

# ***National Science Foundation Mid-scale Research Infrastructure-1***

**Mid-scale RI-1 Working Group (WG)**

**FY 2025/26 Competition**

**September 19, 2024**

**Time: 2:30 p.m. – 4:00 p.m. Eastern**

***Please submit questions through the Q&A function in Zoom***

*It is expected that these slides and a video of this webcast will  
be available at:*

<https://bit.ly/NSF-MidscaleRI1>

*or*

*search for “NSF Mid-scale RI-1” in your favorite search engine*



## *Mid-scale RI-1 Working Group (WG)*

OD/OIA	Randy L. Phelps, chair	<a href="mailto:rphelps@nsf.gov">rphelps@nsf.gov</a>
	Jonathan Friedman	<a href="mailto:jfriedma@nsf.gov">jfriedma@nsf.gov</a>
BIO	Sridhar Raghavachari	<a href="mailto:sraghava@nsf.gov">sraghava@nsf.gov</a>
CISE	Deepankar Medhi	<a href="mailto:dmedhi@nsf.gov">dmedhi@nsf.gov</a>
EDU	Carleitta Page-Anderson	<a href="mailto:cpaigean@nsf.gov">cpaigean@nsf.gov</a>
ENG	Dominique Dagenais	<a href="mailto:ddagenai@nsf.gov">ddagenai@nsf.gov</a>
GEO	Renee D. Crain	<a href="mailto:rcrain@nsf.gov">rcrain@nsf.gov</a>
MPS	John Papanikolas	<a href="mailto:jpapanik@nsf.gov">jpapanik@nsf.gov</a>
SBE	Joseph Whitmeyer	<a href="mailto:jwhitmey@nsf.gov">jwhitmey@nsf.gov</a>
OD/OISE	Paul Raterron	<a href="mailto:praterro@nsf.gov">praterro@nsf.gov</a>
OD/EPSCoR	Chinonye Whitley	<a href="mailto:cwhitley@nsf.gov">cwhitley@nsf.gov</a>
BFA/RIO	Facundo Funes	<a href="mailto:fmfunes@nsf.gov">fmfunes@nsf.gov</a>

