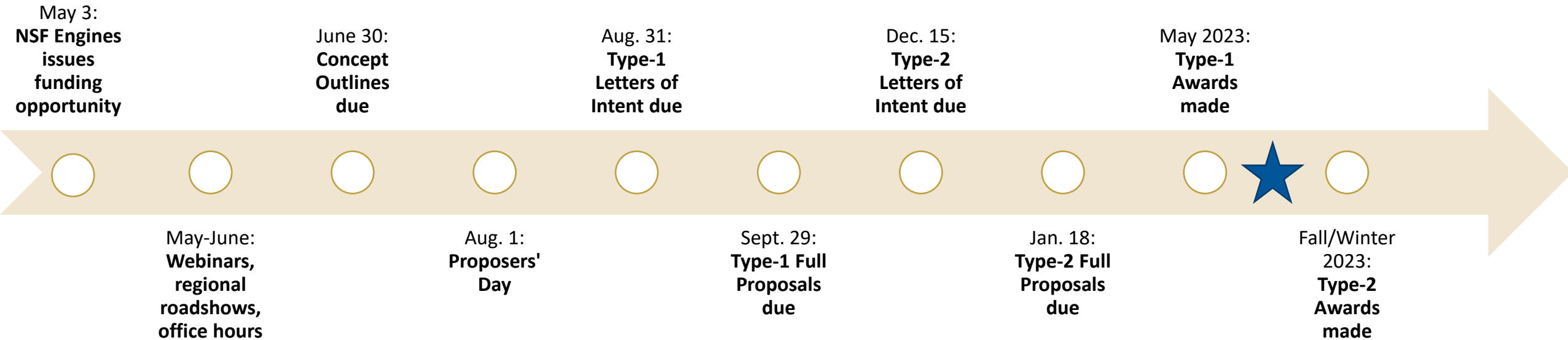# Type-2 NSF Engines

Erwin Gianchandani, Assistant Director for Technology, Innovation and Partnerships

