



April 29, 2019
Informational Session:



Established Program to Stimulate
Competitive Research (EPSCoR)
Research Infrastructure and
Improvement (RII) Track 1 grant
proposal process

Arne Bomblies, PhD, PE
State Director, Vermont EPSCoR
Associate Professor, Civil and Environmental
Engineering

RII Track-1 Awards



- NSF's only state-based program
- Jurisdiction eligibility is based on percentage of total funds going to that jurisdiction (current cutoff= 0.75%)
- Primary goal is to improve research competitiveness of the jurisdiction to fulfill NSF's mandate
- A jurisdiction (i.e. state or territory) can submit only one proposal to the Track-1 program
- 5-year, \$20M grants
- The internal "white paper" (pre-proposal) competition described today will determine the research theme for the 2021 grant



NSF EPSCoR Track-1 Goals

Catalyze new research capabilities and knowledge

Establish sustainable STEM education, training, and professional development pathways

Broaden diversity in the project team and STEM workforce

Engage partners

Impact research, education, and economic development in academia, government, private sector



Current Vermont Track-1 award

- Year 4 of our current grant “Basin Resilience to Extreme Events (BREE)” starts June 1
- Focus on water quality
- Interdisciplinary group from multiple institutions and UVM colleges
- Multi-faceted project
 - Research (BREE)
 - Education and diversity (Center for Workforce Development and Diversity)
 - Private sector (e.g. SBIR phase 0, outreach activities, etc)
 - Infrastructure (cyber infrastructure etc.)

Timeline:



1. Call for white papers: May 8
2. Letter of intent: due June 3, 2019
(Up to one page)
3. White paper due July 15, 2019
(Up to 5 pages)
4. White papers sent out for external review (AAAS).
5. Back to the VT Technology Council. Decision October 2019.
6. Writing 2019-2020; Proposal submitted July 2020.
7. Award notification: Spring 2021
8. Begin project: Summer 2021



LOI required format:

- One page max
- Draft title of the project;
- Name, department, and institution of people involved
- Abstract of the project (one-page maximum) that describes the work in sufficient detail to determine relevance to the NSF EPSCoR RII Track-1 program
- Aid in selection of qualified reviewers.
- Submit via e-mail to epscor@uvm.edu

White Papers (5-pages max)

In order to be competitive, your white paper *must* convey:

- Intellectual merit, broader impacts, and research hypotheses/questions
- Alignment with State Science and Technology Plan (more to follow)

Also, your white paper *should* convey:

- Alignment with current scientific and engineering grand challenges, either NSF's Big Research Ideas or NSF-relevant grand challenges put forth by other agencies or entities
- Topics funded by NSF's regular programmatic and cross-cutting areas
- Leverage the strengths of Vermont research institutions





NSF's Big Research Ideas:

1. Harnessing the Data Revolution
2. The Future of Work at the Human-Technology Frontier
3. Navigating the New Arctic
4. Windows on the Universe: The Era of Multi-Messenger Astrophysics
5. The Quantum Leap: Leading the Next Quantum Revolution
6. Understanding the Rules of Life: Predicting Phenotype

https://www.nsf.gov/news/special_reports/big_ideas/

Also desirable (if possible):
Alignment with NSF's Big
Process Ideas

- Mid-scale Research Infrastructure
- NSF 2026
- Growing Convergence Research
- NSF INCLUDES



REQUIRED FOR EVERY RII TRACK-1 GRANT: Alignment with State S+T plan



- Environment
- Health
- Advanced manufacturing
- Computing/Big Data/AI

S+T Plan for Vermont can be found at:
<http://vttechcouncil.org> (lower left corner)

