U.S. National Science Foundation
Regional Innovation Engines

NSF Engines Solicitation (NSF 24-565)

Deadlines
- ✓ Letters of Intent: June 18, 2024
- ✓ Preliminary proposals: August 6, 2024
- ✓ Full Proposal (invitation only): February 11, 2025

Presentation Roadmap

1. Overview of NSF Engines Program

2. Summary of Round 1 – Award Highlights

3. New NSF Engines Funding Opportunity

4. Proposal Submission and Merit Review Process

5. Q&A

# NSF Regional Innovations Engines (NSF Engines) Mission and Scope

Creating opportunity everywhere and enabling innovation anywhere

- The NSF Engines Program seeds the development of "place-based" innovation ecosystems.

- The mission of the NSF Engines program is to accelerate the development of sustainable, inclusive, and geographically diverse regional innovation ecosystems that advance key technologies and address pressing regional, national, societal and/or geostrategic challenges.

- Up to $160 M per award recipient over 10 years

Expanding the Geography of Innovation

- Use-inspired research that addresses pressing regional, national, societal and/or geostrategic challenges.

- Each NSF Engine is expected to center on a strong R&D and technology topic area and have a cross-sector coalition in place that can build strong relationships among regional stakeholders.

- The goal is more than a collection of assets located in the same region. The NSF Engine should work together as a network of partners and community stakeholders to build its region into a national-leading ecosystem.

- Create new growth opportunities in regions of America and within untapped populations and underserved communities that have not yet fully participated in the technology boom of the past several decades.

- **Funding for this program will prioritize NSF Engines in regions with less-established innovation ecosystems.**
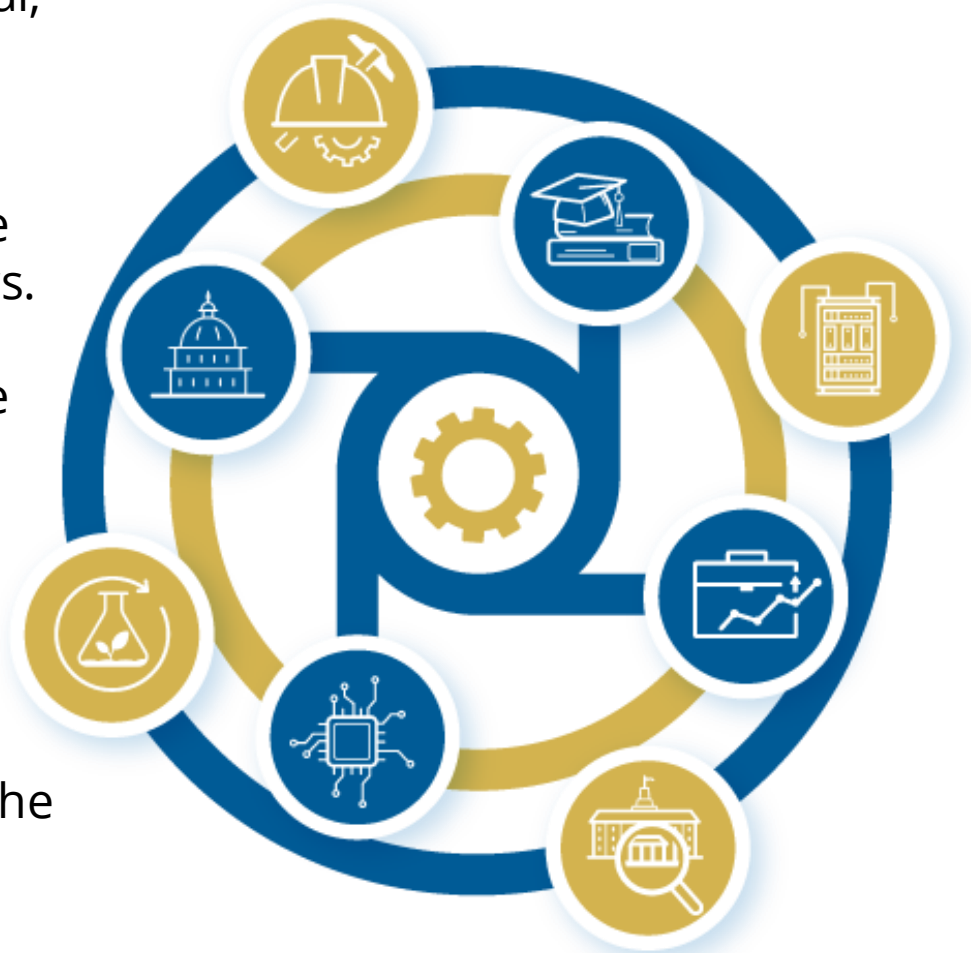
What Is An NSF Engine?

