

INCITE Overview and Policies

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ACRONYMS

AI	artificial intelligence
ALCF	Argonne Leadership Computing Facility
ASCR	US DOE Department of Advanced Scientific Computing Research
ALCC	ASCR Leadership Computing Challenge
DD	Director's Discretionary allocation program
DOE	US Department of Energy
HPC	high-performance computing
INCITE	Innovative and Novel Computational Impact on Theory and Experiment
LCF	Leadership Computing Facility
NDA	nondisclosure agreement
OLCF	Oak Ridge Leadership Computing Facility
PI	principal investigator
PII	personally identifiable information

1. INCITE OVERVIEW AND POLICIES

1.1 Goal of INCITE Program

The Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program enables transformational advances in science and technology through large allocations of computer time, supporting resources, and data storage at the Argonne and Oak Ridge Leadership Computing Facility (LCF) centers for computationally intensive, large-scale research projects.

1.2 Types of Access

Three allocation programs are used to allocate time on the LCF resources: INCITE, Director’s Discretionary (DD), and the US Department of Energy (DOE) Department of Advanced Scientific Computing Research (ASCR) Leadership Computing Challenge (ALCC). This document focuses on the INCITE program overview and policies, but a brief description of the DD program is provided for informational purposes (Table 1). Links and contact information are in Section 3, “Points of Contact.”

Table 1. LCF Allocation Programs				
	INCITE 60%		ALCC 20%	Directors Discretionary 20%
Mission	High-risk, high-payoff science that requires LCF-scale resources		High-risk, high-payoff science aligned with DOE mission	Strategic LCF goals and the DOE ECP project
Frequency & Allocation Year	1x/year January-December		1x/year July- June	Rolling
Review Process	Scientific Peer-Review	Computational Readiness	Scientific Peer Review	Strategic Impact and Feasibility
Managed By	INCITE Management Committee		DOE Office of Science	ALCF & OLCF Management
Availability	Open to all scientific researchers and organizations including industry			

1.2.1 INCITE

The INCITE program is managed by the Argonne LCF (ALCF) and the Oak Ridge LCF (OLCF) management with the INCITE manager and represents up to 60% of the total allocable hours on the centers’ production systems.

Assessment criteria. To identify and select proposals in keeping with the goal of the INCITE program, proposals are solicited and assessed on two criteria: potential for impact and computational readiness. Weighted percentages are not applied to these factors; however, computational readiness is in itself

insufficient for an award of time through the INCITE program. The highest-impact proposals are identified through external peer review. Readiness reviews are then used to determine whether a proposal warrants an INCITE award or if a preliminary award (typically through the DD program) might be justified to enable the proposal team to gain exposure to the LCF resource(s) to clarify or redefine elements of the proposal for a possible future INCITE submittal.

The assessment questions posed to the reviewers are posted on the INCITE website (<http://www.doeleadershipcomputing.org/proposal/templates/>), and potential principal investigators (PIs) are strongly encouraged to read them. Broadly speaking, the reviewer assessments are broken into categories, as outlined in Table 2; items in bold face carry the greatest weight in award deliberations. Overall numeric ratings and rankings are provided by the peer reviewers. See Section 1.3 for information regarding selection of individuals who participate in the review process.

Table 2. Twofold Review Process for INCITE Proposals		
	New Proposal Assessment	Renewal Assessment
Peer Review INCITE Panels	<ul style="list-style-type: none"> • Scientific and/or technical merit • Appropriateness of proposal method, milestones given • Team qualifications • Reasonableness of requested resources 	<ul style="list-style-type: none"> • Met milestones for previous year(s) • On track to meet future milestones • Change in scope • Scientific and/or technical merit
Computational Readiness Review: LCF Centers	<ul style="list-style-type: none"> • Technical readiness • Appropriateness for requested resources 	<ul style="list-style-type: none"> • Met technical/ computational milestones • On track to meet future milestones
Award Decisions	INCITE Awards Committee comprised of LCF Directors, INCITE Program Manager, LCF Directors of Science, Sr. Management	