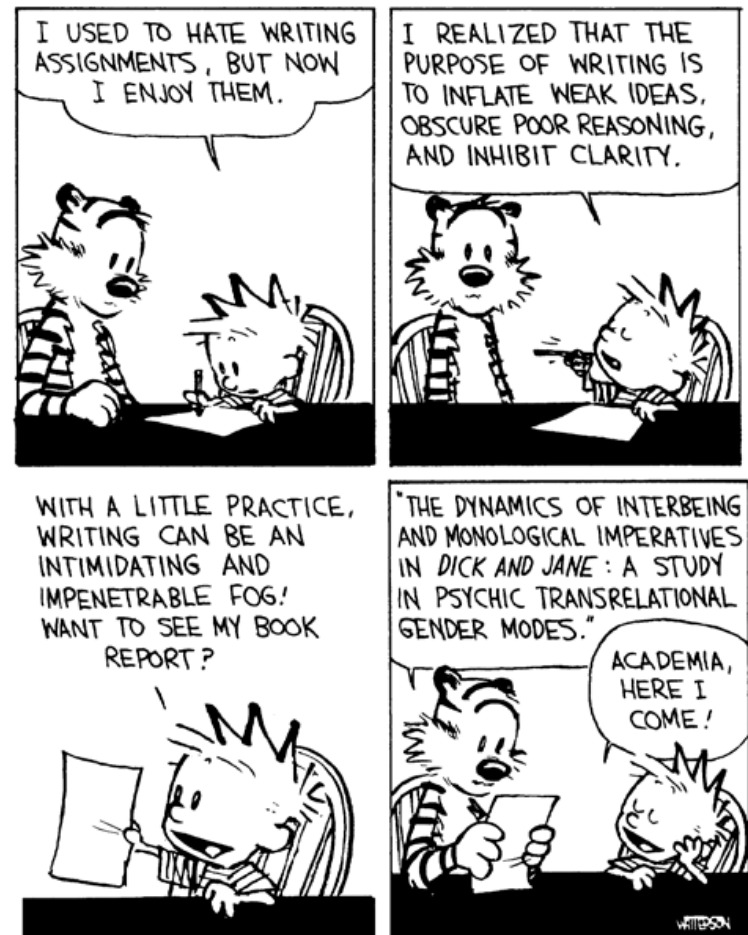
Basis for white paper review:



1. Intellectual merit (e.g. what has the best chance for NSF funding)
2. Alignment with the State S+T plan (NSF will scrutinize)
3. Other elements (outreach, education, etc.) do NOT factor into white paper review, so don't include them.
4. That's it!

White Paper contents:

- Clear vision and goals
- Potential impact
- Scope and research
- Separate statements of:
 - Intellectual merit
 - Broader impacts
- Alignment with Vermont S&T Plan
- How the proposed research advances Vermont's competitiveness in the area.
- Bonus: Description of what a "Center of Excellence" in proposed research area would look like at end of 5 year award period and how funded



Track 1 proposal specifics:

- As per the NSF, PI will be Vermont State Director (me; Arne Bomblies)
- PI will be responsible for coordinating and organizing all elements of the proposal
 - Writers of research component will be core faculty (white paper authors)
 - PI together with EPSCoR staff will write and integrate the other elements of the proposal (data management, budget, hiring, outreach, private sector, etc.)



RII Track-1 Competitiveness:

- Hypothesis-driven, not discovery-based, research is key.
- The infrastructure and increased research capacity are consequences of the cutting-edge research that happens as part of the project
- Review includes non-EPSCoR NSF program staff, Director's Review Board



The goal should not be the RII Track-1 award. The award helps you achieve is the means to achieve a goal.

Sustainability, strategy, execution

Full proposal review: Alignment with Vermont



- Why is **your project** right for Vermont?
- Again, critically important to be aligned with state Science and Technology plan
- For full proposal (not necessarily white paper) need to have buy-in across the jurisdiction
- Need to convince panel that Vermont is the BEST place to do this project



Strategies to think about as you work on your white paper

- EPSCoR dollars are catalytic, not foundational.
- The award is not the goal. The award is the means to achieve the goal.
- Collaboration and teamwork are critical.
- The EPSCoR director at NSF, Loretta Moore, is a big proponent of the I-Corps program and INCLUDES



Recommendations for pre-proposals

- Problem has national, state importance
- Hypothesis-driven
- Broadening participation
- Representation from across Vermont institutions
- Has an NSF focus
- Is able to result in a sustainable center that will live beyond the award period
- Has an economic impact
- Is the right project for Vermont



Questions?