➢ **The Coalition:** partners and stakeholder organizations working together to achieve the goals of the NSF Engine, led by a full-time CEO

➢ **Shared Purpose:** accelerate its region of service into a national-leading and inclusive technology-driven ecosystem that drives equitable economic and societal impacts

➢ **Vision for High Impact:** a shared vision, deep connections among regional stakeholders and assets, drive R&D and translation outcomes, create jobs
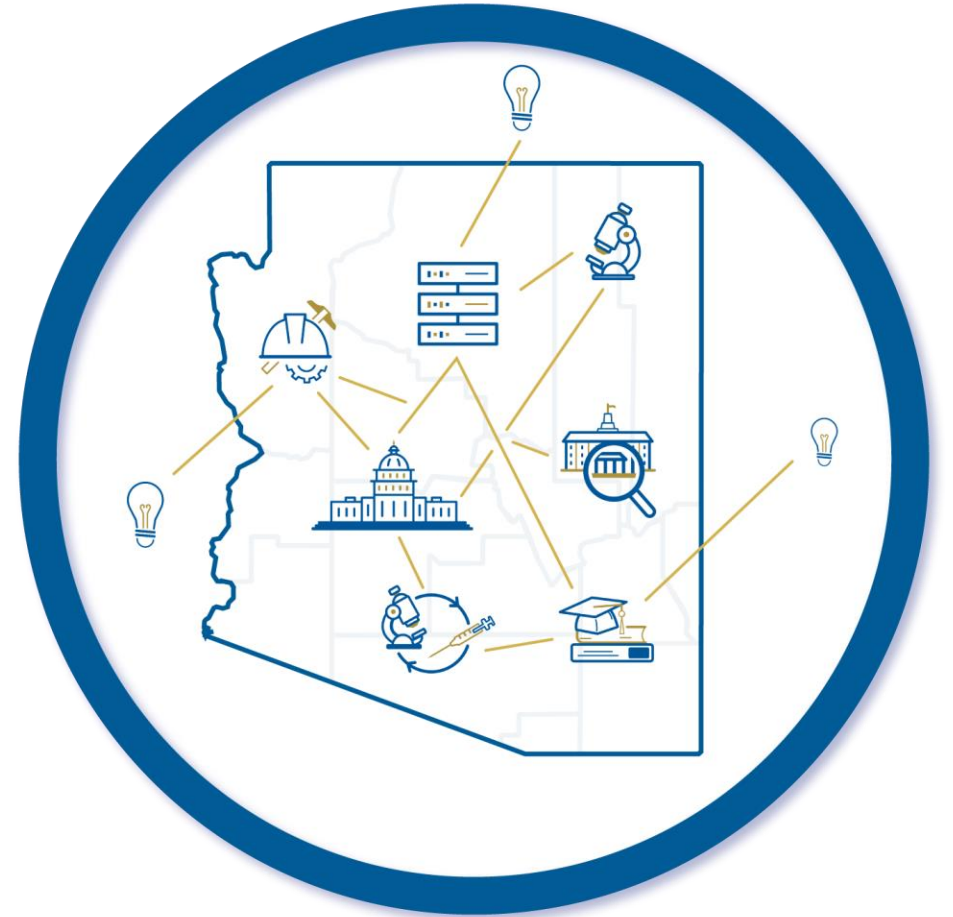
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NSF establishes 10 inaugural NSF Regional Innovation Engines across the country

- The first-ever NSF Engines awards span 18 states.

- Initial investment of $150 million over two years ($15 million per NSF Engine), with a potential investment of nearly $1.6 billion over the next decade ($160 million per NSF Engine).