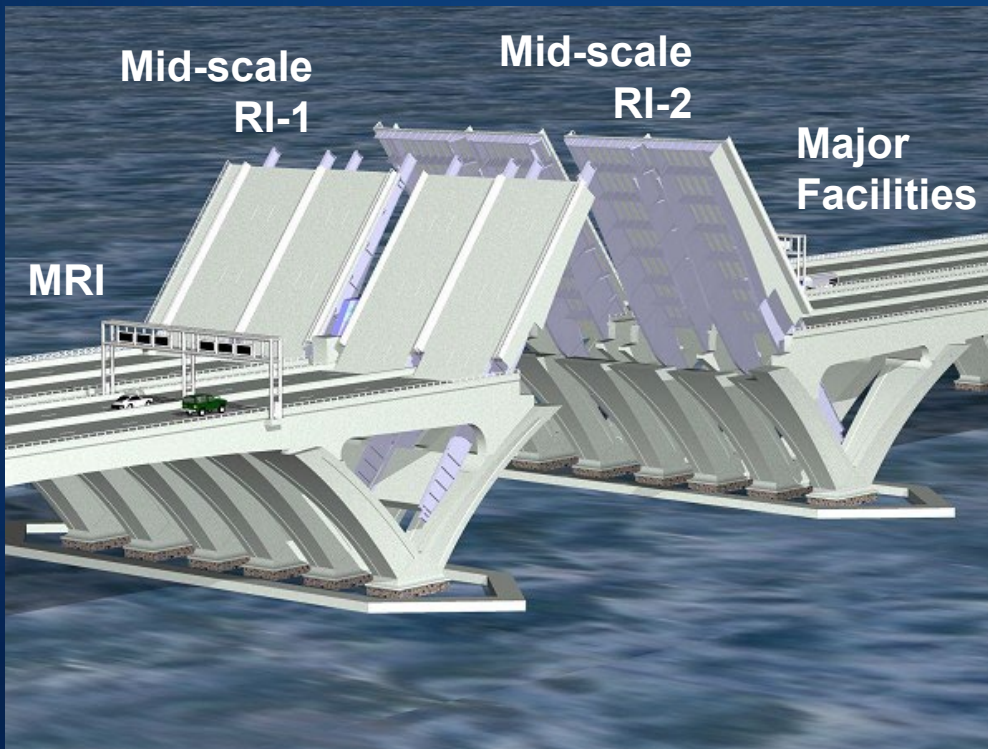


# ***National Science Foundation Mid-scale Research Infrastructure-1***

- ***Mid-scale RI Overview***
- ***Mid-scale RI-1***
- ***General Q&A***



# Mid-scale Research Infrastructure (RI)



- Many important potential experiments and facilities fall between the \$100K to \$4M Major Research Instrumentation (MRI) program and the greater than \$100M Major Facilities range.
- This gap resulted in missed opportunities that left essential science undone.
- NSF needed a *Foundation-wide*, agile process for funding experimental research capabilities in the mid-scale range.
  - Mid-scale RI-1: \$4M<sup>1</sup> to < \$20M
  - Mid-scale RI-2: \$20M up to \$100M

<sup>1</sup>Effective with the FY23/24 Mid-scale RI-1 competition.



# ***Mid-scale RI***

*A Foundation-wide Program with two opportunities*

## **1. Mid-scale RI-1 supports:**

- ✓ Implementation projects (\$4M-\$20M): any combination of equipment, instrumentation, cyberinfrastructure, broadly used large-scale datasets, and the personnel needed to successfully commission the project.
- ✓ Design activities: (\$400K-\$20M) intended to lead to eventual implementation of a mid-scale class project.

## **2. Mid-scale RI-2 supports:**

- ✓ Implementation projects only (\$20M-\$100M).



## *Mid-scale RI-1 (NSF 24-598) due dates*

- **NSF 24-598** solicits proposals for the 4<sup>th</sup> (FY25/26) Mid-scale RI-1 competition

**Preliminary Proposal  
(Required)**

*November 18, 2024*

**Full Proposal Deadline  
(By Invitation Only)**

*March 19, 2025*



- Mid-scale RI-2 solicitation: Stay tuned.....



## ***Mid-scale RI-1 (NSF 24-598)***

**Implementation Projects** e.g., Acquisition, Assembly, Construction and Commissioning:

- a) Enable well-defined, limited-term research experiments with broad community buy-in and shared data resources, and/or
- b) Shared-use, mid-scale RI for broad community use.

***\$4 million  $\leq$  Total Project Cost (TPC) < \$20 million***

**Design Activity:** Cover activities leading to preparation for implementation of a future mid-scale class project<sup>1</sup>.

***\$400,000  $\leq$  TPC < \$20 million***

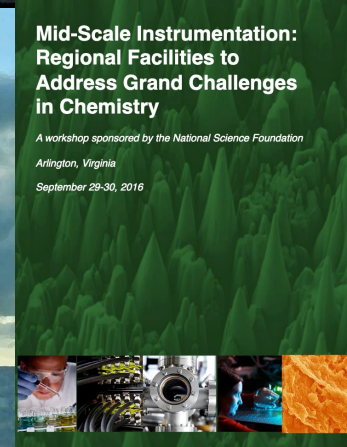
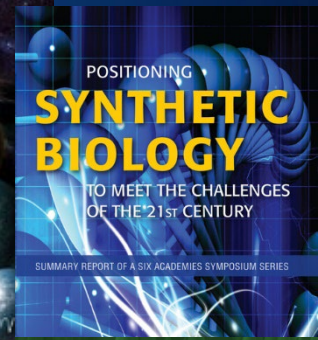
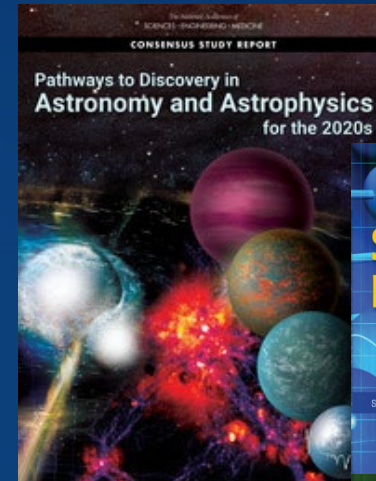
<sup>1</sup>NSF makes no commitment to the implementation of projects supported through the design track of Mid-scale RI-1.