Types of submittals. The intent of INCITE is to support large-scale, compute and/or data intensive projects that would not be possible or productive without capability computing or other aspects of the LCFs architectures and/or infrastructure associated with such resources. In addition to scientific modeling and simulation campaigns, INCITE welcomes large-scale data analytics and AI applications. High impact data and learning proposals (e.g., data-intensive computing, HPC enabled data mining, machine learning and deep learning) with a focus on incorporating data-driven discovery for breakthroughs in science and engineering are encouraged. Recognizing the diversity of data analytic and AI applications, INCITE also encourages crosscutting proposals that bring together scientific modeling, simulation, data analysis, and/or learning in an integrated research campaign.

Size of awards. Up to sixty percent of the allocable time on the IBM/AC922 "Summit" machine at the OLCF and the Intel/Cray "Theta" machine at the ALCF will be allocated for calendar year (CY) 2021 through the INCITE program. For each resource, allocations are anticipated to be between 300k and 800k Summit node-hours, and 1.5M and 2.5M Theta node-hours. Individual awards may be higher. Please note that requests smaller than 20% of the average award on any particular resource may be considered too small for the INCITE program.

Award durations. Applicants can request allocations for 1 to 3 years. Requests for multiyear awards must be exceptional and clearly articulate the need—and anticipated milestones—for such a commitment of resources. Not all requests for multiyear awards will be granted; based on proposal assessment, it may be

determined that a single-year award is warranted, with more details of subsequent work to be provided in a new proposal the following year. PIs of multiyear awards are required to fill out a renewal application for each allocation period of the award.

Renewal requests undergo peer review of achievements to date and assessment of whether the project plans for the following year are consistent with the goals originally outlined. Successful renewal of a multiyear award is in part based on the project's delivery of the annual milestones and objectives stated in the proposal and effective use of the awarded resources. Historically, some INCITE renewal requests have been declined, often because of a change in scope such that it no longer meets the INCITE criteria or a lack of progress toward the goals originally proposed by the project team.

1.2.2 Director's Discretionary Program

The DD program is managed by the ALCF and OLCF center directors and represents up to 20% of the total allocable hours on the centers' production systems. DD time is used for strategic center activities and opportunities for external researchers to carry out programs of scalability and productivity enhancements for their applications. Awards of DD time may also be requested by prospective INCITE PIs to carry out porting, tuning, and scaling and to gather benchmarking data for inclusion in INCITE proposals. *Prospective INCITE PIs are strongly encouraged to consider requesting access through the DD program.* Although not a requirement that benchmarking be carried out on the LCF system being requested, competitive INCITE proposals will present benchmarking data from the LCF system or on a comparable resource. Requests for DD time should be made at least 2 months prior to the close of the INCITE call for proposals to ensure timely access for benchmarking (assuming the DD request for allocation is successful).

Director's Discretion applications are available at:

ANL: <http://www.alcf.anl.gov/getting-started/apply-for-dd>

ORNL: <https://www.olcf.ornl.gov/for-users/documents-forms/olcf-directors-discretion-project-application/>

1.3 Proposal Participant Roles

Proposal participants are loosely defined as the PI, co-PIs, and other individuals associated with the project (for example, collaborators for application development or individuals who receive user accounts for awarded projects). Individuals responsible for significant portions of the proposed research activities should be named in the Personnel Justification section of the proposal, along with their roles in the project.

Principal Investigator. Proposals submitted to the INCITE program can have just one PI. The responsibilities of the PI during the submittal and review process include those below.

- Validating the accuracy of the proposal content, including names and contact information for all project co-PIs and participants
- Responding in a timely manner to any requests from the INCITE manager for clarification of information provided in the submittal (e.g., incomplete information, queries from reviewers)
- Disseminating information about the results of the award notification to the other participants

For awarded INCITE projects, the PI's responsibilities include those below. [Note: The LCFs have center-specific PI user agreements; see the ALCF or OLCF points of contact for details.]