- This groundbreaking investment represents the single largest broad investment in place-based science and technology R&D in our nation's history.

"The inaugural NSF Engines awards demonstrate our enduring commitment to create opportunity everywhere and enable innovation anywhere. Through these NSF Engines, NSF aims to expand the frontiers of technology and innovation and spur economic growth across the nation through unprecedented investments in people and partnerships. NSF Engines hold significant promise to elevate and transform entire geographic regions into world-leading hubs of innovation."

- NSF Director Sethuraman Panchanathan

NSF Engines by the Numbers

679 — Concept outlines submitted

58 — NSF Engines Development Awards

10 — NSF Engines Inaugural Awards

18 — States receiving NSF Engines funding

10 — Key technology areas from the CHIPS & Science Act represented in the portfolio

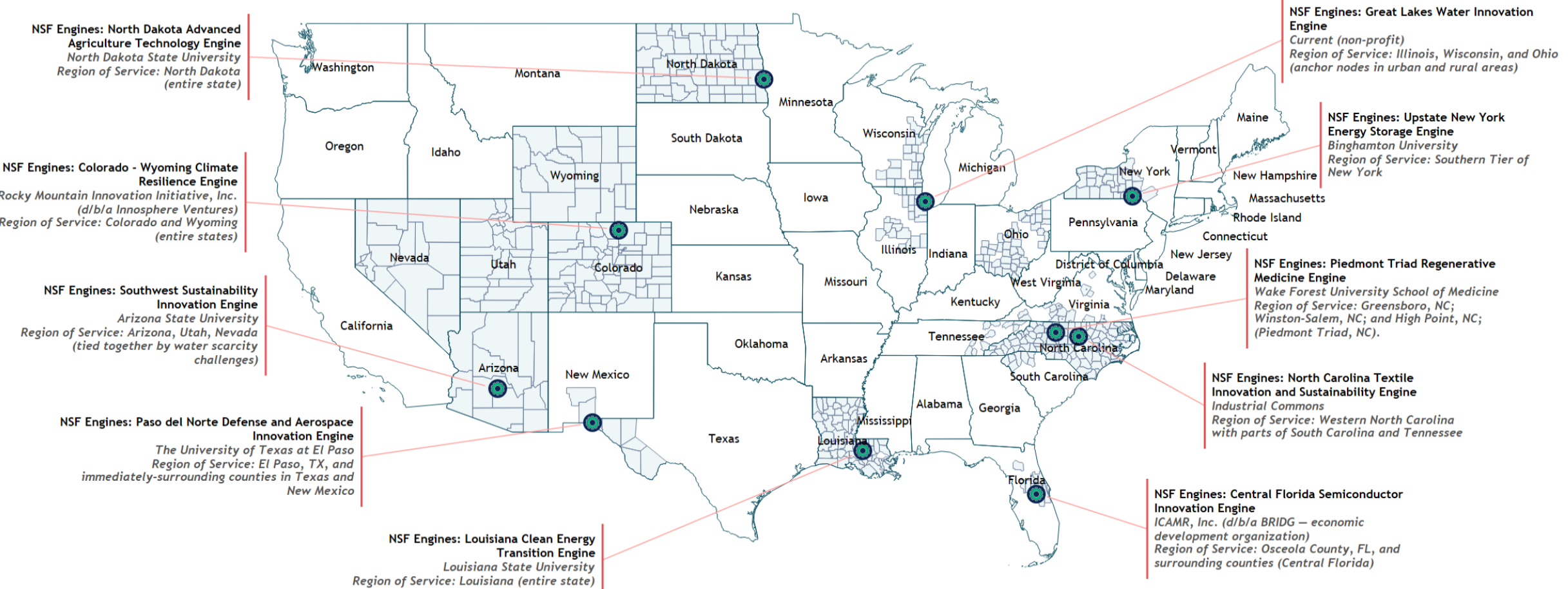**450+** — Organizations partnering with NSF Engines Award recipients

2:1+ — Match of NSF funds from corporate, philanthropic, and government sources.