# Mid-scale RI-1

Mid-scale RI-1 projects should:

- Emphasize strong scientific merit.
- *Fulfill research-community defined scientific needs or enable national research priorities to be met. (Mid-scale RI-1 is not intended to enable projects with a campus-centric focus.)*
- Enable US researchers to remain competitive in a global research environment.
- Train a diverse workforce in the design and implementation of S&E infrastructure.





## ***Mid-scale RI-1 will not support:***

- Research that isn't part of *validation of operational readiness*;
- *Post-implementation* research, training, operations or maintenance (proposals must describe plans, however);
- Projects with a TPC *outside of solicitation limits*;
- *General-purpose* buildings, support systems and equipment not directly required for the implementation and eventual operation of the proposed infrastructure;

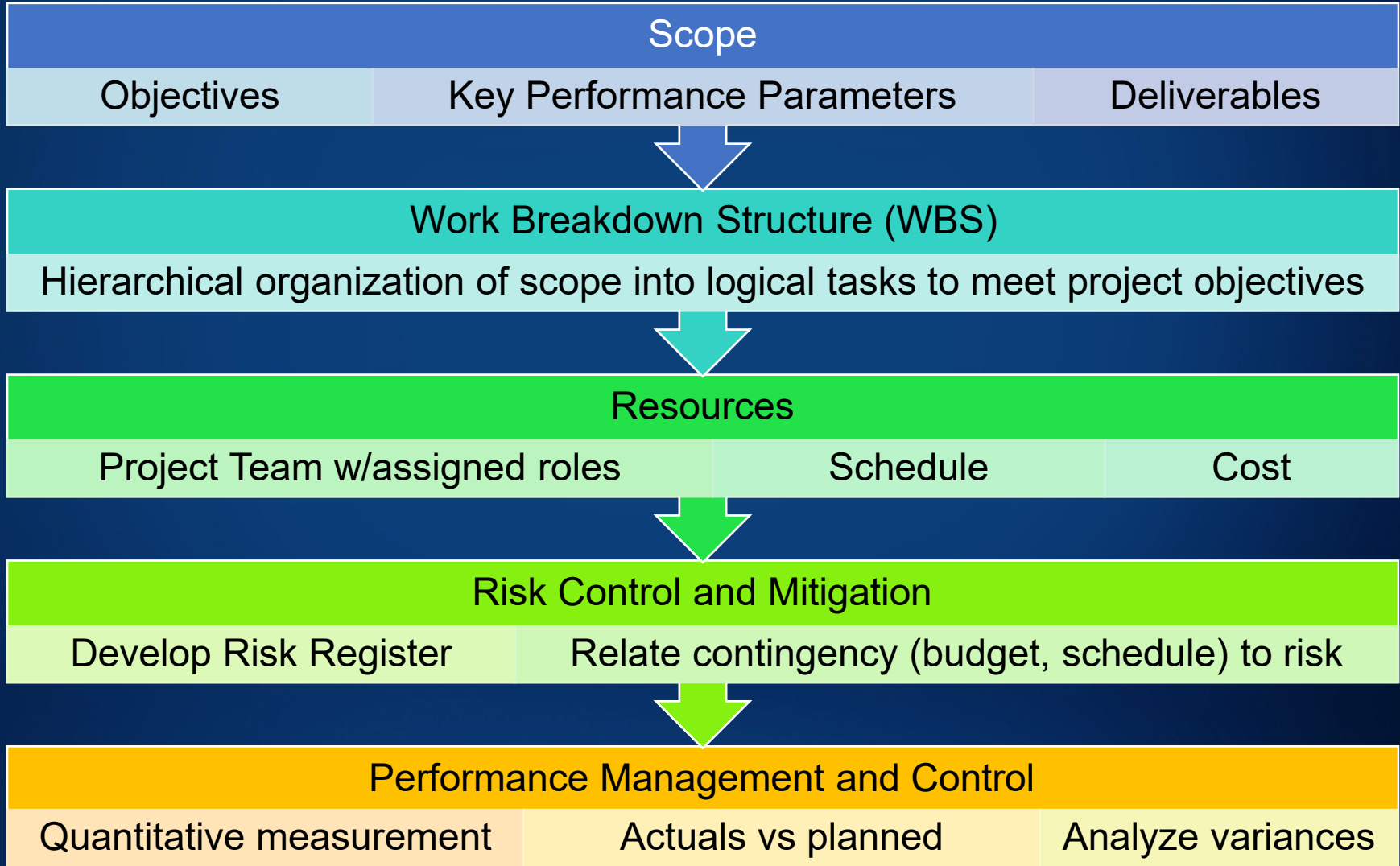


## ***Mid-scale RI-1 will not support:***

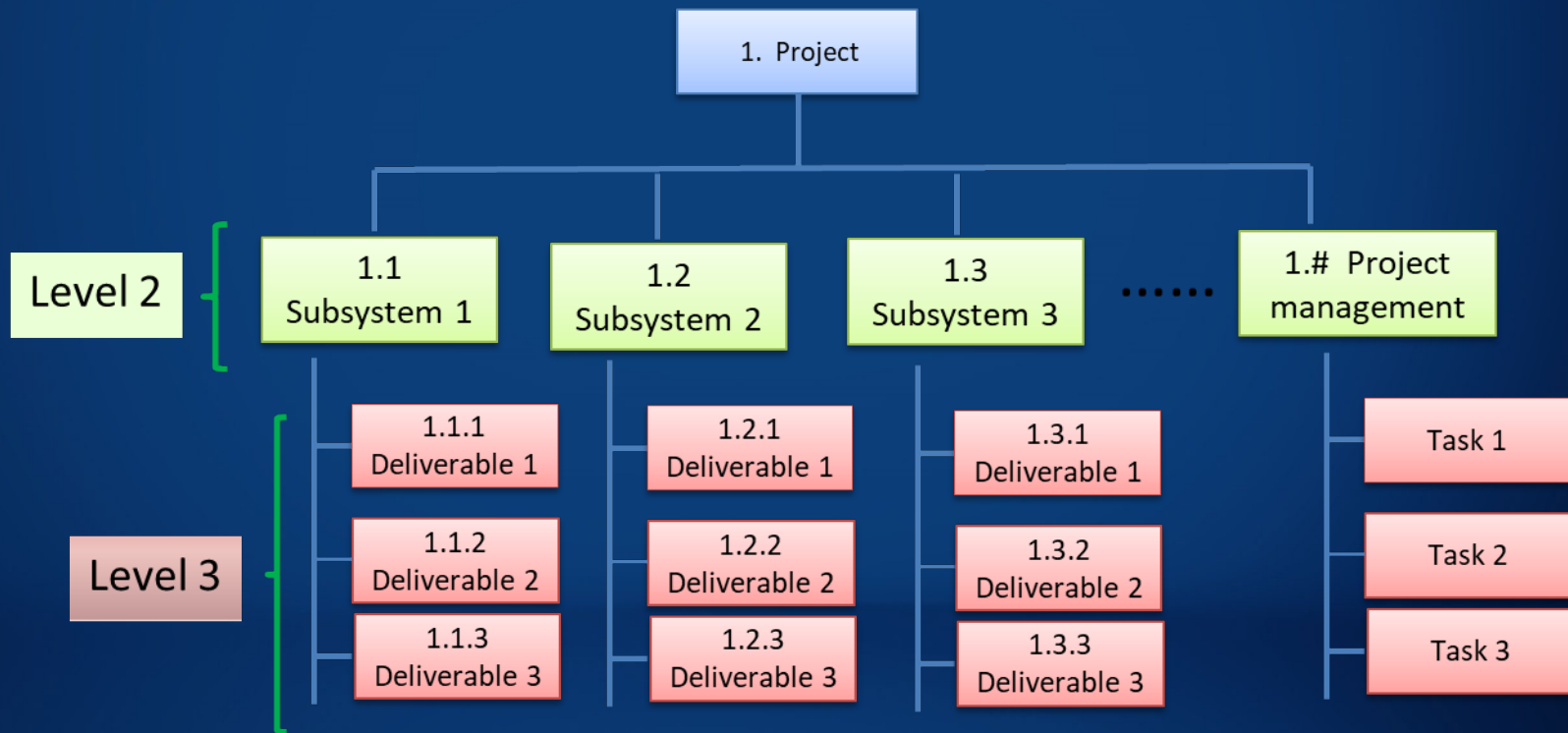
- *Multiple pieces* of infrastructure or instrumentation packaged together to meet the minimum TPC but *not functioning as an integrated system*;
- MRI-like projects primarily based on off-the-shelf instrumentation without a clear justification of their *uniqueness and contribution to National research infrastructure*;
- Other non-RI organized activities, e.g., *research centers*.
- Incubator awards (including workshops and planning grants)