National Science Board – Open Plenary

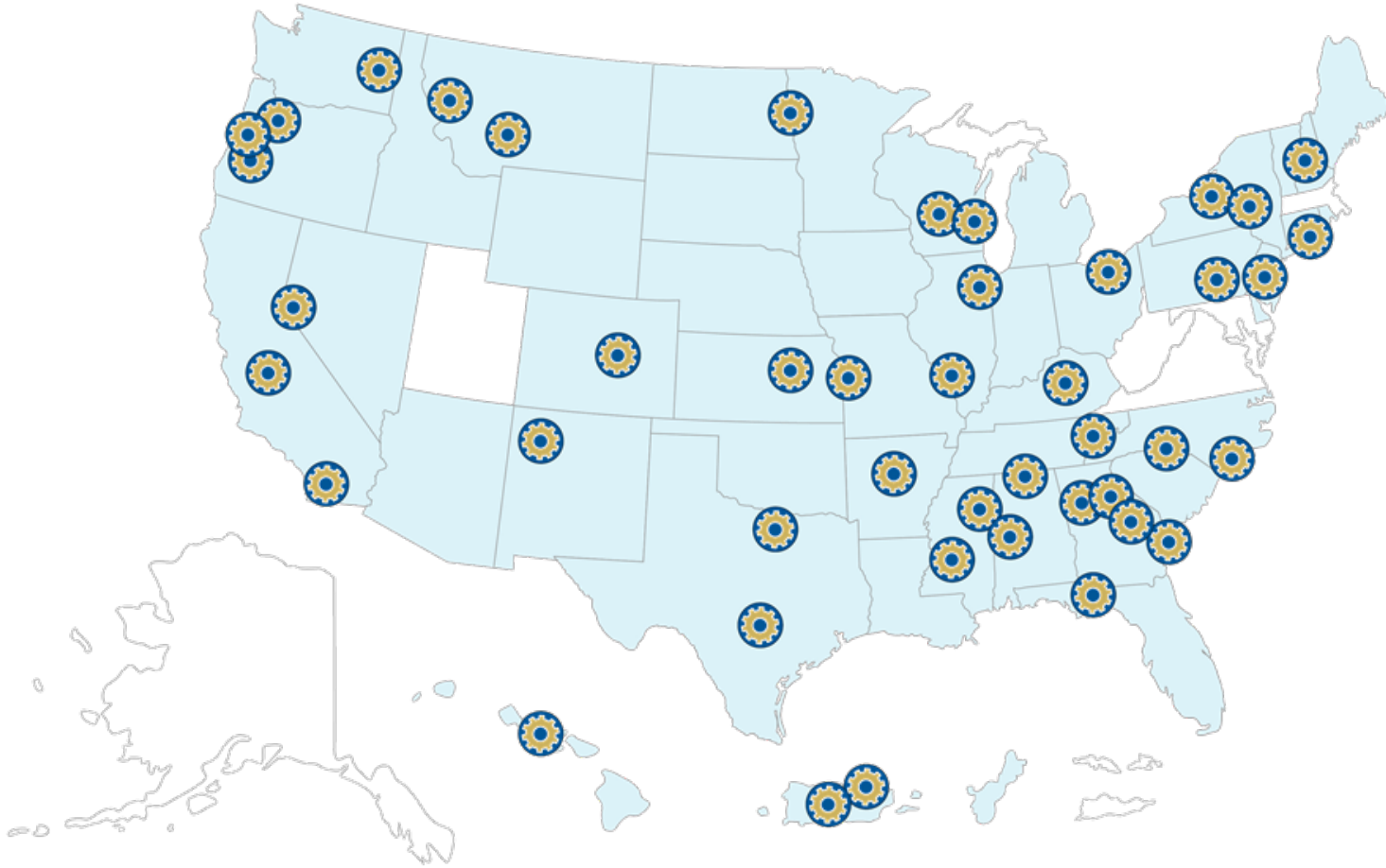*August 16, 2023*

NSF Regional Innovation Engines update

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NSF ENGINES
DEVELOPMENT AWARDS

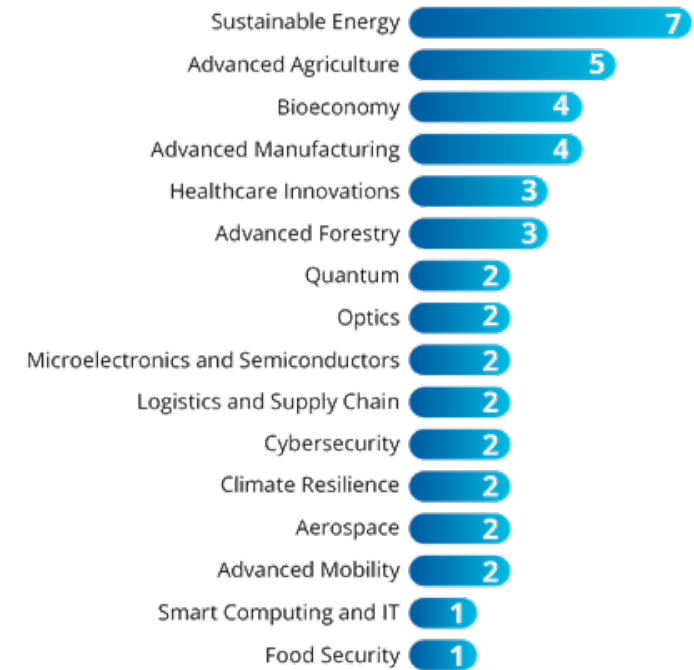**44 NSF Engines State Development Awards**

The first-ever NSF Engines Development Awards will help regional partners collaborate to advance key technologies, address societal challenges, and create economic opportunities. The awards to 44 unique teams span universities, nonprofits, business and other organizations across U.S. states and territories.

Topics
Each Award is aligned with one of the following topics.