- Approving the addition (or removal) of user accounts under the project
- Managing the overall distribution of suballocations to teams in the proposal, when relevant. (For example, an award may contain several elements to be carried out by different teams of researchers; the PI is responsible for identifying the percentage of the awarded amount to be allocated to each team.)
- Providing regular reports of progress (e.g., quarterly reports are to be submitted to the LCF at which the award has been granted; templates are provided)

Upon receipt of an INCITE award, the PI may work in conjunction with the LCF to delegate some of these responsibilities to one or more of the project participants.

Author. The INCITE proposal template allows proposals to be created and submitted by any member of the proposing team, including the PI, a co-PI, or an administrative support person. The proposal author (if different from the PI) will be copied on messages to the PI during the submittal, review, and award stages.

Co-PI. There is no limit on the number of co-PIs that may be included on the proposal. It is assumed that prior to submittal the PI has communicated with each and has approval to name him or her as a co-PI in support of the proposal. No letters of support are required; however, the PI must include a curriculum vitae for each co-PI and should include (in the Personnel Justification section) a brief description of the role of the co-PI and other major participants on the project.

1.4 Eligibility and Conflicts of Interest

The INCITE program is open to US- and non-US-based researchers and research organizations needing large allocations of computer time, supporting resources, and data storage to pursue transformational advances in science and engineering. INCITE considers requests regardless of funding source (e.g. DOE, NSF, state, private, etc.).

Citizenship and specific funding sources are not qualifiers for participation in the INCITE program as PIs, co-PIs, proposal participants, or reviewers. PIs are expected to identify their primary source of funding for the proposal; however, DOE funding is not a criterion or weighted factor in INCITE award decisions. Collaboration with US-based researchers is not a requirement for application to the INCITE program. Reviewers are selected from universities and federal organizations and laboratories, including international institutions, and industry. Typically, 10–15% of the peer-review panel participants are researchers based outside of the United States. Historically, between five and ten percent of the peer-reviewers are from industry.

Reviewers have access to all proposals being considered in their panel/domain of expertise and are required to identify potential conflicts of interest with any submittals under consideration. They are recused from the panel discussion of the proposal(s) in which a conflict of interest exists and do not provide ratings or reviews of those submittals.

1.5 Decision-Making Process

1.5.1 Review teams

The INCITE peer review is anonymous. The twofold review process is designed to assess the potential for impact of the proposed work and its state of readiness to effectively use the requested computer resources.

Peer review. The INCITE manager will convene independent peer-review panels to evaluate each

proposal's potential for impact. The number and domain focus of each peer-review panel will depend on the breadth and depth of the INCITE proposals received in any given allocation year. Proposals will be evaluated on scientific quality, proposed impact, appropriateness of the proposed method or approach, competence of the PI and proposed research team, computational plan, and reasonableness and appropriateness of the proposed request for computational resources. Scientific review panels are composed of application domain experts from national laboratories, universities, and industry who have a working knowledge of the current computational challenges and opportunities in their fields. Each proposal and renewal will be assigned to a primary and two secondary reviewers. Panel members must sign conflict of interest forms prior to participating in the review and recuse themselves from any reviews in which they have conflicts.

Typical panels comprise experts from, for example, materials sciences, computational biology, engineering, and chemistry. At least half of the panel participants are society or laboratory fellows, department chairs or heads, or senior managers at other user facilities. The number and size of panels vary depending on the number of submittals in the respective scientific and technical domains. Peer reviewers attend an on-site meeting for discussion of each submittal and to provide final ratings and rankings. Additional expertise may be solicited and submitted via mail-in and/or call-in reviewers.