# Key Elements of Project Management



# WBS Example



# *Execution Plans*

- 10 components and various sub-components
  - Describe how a project is planned, managed, executed, and concluded.
  - Tailored and scaled to the project characteristics
  - Not all 10 components or subsections might apply to the proposal
  - Further guidance at [https://www.nsf.gov/bfa/lfo/lfo\\_documents.jsp](https://www.nsf.gov/bfa/lfo/lfo_documents.jsp)
- Implementation Proposal = Project Execution Plan (PEP)
- Design Proposal = Design Execution Plan (DEP)



# Execution Plan Components

DEP Components	PEP Components
Design Execution Overview	Project Overview
Organization	Project Organization
Design Baseline	Performance Measurement Baseline
Scope Acquisition and Delivery	Risk & Contingency Management
Safety, Health & Environmental Protection	Acquisition Plans
Controls	Environmental, Safety & Health Management
Information Management	Project Control Plans
Risk Management	Cyberinfrastructure & Information Management
Award Close-out	Project Closeout Plans
Post-Award Plans and Expectations	Post Project Plans



## ***Monitoring Progress Against Plan***

- Mid-scale RI projects must use an objective method to monitor progress against the plan.
  - Systematic project management process
  - Tailored and scaled based on project characteristics
  - Track actual progress compared to a planned schedule, budget, or other predefined metrics.
- Use of Earned Value Management (EVM) is **optional**.
  - EVM should be scaled to balance administrative burden with sufficient project management oversight.
- Further Guidance in RIG Sections 6.8.4 / 6.8.5



# Alternate Approach to EVM: Example

## Compares Actual Cost to Planned Budget with Variances

Budget Item	This Quarter			Year-to-Date		
	Budget	Actual	Variance	Budget	Actual	Variance
Sales Revenue	\$500,000	\$550,000	\$50,000	\$1,000,000	\$1,200,000	\$200,000
Cost of Sales	30,000	320,000	20,000	600,000	640,000	40,000
Gross Profits	\$200,000	\$230,000	\$30,000	\$400,000	\$560,000	\$160,000
<b>Variable Expenses</b>						
Selling Expenses	\$100,000	\$120,000	\$20,000	\$200,000	\$240,000	\$40,000
Inspection	10,000	8,000	(2,000)	20,000	16,000	(4,000)
<b>Total Variable Expenses</b>	\$110,000	\$128,000	\$18,000	\$220,000	\$256,000	\$36,000
<b>Fixed Expenses</b>						
Depreciation	\$60,000	\$70,000	\$10,000	\$120,000	\$150,000	\$30,000
Amortization	20,000	19,000	(1,000)	40,000	38,000	(2,000)
<b>Total Fixed Expenses</b>	\$80,000	\$89,000	\$9,000	\$160,000	\$188,000	\$28,000
Income from Operations	\$10,000	\$13,000	\$3,000	\$20,000	\$116,000	\$96,000
Interest Income	2,000	3,000	1,000	4,000	6,000	2,000
Interest Expenses	1,000	1,500	500	2,000	3,000	1,000
Income Before Taxes	\$7,000	\$8,500	\$1,500	\$14,000	\$107,000	\$93,000
Taxes	2,000	15,000	(500)	4,000	3,000	(1,000)
Income After Taxes	\$5,000	\$7,000	\$2,000	\$10,000	\$104,000	\$94,000
<b>Income Statement Items</b>						
Loan Repayments	14,000	13,000	(1,000)	28,000	26,000	(2,000)
Owner Withdrawals (Or Dividends)	5,000	5,000	5,000	5,000	25,000	5,000
Fixed Asset Expenditures	100,000	90,000	(10,000)	100,000	90,000	(10,000)

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

Budgeting- Planned/Actual comparison





## *Project Management Resources*

### **NSF Research Infrastructure Office Documents and Guidance**

[https://www.nsf.gov/bfa/lfo/lfo\\_documents.jsp](https://www.nsf.gov/bfa/lfo/lfo_documents.jsp)