40% — Lead orgs that are first-time NSF award recipients

NSF Engines Inaugural Awards

NSF Engines: North Dakota Advanced Agriculture Technology Engine
North Dakota State University
Region of Service: North Dakota (entire state)

NSF Engines: Colorado - Wyoming Climate Resilience Engine
Rocky Mountain Innovation Initiative, Inc. (d/b/a Innosphere Ventures)
Region of Service: Colorado and Wyoming (entire states)

NSF Engines: Southwest Sustainability Innovation Engine
Arizona State University
Region of Service: Arizona, Utah, Nevada (tied together by water scarcity challenges)

NSF Engines: Paso del Norte Defense and Aerospace Innovation Engine
The University of Texas at El Paso
Region of Service: El Paso, TX, and immediately-surrounding counties in Texas and New Mexico

NSF Engines: Louisiana Clean Energy Transition Engine
Louisiana State University
Region of Service: Louisiana (entire state)

NSF Engines: Great Lakes Water Innovation Engine
Current (non-profit)
Region of Service: Illinois, Wisconsin, and Ohio (anchor nodes in urban and rural areas)

NSF Engines: Upstate New York Energy Storage Engine
Binghamton University
Region of Service: Southern Tier of New York

NSF Engines: Piedmont Triad Regenerative Medicine Engine
Wake Forest University School of Medicine
Region of Service: Greensboro, NC; Winston-Salem, NC; and High Point, NC; (Piedmont Triad, NC).

NSF Engines: North Carolina Textile Innovation and Sustainability Engine
Industrial Commons
Region of Service: Western North Carolina with parts of South Carolina and Tennessee

NSF Engines: Central Florida Semiconductor Innovation Engine
ICAMR, Inc. (d/b/a BRIDG — economic development organization)
Region of Service: Osceola County, FL, and surrounding counties (Central Florida)

NSF Engines Inaugural Awards

10
Total Number of NSF Engines Awards

476
Total Number of Distinct Organizations

331
Total Number of Distinct Organizations Co-Investing

Disclaimer: These partnerships are at different stages of development and should not be viewed as finalized commitments.

9 of 10 NSF Engines include partners in **EPSCoR Jurisdictions**

6 of 10 NSF Engines include partners **NEW to NSF Funding**

10 of 10 NSF Engines include **Community College** as partners

5 of 10 NSF Engines include **Other Federal Agencies** as partners

9 of 10 NSF Engines include **Minority-Serving Insitutions (MSI)** as partners

5 of 10 NSF Engines include **Hispanic Serving Institutions (HSI)** as partners

1 of 10 NSF Engines include **Tribal College/University** as partners

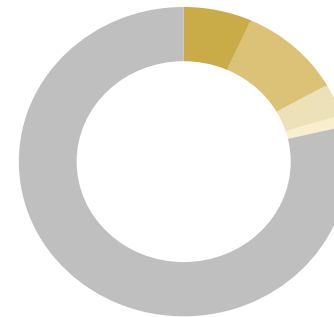**3** of 10 NSF Engines include **Historically Black College/University (HBCU)** as partners

81% of All Organizations are
Non-Academic Organizations

22% of All IHE Organizations are
Minority Serving Institutions (MSI)

Institution of Higher Education Partners
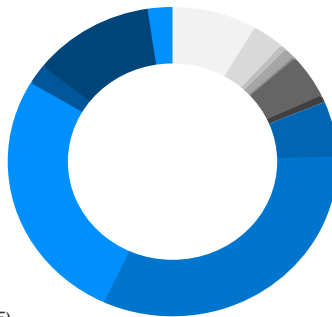
Organization Type
- Institution of Higher Education (IHE)
- Non-Academic Organization

MSI Type
- Yes, HBCU
- Yes, HSI
- Yes, Tribal College
- Yes, Other
- No, Not an MSI

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NSF 24-565: NSF Engines – A New Funding Opportunity