Computational readiness. Computational experts will conduct readiness reviews for all INCITE proposals to gauge the state of readiness to effectively use the requested computer resources. These reviewers focus on the benchmarking data and other information provided in the proposal to assess the efficiency of the application and its scalability for the proposed production simulations. Experts will be drawn from the LCF staff and other institutional personnel who are well-versed in the unique requirements of the leadership-class systems as well as experts from the computational science community, as needed. Every submittal will be reviewed by at least one representative from each LCF. Reviewers will be given the opportunity to submit questions to the PI to clarify vague or incomplete proposal information; however, the INCITE program reserves the right to decline consideration of incomplete proposals or proposals that clearly do not meet the minimum qualifications for leadership computing.

1.5.2 Awards committee

The INCITE awards committee is comprised of the LCF directors, INCITE manager, LCF directors of science, and senior management.

The committee identifies the top-ranked proposals by (a) peer-review panel ratings, rankings, and reports and (b) additional considerations, such as the desire to promote use of HPC resources by underrepresented communities.

Decision-making process



Figure 1. INCITE awards committee decision-making process.

1.5.3 Workflow and prioritization by awards committee

Figure 1 schematically outlines the decision-making process of the INCITE awards committee. Input from the peer-review panels and computational-readiness reviewers is combined to yield an initial list of projects sorted by panel-ranked order. The INCITE awards committee identifies the top-ranked proposals by (a) peer-review panel rating and reports and (b) additional considerations, such as the desire to promote use of HPC resources by underrepresented communities. A balance is struck to ensure that each awarded project has sufficient allocation to enable all or part of the proposed scientific or technical achievements and to maximize the scientific support provided to each INCITE project.

When the centers are oversubscribed, each top-ranked project is assessed to determine the amount of time that may be awarded to allow the researchers to accomplish significant scientific goals. Reductions in the time requested may be made to optimize both the total number of projects awarded and the time provided to each. Historically only the top one-quarter to one-third of new proposals receive INCITE awards.

After the awards committee has completed deliberations, the PIs are notified of the decisions. Copies of the computational-readiness reports (two) and peer-review panel reports (three or more) are included in the notification. Panel ratings and rankings are not provided.

1.5.4 Appeals policy

All INCITE resources are allocated once per year at the time of award notifications. Following award notifications, PIs may communicate with the LCF directors and/or the INCITE manager to discuss the award decision and, if desired, submit a request for an appeal. If an error has occurred in the decision-making process (e.g., procedural, clerical), consideration is given. If judged appropriate by the INCITE program management, an award of time will be granted as resources become available.