Topic	Count
Sustainable Energy	7
Advanced Agriculture	5
Bioeconomy	4
Advanced Manufacturing	4
Healthcare Innovations	3
Advanced Forestry	3
Quantum	2
Optics	2
Microelectronics and Semiconductors	2
Logistics and Supply Chain	2
Cybersecurity	2
Climate Resilience	2
Aerospace	2
Advanced Mobility	2
Smart Computing and IT	1
Food Security	1

States and territories covered by at least one award

⬤ 34 NSF Engines Semifinalists

Alaska | Hawaii | Mariana Islands & Guam | American Samoa | Puerto Rico & U.S Virgin Islands

☐ States and territories covered by at least one semifinalist

"Each of these NSF Engines semifinalists represents an emerging hub of innovation and lends their talents and resources to form the fabric of NSF's vision to create opportunities everywhere and enable innovation anywhere. These teams will spring ideas, talent, pathways and resources to create vibrant innovation ecosystems all across our nation."
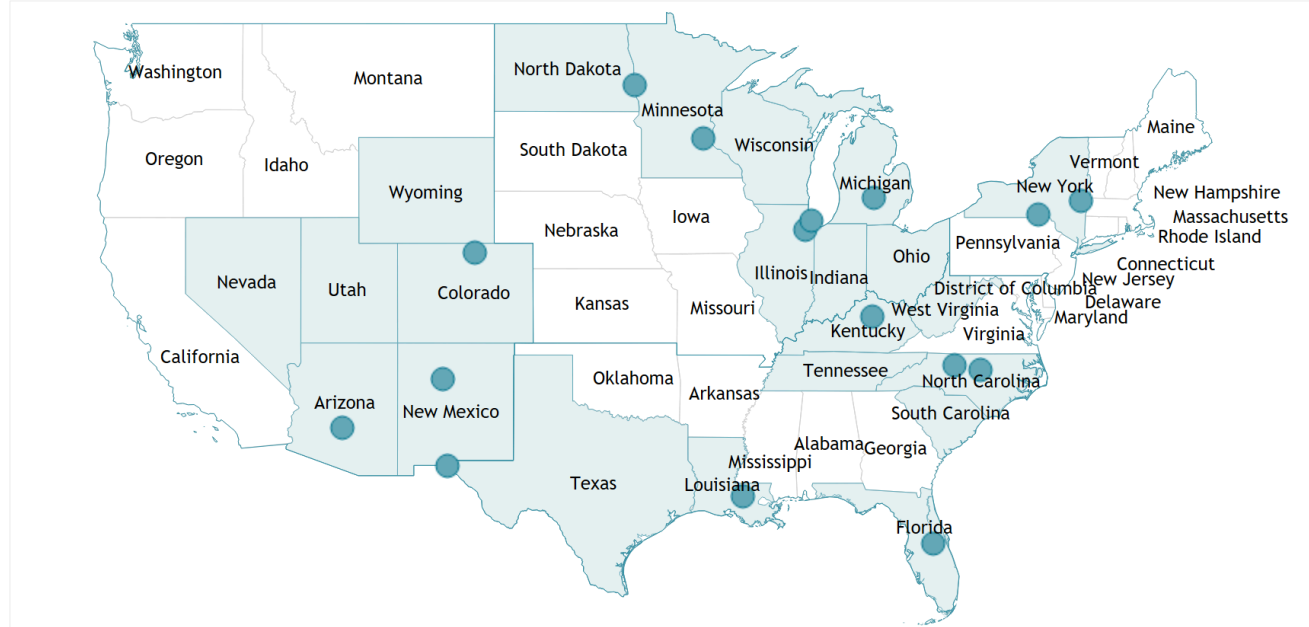
—Sethuraman Panchanathan
NSF Director

NSF ENGINES FINALISTS

- 16 NSF Engines Finalists

States and territories covered by at least one finalist

- **16 finalists spanning 22 states**

- **EPSCoR:** 4 of 16 finalists (25%), 8 of 22 states (36%)

- **New organizations:** 8 of 16 (50%)