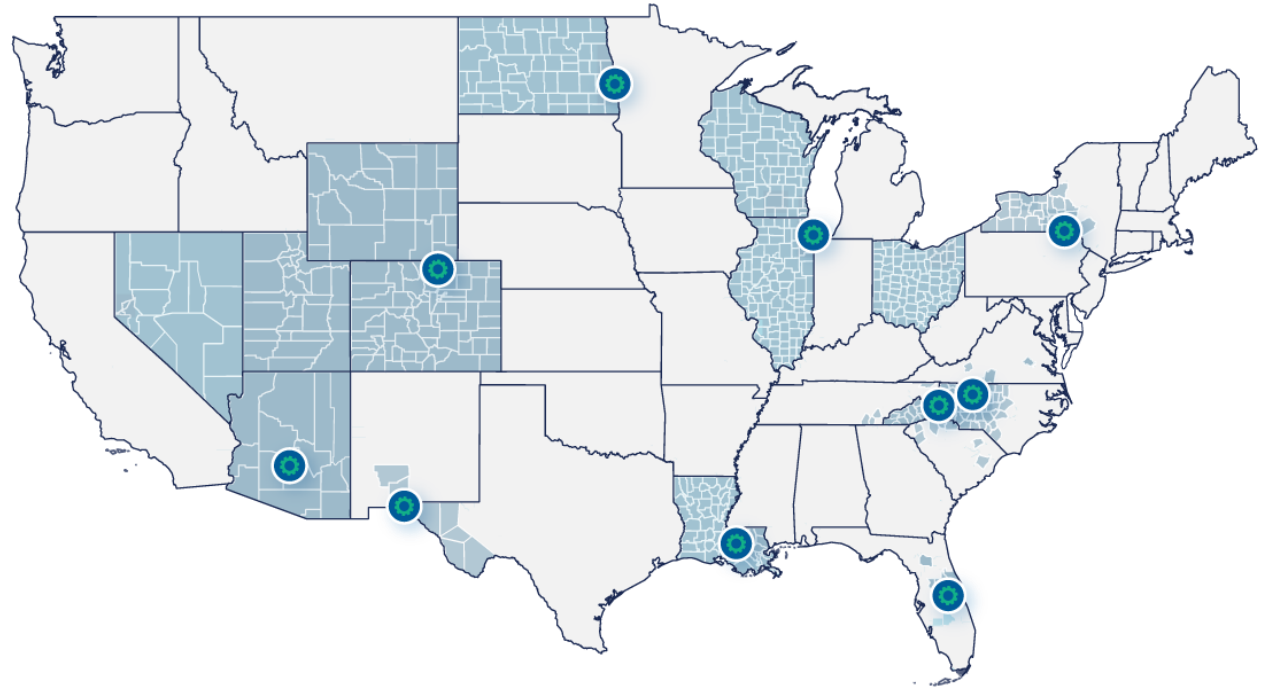## Up to $160 million per award over 10 years

Letter of intent deadline:
June 18, 2024

Preliminary proposal deadline:
August 6, 2024

Full proposal deadline:
February 11, 2025

NSF Engines is one of the largest broad-based R&D and economic development programs in the history of the federal government.

Key Programmatic Changes

- NSF is not funding additional NSF Engines Development Awards.

- Tribal Nations and state/local governments can lead an NSF Engine.

- One submission per organization. Investigators can be the PI or Co-PI on only one proposal.

- Letters of Intent (LOIs) and Preliminary Proposals replace Concept Outlines. Information from the LOI submissions will be made public to encourage teaming.

- NSF will invite a subset of teams to submit Full Proposals based on review of the Preliminary Proposals.

- Greater emphasis in this round on efforts to reach untapped populations and communities, including evidence of inclusive stakeholder alignment that will be considered in the merit review process.

Key Programmatic Changes

- Clear buy-in from lead organization communicated in a letter of commitment from the senior official of the lead organization included with the Preliminary Proposal.

- Core regional partners will be asked to provide letters of collaborations at preliminary proposal stage.

- Dollar-figure estimates required for commitments from core partners and regional stakeholders.

- Proposing teams are asked to address key drivers of ecosystem change in their proposal to help reviewers and NSF assess the potential for the region to develop a robust ecosystem.

Who is Eligible to Submit Proposals?