INCITE annual timeline

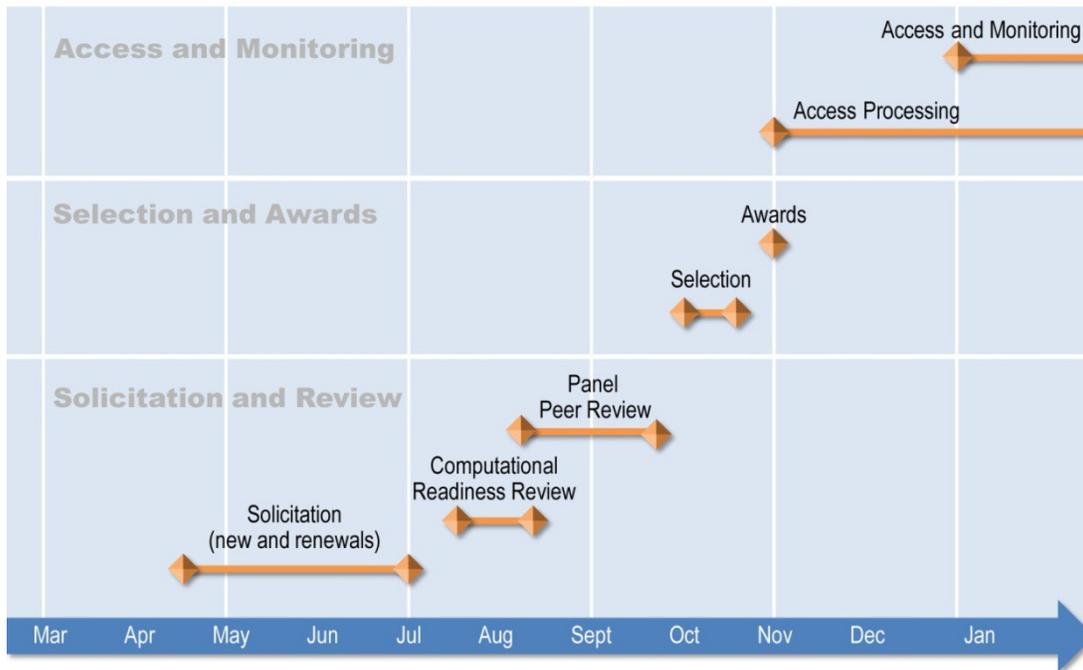


Figure 2. INCITE annual timeline.

1.6 Timeline of the INCITE Program

The INCITE program has one annual call for proposals, typically initiated in mid-April and closing towards the end of June. A two-phase review process is carried out and award notification occurs at the end of October. Access begins in January for the calendar year. Figure 2 shows the timeline for the entire process.

1.7 General Submittal Guidelines

1.7.1 Proposal writing best practices

The INCITE manager and LCF staff members have compiled tips for best practices when composing an INCITE proposal (see <http://www.doeleadershipcomputing.org/faqs/> [scroll down to Presentations]). Potential INCITE authors should not hesitate to contact the INCITE manager or LCF points of contact with any questions regarding the proposal form or the submittal and review processes.

1.7.2 Deadlines, confidentiality, and other policies

Proposal submittal deadline. The INCITE call for proposals is from mid-April through the end of June (see the call for proposals for exact dates). The INCITE manager will consider extending the deadline if PIs experience documented difficulties submitting a proposal. However, researchers should begin the submission process as early as possible under the assumption that the deadline will not be extended. Proposals may be initiated and saved, allowing the PI to begin uploading content prior to the deadline.

Proposal format guidelines. Prior to submission, it is strongly recommended that proposers review their proposals to ensure that they comply with the proposal guidelines. These guidelines will be used to

facilitate the review of proposals. Templates for all sections are available. The INCITE program reserves the right to return without review any proposal that does not comply with the proposal guidelines.

Confidentiality policy. The INCITE program receives proposals in confidence and protects the confidentiality of their contents. Following award notifications, the INCITE manager may ask LCF staff members to examine proposals to obtain demographic data or other statistics relevant to promoting activities for the future growth and development of the INCITE program. No part of the proposal will be publicly distributed or released without permission of the PI.

Parallel submittal. The INCITE program does not track submittals to other allocation programs; however, it is periodically made aware of the parallel submittal of a proposal to other agencies. The INCITE review process is quite extensive, and the INCITE management views parallel submittal of the proposal to multiple allocation programs as an additional undue burden to the reviewers and the program. *PIs are very strongly encouraged to reconsider an INCITE submittal if the proposal for computing resources is under consideration elsewhere.*

1.7.3 Proprietary and export-controlled material

Proprietary use. Proprietary use (e.g., using the resources to generate data or results that they wish to designate as proprietary) of the HPC resources is allowed and will include full cost recovery through a proprietary user agreement. The use of proprietary or export-controlled software applications or input data does not by itself constitute proprietary use of the facility. A single and standardized peer-review selection process and project reporting requirement, as described within the INCITE Overview and Policies, will be implemented for both proprietary and non-proprietary user proposals. Given the complexities associated with proprietary research, individuals considering submittal of a proposal for proprietary research must contact the INCITE manager, INCITE@DOEleadershipcomputing.org, before the call for proposals closes to discuss the policy on proprietary work. Note: Proprietary information may NOT be included in the proposal submitted via the INCITE proposal website.

Proprietary material in submittals. *Proprietary information may NOT be included in the proposal submitted via the INCITE proposal website.* If the proposal PI feels that it is important for review of the proposal to include proprietary information, the PI must contact the INCITE manager at least 1 month prior to the close of the call for proposals to execute a nondisclosure agreement (NDA) so that the INCITE manager can receive, independent from the proposal submittal website, information that the PI designates and marks as proprietary. The INCITE program reserves the right to return without review any proposal that does not comply with this guideline.