NSF Engines Finalists

State	Topic	Proposal Title	Org Name
NY	Advanced Materials	NSF Engines: Type-2: Upstate Makes: A Materials Innovation Engine for Manufacturing Sustainability	FUZEHUB, INC.
NC	Blue Economy/Circular Economy	NSF Engines: Type-2: Creating a Modern, Green and Inclusive Textile Sector	THE INDUSTRIAL COMMONS
NC	Health & Wellness	NSF Engines: Type-2: Central Carolina Engine for Innovation in Regenerative Medicine Clinical Manufacturing	Wake Forest University School of Medicine
NY	Sustainable Energy	NSF Engines: Type-2: New Energy New York Storage Engine (NENY-SE)	SUNY at Binghamton
ND	Advanced Agriculture	NSF Engines: Type-2: Northern Plains AgTech Engine for Food systems Adapted for Resiliency and Maximized Security (FARMS)	North Dakota State University Fargo
MI	Bioeconomy	NSF Engines: Type-2: The Great Lakes Sustainability Hub for an Alternative Packaging Ecosystem (SHAPE)	MICHIGAN STATE UNIVERSITY FOUNDATION
IL	Blue Economy/Circular Economy	NSF Engines: Type-2: Great Lakes ReNEW	Current Innovation, NFP
IL	Quantum	NSF Engines: Type-2: Quantum Crossroads	University of Chicago
MN	Blue Economy/Circular Economy	NSF Engines: Type-2: Midwest Sustainable Plastics Innovation Regional Engine (M-SPIRE)	University of Minnesota-Twin Cities
KY	Advanced Manufacturing/Building Construction	NSF Engines: Type-2: Additive Manufacturing Forward Engine (AMFE)	Kentucky Science & Technology Corporation
TX	Aerospace	NSF Engines: Type-2: Paso del Norte Innovation for Defense and Aerospace (IDEA) Engine	University of Texas at El Paso
LA	Sustainable Energy	NSF Engines: Type-2: Engine for Louisiana Innovation and Transition of Energy (ELITE)	Louisiana State University
FL	Mircoelectronics and Semiconductors	NSF Engines: Type-2: NeoCity Semiconductor Technology Accelerator	ICAMR, INC.
NM	Aerospace	NSF Engines: Type-2: Space for Earth, Space for All: Space Valley's Role in Securing America's Economic and Political Future	NEW MEXICO TRADE ALLIANCE
CO	Climate and Resilience	NSF Engines: Type-2: Scaling the Regional, Technology-Driven, Innovation Ecosystem in Climate Solutions and Community Resiliency in Colorado and Wyoming	ROCKY MOUNTAIN INNOVATION INITIATIVE, INC.
AZ	Water Sustainability	NSF Engines: Type-2: Sustainability Innovation Engine for the Southwest (SIES)	Arizona State University

16 Finalists: How did we get here?

Proposals received → Stage 1: Ad hoc reviews → Stage 2: Panel reviews → 34 → Stage 3: Virtual site visits → 16 → Stage 4: Site visits

16 Finalists: How did we get here?

- **Goals:** Alignment with program vision, goals
- **Reviews:** Three per proposal (government, industry/startups, investment/venture, development, ...)

Proposals received → **Stage 1: Ad hoc reviews** → Stage 2: Panel reviews → 34 → Stage 3: Virtual site visits → 16 → Stage 4: Site visits

16 Finalists: How did we get here?

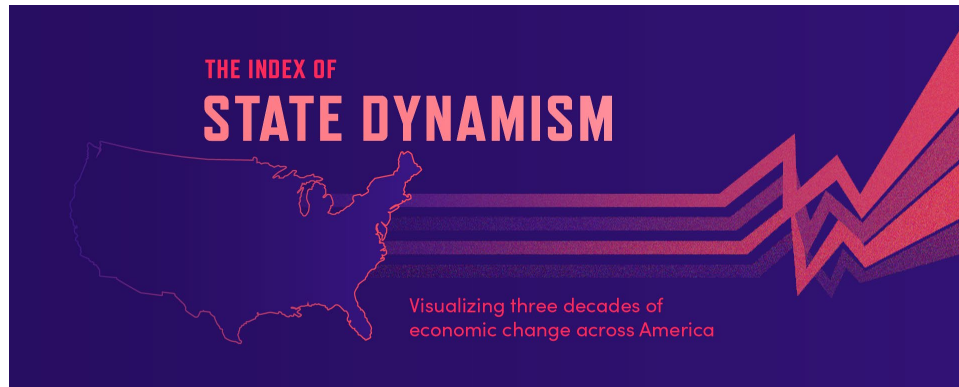| Proposals received | → | Stage 1: Ad hoc reviews | → | Stage 2: Panel reviews | 34 → | Stage 3: Virtual site visits | 16 → | Stage 4: Site visits |