Eligible to serve as the lead organization or subaward recipient

- Institutions of Higher Education (IHEs)

- Non-profit, non-academic organizations

- For-profit organizations

- Tribal Nations

- State and local governments

Eligible to serve only as a subaward recipient

- Federally Funded Research and Development Centers

- National Laboratories

The NSF Engines Model: Foundational Elements

Building a Foundation: Strategic Decision Points

- Topic Area and Regional Vision
- Region of Service
- Strategic Plan
- Choice of Lead Organization

Support Infrastructure

- Lead Organization
- Chief Executive Officer (CEO)
- Core Management Team
- Core Partners
- Governance Board

7 Key Drivers of Ecosystem Change

Proposals should highlight a team's competitive advantages and strengths among the key drivers and explain plans to address gaps with particular attention to those areas that could benefit most from the NSF Engines award.

NSF Engines are expected to develop an interconnected set of initiatives, efforts, and action plans, spanning the **seven key drivers**:

1. Cross-sector Partnerships and Stakeholder Alignment
2. Use-inspired Research and Development (R&D)
3. Translation of Innovation to Practice
4. Workforce Development
5. Inclusive Engagement
6. Strategic Regional Investment and Demonstrable Sources of Sustainable Capital
7. Governance and Management

Region of Service

NSF Engines will have a proposed region of service as follows:

- A **geographically contiguous area** impacted by the NSF Engine's efforts and activities.

- The proposed region of service must be tightly interconnected (in vision and stakeholder alignment) and the proposed topic area is supported by a multi-sector regional coalition.

- **The choice of the region of service and how the proposal explains the reasons for its selection will be part of the merit review criteria.**

- **A large region of service** could dilute the effects of place-based economic indicators used for impact assessment, and therefore **could raise serious concerns in the merit review process**.

- A geographically large region of service can limit meaningful collaboration between partner institutions and stakeholders.

Inclusive Engagement

NSF Engines are expected to incorporate plans for the following into their approach:

- Delivering **economic opportunities for everyone** in the region of service, regardless of background, socioeconomic status, location, or any other factors.

- Leadership and stakeholders who are **broadly representative of the region of service.**

- Periodic assessment of the team's efforts to **improve diversity** and **enable equitable prosperity.**

- **Deep, intentional, and persistent approaches** to building inclusive teams and broadening access.

- Attracting individual new participants from underrepresented groups into NSF Engine efforts **AND** expanding prosperity into new communities and geographies.

Strategic Regional Investment and Demonstrable Sources of Sustainable Capital

NSF Engines are expected to incorporate the following into their approach:

- **New, NSF Engine-specific investments:** Meaningful **net new investment** in the region **AND** investment directed specifically for the proposed topic area and activities.

- **Large, secured or contingent co-commitments:** New and significant regional co-commitments from a diverse set of stakeholders, i.e., operating and project-specific funds from state and local governments, Tribal nations, industry, philanthropy, universities/colleges, and other key stakeholders in the region and nationally.

- **Plans for new sources of funding:** Plans for securing **specific, actionable, and time-bound commitments from capital co-investors**, including federal, state, local, and Tribal, philanthropic, corporate, institutions of higher education, and capital markets.

- **Sustainable revenue model:** Specific plans for how the proposed NSF Engine will develop models that harness licensing cash flows, equity stakes, co-ownership of assets, and other shared **revenue models** that complement the proposed strategy.

Strategic Regional Investment and Demonstrable Sources of Sustainable Capital

NSF Engines Innovation Ecosystem

JANUARY 29, 2024

FACT SHEET: Biden-Harris Administration Announces Innovation Engines Awards, Catalyzing More Than $530 Million to Boost Economic Growth and Innovation in Communities Across America

The Biden-Harris Administration is awarding the 10 NSF Regional Innovation Engines $150 million ($15 million each) in federal investment, with over $365 million in matched contributions from non-federal partners.