### **NSF Research Infrastructure Outreach:**

<https://researchinfrastructureoutreach.com/>

### **Webinar Series (3-part) on Mid-Scale RI Project Management:**

<https://researchinfrastructureoutreach.com/2023-webinar-series/>

### **Research Infrastructure Outreach Knowledge Gateway:**

<https://researchinfrastructureoutreach.com/knowledge-gateway/>

### **Communities of Interest (CoI):**

<https://researchinfrastructureoutreach.com/coi-portal/>



# Research Infrastructure Documents and Guidance

## CURRENT GUIDANCE

- [Research Infrastructure Guide \(RIG\) - December 2021](#)
- [NSF Financial Data Collection Tool for Major Facilities](#). (See RIG Section "4.6.3.4 Incurred Cost Audits")
- [Business Systems Review \(BSR\) Guide, NSF 22-102 - September 2022](#)

**The 2021 RIG expires Dec 2024, requirements remain until the 2025 RIG is published. 2025 RIG public comment period planned to begin Nov 2024, final publication in spring 2025. NSF recommends (not requires) using the draft guidance from 2024 RI Workshop.**

- [DRAFT RIG Revision Section 2.9 Mid-scale RI](#)
- [DRAFT RIG Revision Section 3.2 Tailoring Scaling and Progressively Elaborating Plans](#)
- [DRAFT RIG Revision Section 3.4 Design Stage Planning](#)
- [DRAFT RIG Revision Section 3.5 Construction Stage and Implementation Planning](#)
- [DRAFT RIG Revision Section 3.6 Operations Stage Planning](#)
- [DRAFT RIG Revision Section 5.10 Agile Guidance](#)

## ADDITIONAL SUPPLEMENTARY GUIDANCE

- [Mid-scale RI - PEP Template v1 23MAY2024](#). (See DRAFT 2025 RIG Section 3.5)
- [NSF Earned Value Management System \(EVMS\) Gold Card - July 2019](#)
- [Trusted CI - Framework Implementation Guide for Research Cyberinfrastructure Operators](#)