- **Goals:** Assess integrated strategic plans (regional capacity, topic areas, leadership team and governance structure, depth of cross-sector partnerships, …)
- **Reviewers:** At least four per proposal (government, industry, investment/venture, development, …)

16 Finalists: How did we get here?

- **Goals:** Address specific concerns raised by review panels; assess competitive advantages/risks of region of service, suitability of the proposed budget and anticipated resources
- **Reviewers:** At least three NSF Engines PDs per VSV, incl. subject matter expert for proposal topic

Proposals received → Stage 1: Ad hoc reviews → Stage 2: Panel reviews → 34 → Stage 3: Virtual site visits → 16 → Stage 4: Site visits

Understanding regional innovation readiness

Index of State Dynamism
by the Economic Innovation Group
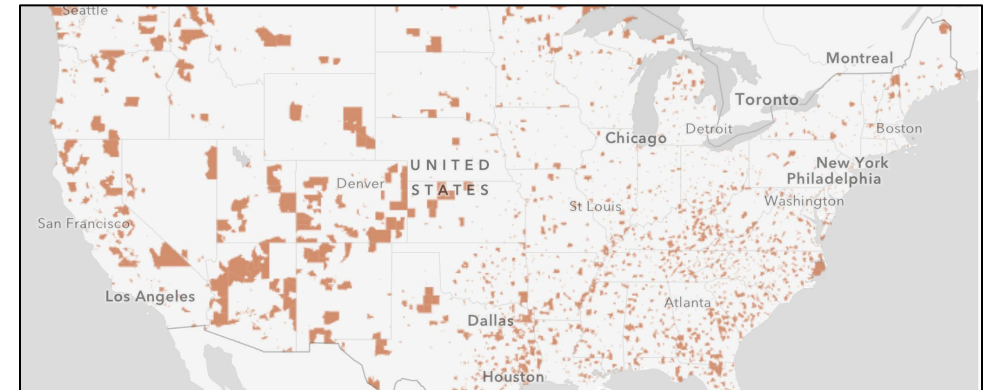
Opportunity Zones

Example: Index of State Dynamism

Core startup rate

Share of workers at firms less than 5 years old
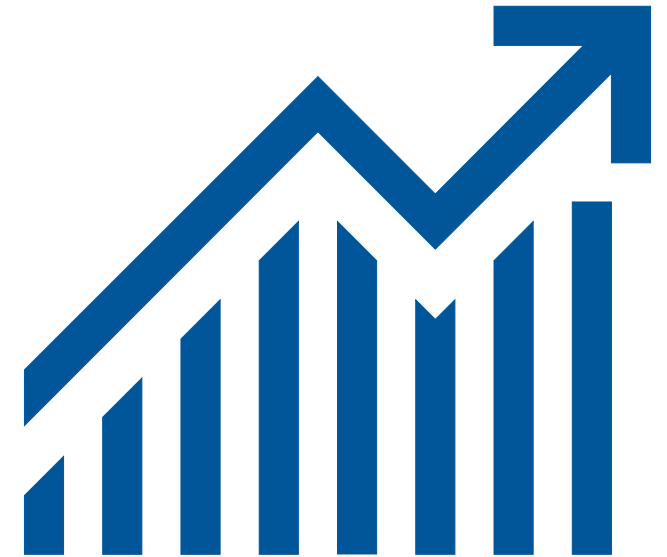
Growth in total firms

Patents per 1,000 residents

Housing permits per 1,000 residents

Reallocation rate

Labor force participation rate

Migration rate

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