grid-modernization-multi-year-program-plan-mypp>.

Table 2. Review Criteria^a

Score	Technical Impact	Project Mission Alignment	Quality of Team and Resources
	25%	25%	50%
5 Excellent	Likely of interest to the entire scientific, engineering, and analysis communities Will change a paradigm with effects among multiple disciplines Will impact the whole economy.	Aligns with a specific DOE/NREL research area of interest, program, and/or initiative.	Highly likely to meet project goals.
4 Very Good	Likely of interest to the entire scientific, engineering, and analysis communities Will change a paradigm with effects in a single discipline Will impact a single economic sector.	Aligns with a DOE/NREL mission but is outside of a specific program interest.	More than likely to meet project goals.
3 Good	Likely of interest to a single discipline within the scientific, engineering, and analysis communities Will modify a paradigm within a single discipline Will impact a single business area.	Aligns with a DOE/NREL mission to accelerate the development and adoption of energy-efficiency technologies.	Likely to meet project goals.
2 Fair	Potentially of interest to a subdiscipline within the scientific, engineering, and analysis communities Will inform existing paradigms Will have a minor economic impact.	Relates to a DOE/NREL mission to accelerate the development and adoption of energy-efficiency technologies but does not align with specific DOE program goals.	Potentially not likely to meet project goals.
1 Poor	Potentially of interest to a few research groups Will confirm existing paradigm Has no expected economic impact.	Does not relate to a DOE/NREL mission.	Not likely to meet project goals.

^a Past performance in the ESIF's laboratories will be taken into consideration when applicable. All safety protocols, scheduling, and use procedures require strict adherence. Violations of any of the ESIF's protocols might result in prohibition from future use of the ESIF's capabilities.

7.3. Conflicts of Interest and Confidentiality

Every effort is made to avoid conflicts of interest. Reviewers are required to identify potential conflicts of interest on any projects they are requested to review. Reviewers are not allowed to review requests from former students, postdocs, advisors, or current or recent collaborators. If a project leader is concerned about a conflict of interest, the project leader should include this in the proposal and could request that a specific individual not review it.

Results of the reviews are made available only to the project leader, DOE and NREL managers, and the ESIF's operation staff.

8. Allocation

After reviewing all annual requests, it is necessary to reconcile the total requested resources with those that are available. The ESIF's management team calculates available resources and provides this information to appropriate DOE and NREL.

The ESIF's user program manager provides a summary of the requests and the final reviewer scores and comments to DOE and NREL managers to determine distribution. DOE managers then rank the projects according to the following tiers:

1. Very important
2. Nice to do but not critical
3. Not important.

When consensus is reached, DOE and NREL managers make recommendations to the ESIF's center director and associate laboratory director, who confirm final resource allocations.

9. Notification

The ESIF's user program manager sends memos to the project leaders of approved allocations. Email notifications are sent to project leaders whose requests for allocation are denied. The identities of reviewers are kept confidential, but reviewer comments, composite scores, and project rank are available to project leaders and teams upon request.

10. Management

A project leader might delegate decision-making authority and communication tasks to a team member to coordinate with ESIF staff.

10.1. Distribution of Resources

If schedules or needs change, the project leader might propose a different timeline or configuration throughout the year. The ESIF's staff makes every effort to accommodate changes if possible. Requests for changes should be sent by the project leader or their delegate to userprogram.esif@nrel.gov for consideration.

Funding associated with High-Impact Projects is intended to support NREL research staff working in partnership with external parties. No funding is available for supporting external parties.

10.2. Adding or Removing Users

Project leaders or their delegates are responsible for approving the addition or removal of user access associated with a particular project.

10.3. Annual Reports

Project leader or their delegates are responsible for submitting annual status reports describing the outcomes and impacts of the resources used. Requests seeking allocation continuations are contingent upon receiving a report on the previous project.

11. ESIF Service-Level Commitments

11.1. Business Hours

The ESIF's staff are available to monitor and manage systems and assist users during standard business hours, from 8:00 a.m. – 5:00 p.m., Monday–Friday, except on holidays or special campus closures.

11.2. After Hours

Frequently, the ESIF's staff monitor systems outside of standard business hours; however, the center does not maintain an on-call rotation. If hardware or software breaks outside of standard business hours, resolution is not expected to start until the next business day.

11.3. Unplanned Events

Unplanned system outages and equipment failures might occur. The ESIF's operation and engineering staff makes every effort to minimize disruptions caused by unplanned events.

12. Points of Contact

User Program Manager: Sarah Truitt, sarah.truitt@nrel.gov and (303) 275-4684

ESIF Grid Integration Laboratory Program Manager: Martha Symko-Davies

ESIF Center Director: Chad Blake