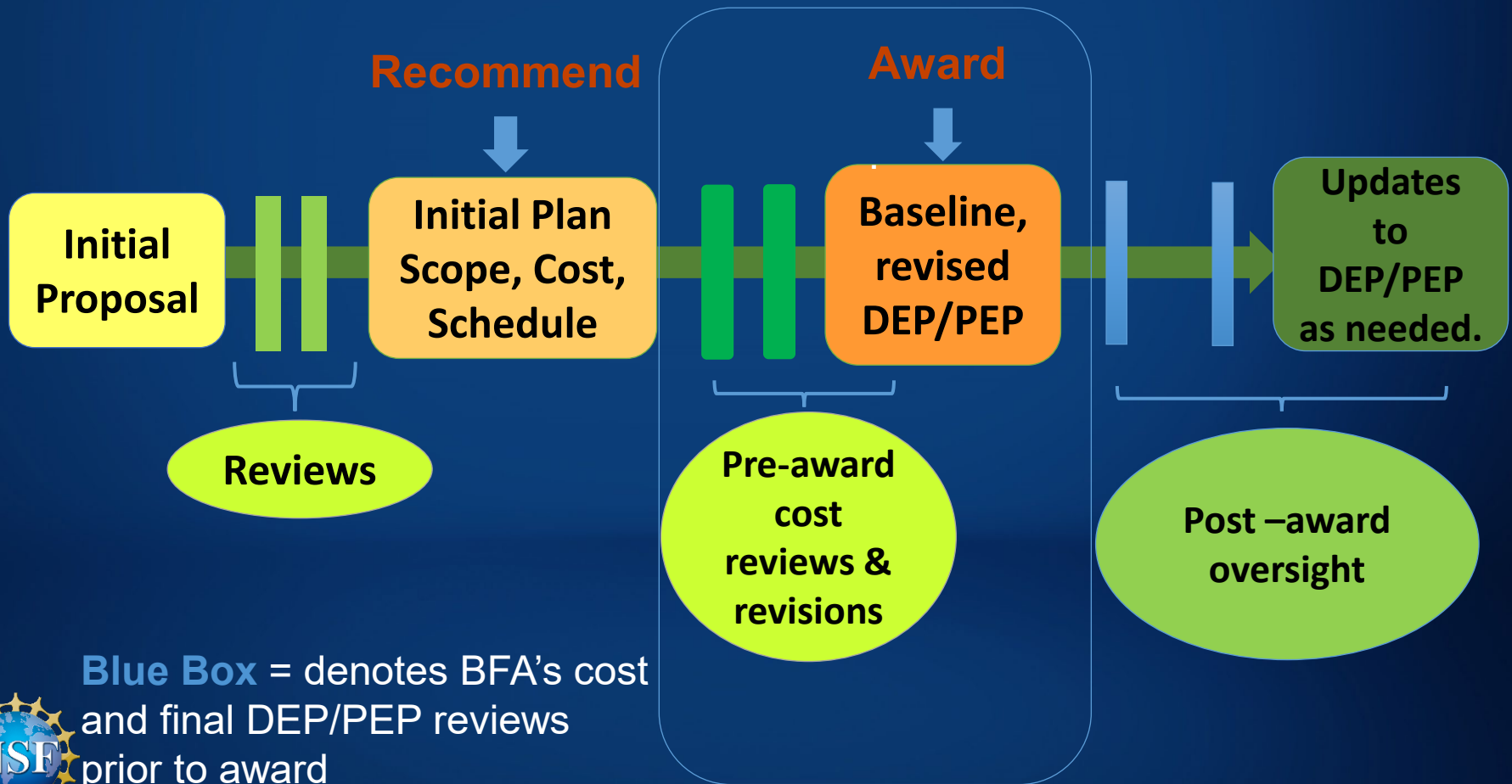


If you have questions about current or emerging guidance, please send a note to: [AskRIO@nsf.gov](mailto:AskRIO@nsf.gov).

# Process Overview

## Pre-award

## Post-award



# ***Mid-scale RI-1 (NSF 24-598)***

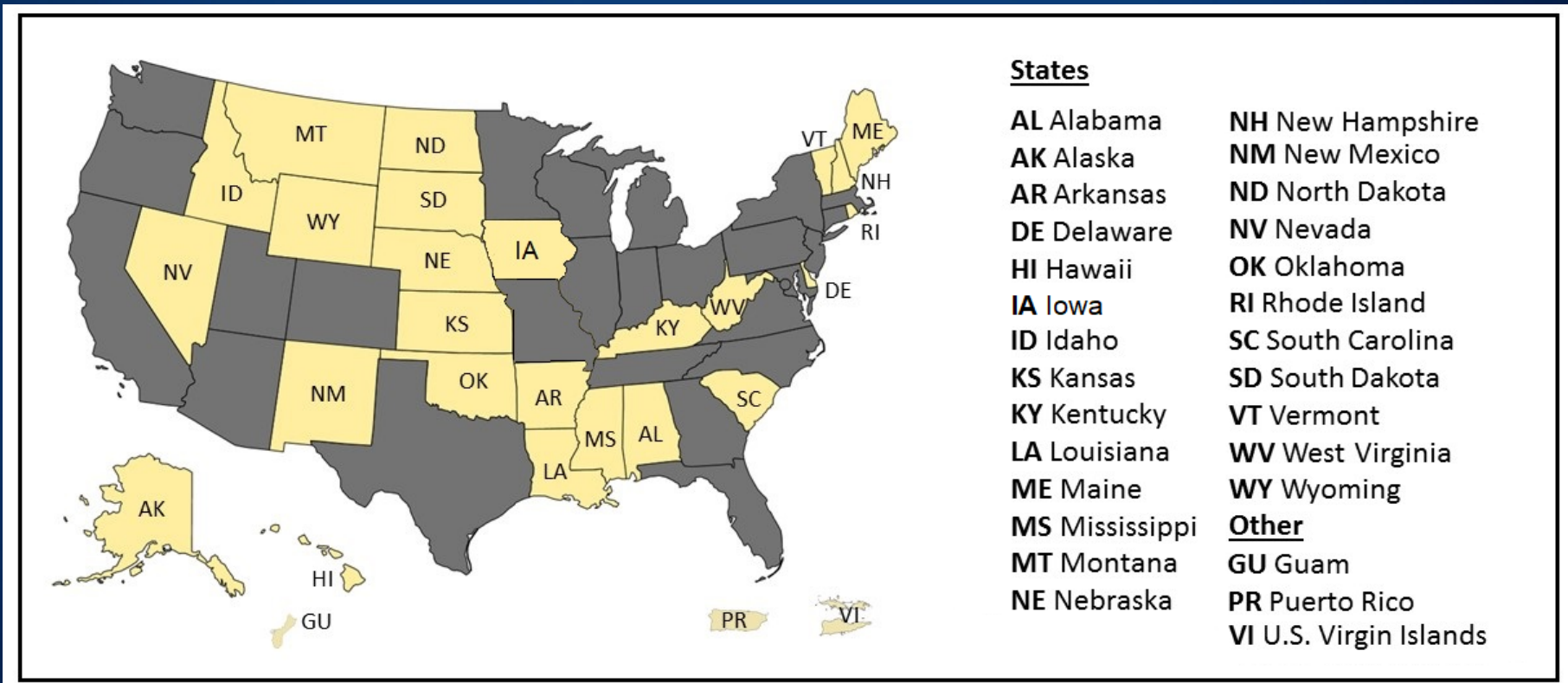
**Established Program to Stimulate Competitive Research  
(EPSCoR)**

