# Educational Dialogue Agenda

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Housekeeping Review

• Use the GoToWebinar Questions Box to submit questions or feedback for presenters.
• This event will be recorded and made available online along with the presentation (see QR code below for website).
• Poll questions will appear on your screen, please respond as your are able.
• Additional dialog questions will be at the end of the session, participate using the chat feature.
Vehicle to Collaboratively Engage Universities and Industry
Climate Prediction and Catastrophe Modeling

Feb 17, 2023

Barbara Ransom: NSF/GEO IUCRC Program Director
Ellen Mecray: NOAA
“To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..."
Mission: NOAA

“To understand and predict changes in climate, weather, oceans, and coasts; to share knowledge and information with others;...”
NSF’s Vision – Creating a Nation that is the global leader in research and innovation

**NSF: Driving Toward Societal Impact**

- $8.5B Basic Research
- ~$800M Translational Research

Investment in Technology, Innovation, and Partnerships

Moving research innovation toward commercialization
NSF: A Catalyst for Partnerships

- Industry
- Academia
- National Labs
- Foundations
- States
- International
- Other Federal Agencies
- Professional Societies
IUCRC – A Collaborative Partnership

**Government**
NSF catalyzes partnership; other agencies join as Members or co-fund the Center

**Universities**
Provide research infrastructure, human capital, and technical expertise.

**Industry**
Members provide funds for research and insight into needs of the economic sector.

IUCRCs bridge the gap between academic curiosity-driven research and commercial readiness.

**IUCRC TARGET**

Early Stage Research  Technology Readiness  Commercial Deployment
In 2021: $47M in non-NSF funds generated to support Center research.

~1/4 of graduating IUCRC-involved students hired by Center members.
Sampling of Participating IUCRC Members
IUCRC - Value Proposition for Members

IUCRC

Member ROI: Each member dollar leverages ~23 additional dollars

Access to Talent
Able to scout and Mentor student talent with skills for work in Industry.

Reduce R&D Risk
R&D risk for developing early-stage disruptive tech shared with others.

Research Cost Avoidance
Low human capital cost. Access to facilities. Save on internal research money.

R&D Leverage
High ROI due to joint project funding model

Network Access
Collaborative venue for Interaction with other Members, competitors, regulators

Access to IP
Royalty-free, non-Exclusive licenses on IP produced in the Center.
**IUCRC – Value Proposition for Universities**

**Student Training & Workforce**
- *6,500* Center-trained students nationwide
- *25%* Center-trained students hired by member organizations
  *(10-year data)*

**Student Support**
Enhance resources for student training, skill development & job placement

**Funding.**
Increase & diversify research funding via industry-driven research.

**Collaboration**
Build relationships, develop industry partnerships for tech transfer.

**Broad Impact**
Work with industry to address societal Challenges.

**Feedback**
Get industry guidance on research problems.

**Access**
Access to industry information to Spur innovation.
IUCRC Center Structure and Operations
Industrial Advisory Board (IAB) funds Center research

**University overhead on industry money capped at 10%**

Pooled Membership fees

Research Portfolio Cooperatively defined & recommended

Selected to address shared IAB needs

Universities provide intellectual capital, & collaboration with

infrastructure, talent, venue for interaction industry.

**IAB Value**
- Foundational research results.
- Leveraging of R&D dollars.
- Royalty free IP.
- Scouting of talent.

NSF funds

Center admin
**IUCRC - Member Role in Project Selection**

**Winter**
Faculty proposed project
Ideas refined & new project proposals generated

**Focus on Industrial Advisory Board (IAB) needs**

**Summer Meeting**
IAB feedback on projects

**Continuing interaction with IAB**

**Summer**
IAB needs survey, possible new project ideas discussed

**Winter Meeting**
New project selection

**Ideas for new projects discussed**

**Continuing interaction with IAB**

**project completion**

**work progresses**

**project continuation**

**new projects start**

**IAB reviews proposals & recommends funding**
IUCRC Center Creation Path and Timeline

1. **Ideation Phase**
   - Talk to industry to identify pain points

2. **Planning Phase**
   - IUCRC bootcamp
   - Planning meeting

3. **Merit Review (3-6 mo)**

4. **Planning Phase (12 mo)**

5. **Merit Review (3-6 mo)**

6. **Center Proposal Submitted**

7. **New IUCRC Created**
IUCRC Characteristics and Must-Haves
Key for a Successful Partnership & Center
IUCRC: Main Objectives

• Convergence between academia & industry on cutting edge research thrusts of high priority that directly address the collective pain points of a targeted sector of the economy.