OCTOBER 23, 2023

FACT SHEET: Biden-Harris Administration Announces 31 Regional Tech Hubs to Spur American Innovation, Strengthen Manufacturing, and Create Good-Paying Jobs in Every Region of the Country

investments. In total, Tech Hubs applicants reported at least $435 million in matching funds for their projects from industry; state and local governments; and other partners. EDA anticipates even more

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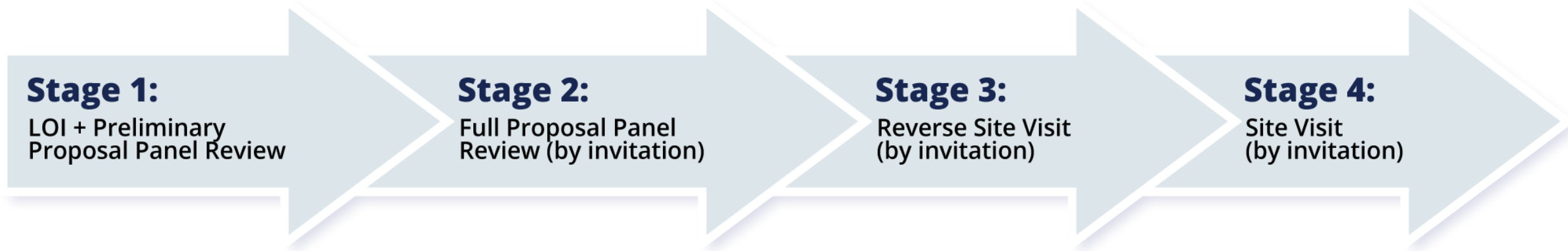4. Proposal Submission and Merit Review Process

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Merit Review Process

Merit Review Process for NSF Engines Competition

The NSF Engines competition will include a four-stage review process:

| **Stage 1:** LOI + Preliminary Proposal Panel Review | **Stage 2:** Full Proposal Panel Review (by invitation) | **Stage 3:** Reverse Site Visit (by invitation) | **Stage 4:** Site Visit (by invitation) |

- Teams submit application materials at each stage, only preliminary proposals are open to all teams.

- After Stage 1, a subset of the most meritorious proposals will advance to the next stage.

- Based on the number and quality of proposals, NSF reserves the right to modify the number of review stages.

Required and Invited Submissions

- **Letters of Intent:** Must be submitted via Research.gov

- **Preliminary Proposals:** Must be submitted via Research.gov, even if full proposals will be submitted via Grants.gov.

- **Full Proposals (by invitation):** May be submitted via Research.gov or Grants.gov (with a strong recommendation that teams use Research.gov)

Invited full proposals submitted in response to this solicitation may be submitted via Research.gov or Grants.gov, however due to the complexity of this program, use of Research.gov is strongly recommended.

NSF Proposal & Award Policies & Procedures Guide (PAPPG)

The PAPPG is designed for use by both the proposer and award recipient community and NSF staff and consists of two parts:

- Part I sets forth NSF's proposal preparation and submission guidelines.
- Part II of the NSF PAPPG sets forth NSF policies and procedures regarding the award, administration, and monitoring of the Foundation's awards.

NSF PAPPG (May 2024): https://nsf.gov/publications/pub_summ.jsp?ods_key=pappg

Proposers must follow all the requirements in the NSF PAPPG, unless the solicitation specifically notes a deviation from the PAPPG.

Prospective New Award Recipients

Prospective New Award Recipients: organizations that have never received an award from NSF or who have not had an active award over the past five years.

Prospective New Award organizations should:

- Look into the requirements for submitting the various application materials well in advance of the submission deadlines;
  - Lead org in the LOI must have a UEI and fully registered at sam.gov at the time of LOI submission
  - Personnel designated as a PI or co-PI must have an NSF ID at the time of LOI
- Confirm registration and UEI in the federal government's System for Award Management (sam.gov);
- Review NSF's Prospective New Award Recipient Guidance;
- Review the PAPPG (noted on the previous slide); and
- Familiarize themselves with the recommended research.gov system in advance of deadlines.

Application Materials

Application Materials Submission Timeline

Document	Deadline
Letter of Intent (1-page synopsis)	June 18, 2024
Preliminary Proposal (10-page project description)	August 6, 2024
Full Proposal (30-page project description, invitation only)	February 11, 2025
Reverse Site Visit (invitation only)	TBD
Site Visit (invitation only)	TBD

Letter of Intent (LOI)

LOIs are required to be eligible to submit an Engine proposal.