A further condition of acceptance of proprietary material is agreement by the PI that such material will be distributed to reviewers as part of the overall assessment of the merit of the proposed work. These reviewers can comprise staff members of the ALCF and OLCF and individuals in related fields from universities and federal organizations and laboratories, including international institutions, and industry. To preserve reviewer anonymity, an NDA will not be executed between the PI and the reviewer. PIs may, however, request to see a standard copy of the NDA that is signed by all reviewers as part of the INCITE review process.

Export controlled material in submittals. A significant fraction of the INCITE reviewers are based outside of the United States or are foreign nationals based in the United States. If the proposal PI feels that it is important for review of the proposal to include deemed export control information in the materials provided to the PI, the PI should contact the INCITE manager prior to the proposal deadline.

1.8 Post-Award Policies

Policies affecting INCITE projects once an award has been made are provided below. This list is not all-inclusive, however. See the LCF points of contact for additional center-specific policies.

Acknowledgements. Results of use of resources awarded through the INCITE program should be appropriately acknowledged in publications and presentations by project participants. See the INCITE Call for Proposals Frequently Asked Questions for acknowledgement statements.

Support from LCF. All INCITE projects will be assigned a consultant from the LCF’s support groups. Typically, Ph.D.-level or equivalent, these staff members—liaisons and catalysts—are responsible for providing advanced technical and scientific assistance to their assigned INCITE projects. Consultants are usually responsible for four to five INCITE projects. Additional general technical support is available through the centers’ user support groups.

Requesting additional time. At the time of the INCITE award notification, all available INCITE time is allocated; no time is kept in reserve. If a project uses all its awarded time prior to the end of the allocation period (e.g., December 31), the PI may contact the INCITE manager and the LCF director to determine if any time is available from other allocation programs. Simulations may continue to be submitted after 100% usage of the awarded allocation is reached; these jobs will be queued at a reduced priority.

Pullback policy. The LCFs reserve the right to periodically assess the progress of awarded projects and, if deemed necessary, reassign time from significantly underutilized projects to other research teams. No action is to be taken without discussions between LCF senior management and the PI.

Changing the PI. While a proposal is under consideration and/or during the award period of an INCITE project, requests to change the PI must be submitted to the INCITE manager. Requests should be made via e-mail with the following information: reason for the request, potential impact to the proposal/project, and contact information for the proposed new PI. The INCITE manager, in consultation with the user facility or facilities, will assess the request and, if approved, will execute the necessary changes.

Changing the PI may call into question the viability of the proposal/project. Therefore, the PI must articulate the reason for the change and potential impact, including (where relevant) support of the change by other co-PIs of the work. As part of its assessment, the INCITE program may communicate with the PI, proposed new PI, and any individuals deemed to have a reasonable vested interest in the outcome of the request.

2. COMMITMENT OF INCITE PROGRAM

The INCITE program is committed to ensuring transparency in the process by which proposals are solicited, reviewed, and awarded. You can expect the INCITE program to adhere to the timeline included here and provide prompt responses to inquiries about the program. The INCITE management welcomes feedback about the program, and suggestions often form the basis for policy or procedural changes that are judged to add value to the program. Please send any questions or input to incite@doeleadershipcomputing.org.

3. POINTS OF CONTACT

INCITE manager – INCITE@DOEleadershipcomputing.org

INCITE website for general information – www.doeleadershipcomputing.org

Argonne Leadership Computing Facility – www.alcf.anl.gov support@alcf.anl.gov, 866-508-9181

ALCF DD program – <http://www.alcf.anl.gov/getting-started/apply-for-dd>

Oak Ridge Leadership Computing Facility – www.olcf.ornl.gov help@nccs.gov, 865-241-6536

OLCF DD program – <https://www.olcf.ornl.gov/for-users/documents-forms/olcf-directors-discretion-project-application/>