• Strong industry interest and commitment to being a dues paying member of the Center and working with other members of the sector and involved faculty to overcome hurdles holding the sector back.

• Deeper understanding of industry pain points and areas of knowledge creation needed by a sector of the economy so it can create better and more effective and products and services to serve society.
**IUCRC Sites:** The Lead Site is the administrative head of the Center, collects industry money, and distributes it to recommended projects. Sites generally consist of from 7 to 15 faculty, many times interdisciplinary, to enable complex problem solving focused on the needs of the targeted sector. Faculty from Institutions where there are insufficient faculty for a Site can still participate in a Center as “affiliated faculty”.

**IUCRC Goal:** To advance a technology or targeted sector of the economy, employing cutting-edge research ideas & technology

**Membership Eligibility*** - Any entity can join, if they sign the IUCRC Membership agreement and are not forbidden by law.

- Private sector companies (large, small, startups, international).
- Government agencies & public sector entities (federal, state, local).
- National labs, FFRDCs.
- Non-profits, foundations.
IUCRC – Controlling Documents

• **Membership Agreement**
  - Same for all.
  - Must be signed prior to becoming a Center member.
  - Identifies types of memberships and fee structure.
  - Codifies rights for Center derived IP.
    - University owns IP.
    - All Members have royalty free licensing rights
    - Possibility of exclusive rights (if no other Member interested)

• **Center Bylaws**
  - Defines how Center will operate.
  - Describes research project consideration and voting practices.
  - Sets faculty/student Center research publication policies/delays.
  - Written jointly by university and IAB, can be amended as needed.
  - NSF approval required - ensures adherence to IUCRC model.

Signed by 100’s of firms involved in IUCRCs
Phase IUCRC Minimum Funding Requirements

IUCRC Funding Model (N = Number of Sites)

Phase I
- 3 x N full Members
- $150k/yr x N cash in industry membership fees
- NSF Funding per Center $150-K x N

Phase II
- 4 x N full Members
- $100k/yr x N cash from membership fees

Phase II+
- 6 x N full Members
- $150k/yr x N cash from membership fees

OR
- 6 x N full Members
- $150k/yr x N cash in industry membership fees

Phase II
- 3 x N full Members
- $150k/yr x N cash in industry membership fees

Phase IUCRC Minimum Funding Requirements

NSF Funding per Center

Phase I
- $150-K x N

Phase II
- $100-K x N

Phase II+
- $150-K x N
What an IUCRC Is and What It Is Not

• IUCRCs are engines of innovation to help Members overcome the collective conceptual and technological hurdles of the sector through fundamental use-inspired research projects focused on industry needs. **IUCRCs are NOT contract or service organizations: no one-on-one or hand-in-hand projects allowed.**

• IUCRC research is to provide ground-breaking research results of mutual interest where faculty learn industry pain points and pitch projects to address them with Members recommending funding for those of highest priority. **IUCRCs are not for faculty simply wanting to augment their funding, motivation should be for understanding and the collective needs of the sector.**

• IUCRCs provide companies opportunities for serious talent scouting, to find students who are creative, resourceful, and understand industry needs and how to communicate and effectively in a private sector-like environment. **IUCRCs are not simply research engines, they can provide access to talent, infrastructure, research capacity, etc. missing from your organization.**
Questions?

Barbara Ransom, PhD: bransom@nsf.gov

For more information see
NSF IUCRC solicitation 20-570
POLL

QUESTIONS
Dialogue