- Submitting an LOI does not obligate a potential proposer to submit a preliminary proposal.

LOIs are used for internal planning purposes only and do not undergo merit review.

- Proposers will not receive any feedback on their LOI other than a message confirming receipt of the LOI.
- A lead organization can only submit one LOI and one preliminary proposal.
- The composition of the team can change between the LOI and preliminary proposal, and again for the full proposals.

The NSF Engines solicitation specifies what information to include in a LOI

Preliminary Proposals

- Preliminary proposals are required.

- Project Description

  - Length = up to 10 pages
  - Must contain the following sections with these headings:
    - Vision and Scope
    - Technology Innovation Plans
    - Region of Service
    - Strategy to Address Ecosystem Gaps
    - Key Partners and Stakeholders in the Region of Service
  - Submitting teams will either be invited or not invited to submit full proposals based upon review of the preliminary proposal.

The NSF Engines solicitation specifies what information to include in a preliminary proposal

Full Proposals (Invite Only)

Proposal Project Description

The proposal project description is a key component of the full proposal and should be written as a narrative.

- Guidance on the required sections and content to be covered is in the solicitation.
    - Length = up to 30 pages.
    - Content must include:
        - Overview, Vision, and Rationale
        - Proposing Team and Organizational Structure
        - Strategic and Implementation Plans (centered around drivers of ecosystem change)
        - Evaluation Plan
- Teams are encouraged to also look at the additional review criteria as they develop their narrative.

Preliminary and Full Proposals: Other Key Documents

The below sections are additional opportunities to amplify the strength of your partnerships and the proposed NSF Engine vision. Note that the full list of required documents is in the solicitation.

- Existing and New Resources to be Made Available for the Project
- Letters of Commitment and Collaboration
- Region of Service Map

Merit Review Criteria for Submitted Proposals

- Proposal reviewers will be asked to consider:
  - what the proposers want to do
  - why they want to do it
  - how they plan to do it
  - how they will know if they succeed; and
  - what benefits could accrue if the project is successful.

- As specified by NSF's National Science Board, review centers around Intellectual Merit and Broader Impacts
  - **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
  - **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

- Additional Review Criteria

Additional Review Criteria For Submitted Proposals

Preliminary proposals will be reviewed by an external panel based on these criteria.

- Vision and Scope
- Technology Innovation Plans
- Region of Service
- Key Partners and Stakeholders
- Strategy to Address Ecosystem Gaps

Full proposals (invited only) will be reviewed by an external panel based on the criteria above AND these additional criteria.

- Leadership Team
- Workforce Development Plans
- Resource and Investment Capital
- Inclusive Culture
- Risk Assessment and Mitigation

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NSF Engines Virtual Roadshows

- **Tuesday, May 7** (AR, CO, KS, MO, ND, NE, NM, OK, SD, TX)
- **Thursday, May 9** (CT, DC, DE, MA, MD, ME, NH, NJ, NY, RI, VT)
- **Tuesday, May 14** (AK, AZ, CA, HI, ID, MT, NV, OR, UT, WA, WY, Other territories)
- **Thursday, May 16** (AL, FL, GA, LA, MS, NC, PR, SC, TN, VA, VI)
- **Monday, May 20** (IA, IL, IN, KY, MI, MN, OH, PA, WI, WV)

All roadshows are from **2:00-4:00 p.m. ET**.

Register here: https://www.eventbrite.com/o/nsf-regional-innovation-engines-program-41032801983

More Information:

- **NSF Engines Funding Opportunity – NSF Solicitation: NSF 24-565**

- **Email**: engines@nsf.gov

- **Join us for a Q&A session, April 30th:**
  - https://nsf.zoomgov.com/webinar/register/WN_ciI8fUNJRDi0LidIgTblsg#/registration

- **Website with FAQs:** Will be posted to NSF Engines website following Q&A Sessions

- **Office hours: TBD**

Thanks for attending!

If you have additional questions, join our Q&A webinar or email
engines@nsf.gov.

This recorded webinar will be posted on the NSF Engines website:
https://new.nsf.gov/funding/initiatives/regional-innovation-engines