<https://www.nsf.gov/od/oia/programs/epscor/index.jsp>

*Mid-scale RI-1 proposals with the lead submitting organization located in an eligible EPSCoR jurisdiction are highly encouraged.*



# NSF EPSCoR FY25 Eligibility



- FY25 jurisdictions are eligible for funding if their most recent 5-year level of total NSF funding is equal to or less than 0.75% of the total NSF budget.

Eligibility table through FY27 is publicly available at:

[https://www.nsf.gov/od/oia/programs/epscor/nsf\\_oia\\_epscor\\_eligible.jsp](https://www.nsf.gov/od/oia/programs/epscor/nsf_oia_epscor_eligible.jsp)



# Mid-scale RI-1 Inquiries

General Inquiries	OD/OIA	Randy L. Phelps	<a href="mailto:rphelps@nsf.gov">rphelps@nsf.gov</a>
		Jonathan Friedman	<a href="mailto:jfriedma@nsf.gov">jfriedma@nsf.gov</a>
Technical Inquiries	BIO	Sridhar Raghavachari	<a href="mailto:sraghava@nsf.gov">sraghava@nsf.gov</a>
	CISE	Deepankar Medhi	<a href="mailto:dmedhi@nsf.gov">dmedhi@nsf.gov</a>
	EDU	Carleitta Page-Anderson	<a href="mailto:cpaigean@nsf.gov">cpaigean@nsf.gov</a>
	ENG	Dominique Dagenais	<a href="mailto:ddagenai@nsf.gov">ddagenai@nsf.gov</a>
	GEO	Renee D. Crain	<a href="mailto:rcrain@nsf.gov">rcrain@nsf.gov</a>
	MPS	John Papanikolas	<a href="mailto:jpapanik@nsf.gov">jpapanik@nsf.gov</a>
	SBE	Joseph Whitmeyer	<a href="mailto:jwhitmey@nsf.gov">jwhitmey@nsf.gov</a>
	OD/OISE	Paul Raterron	<a href="mailto:praterro@nsf.gov">praterro@nsf.gov</a>
	OD/EPSCoR	Chinonye Whitley	<a href="mailto:cwhitley@nsf.gov">cwhitley@nsf.gov</a>
Financial Inquiries	BFA/RIO	Facundo Funes	<a href="mailto:fmfunes@nsf.gov">fmfunes@nsf.gov</a>
	BFA/DACS/ISB	Kapua Hatch	<a href="mailto:khatch@nsf.gov">khatch@nsf.gov</a>
	BFA/DACS/ISB	Tim Kashmer	<a href="mailto:TKashmer@nsf.gov">TKashmer@nsf.gov</a>
	BFA/DACS/ISB	Lisa Smith	<a href="mailto:lismith@nsf.gov">lismith@nsf.gov</a>



# ***Mid-scale RI-1 Directorate Information Sessions***

- ***BIO Tuesday, 10/15, 3-4 pm EDT***
- ***CISE Monday, 9/23, 2-3 pm EDT***
- ***MPS Immediately following this webinar***
- ***SBE Monday, 9/23, 1-2 pm EDT***

*These slides and a video of this webcast will be available at:*

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*Thank You!*



<http://www.nsf.gov/staff/orglist.jsp><sup>24</sup>

