

NSF 23-541 ASCENT Webinar

Division of Electrical, Communications and Cyber Systems (ECCS)

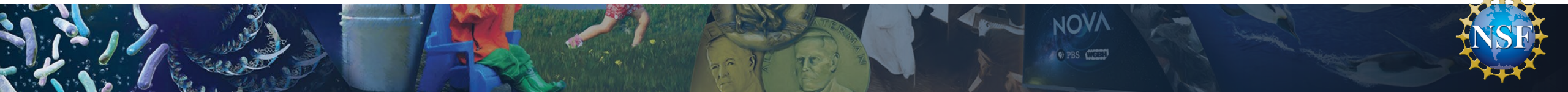
Starting at 3:00 pm EST
Jan. 26, 2023

ECCS, ENGINEERING, NSF

Please use the **Q&A** icon in Zoom to submit questions.

After the webinar, email questions to ascent@nsf.gov


Webinar Materials and updated FAQ will be [available online](#)




Electrical, Communications and Cyber Systems (ECCS)

Administrative Team

Program Support Manager
(Vacant)



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Program Analyst



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Chase Neese
Program Specialist

Electronic, Photonic, and Magnetic Devices (EPMD)



Premjeet Chahal
Program Director




Dominique Dagenais
Program Director




Vikram Dalal
Expert



Matt McCune
Expert



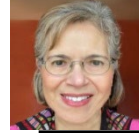
Leon Shterengas
Program Director



Usha Varshney
Program Director




Anthony Maciejewski
Division Director




Carmiña Londoño
Deputy Division Director


Communications, Circuits, and Sensing-Systems (CCSS)



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Jenshan Lin
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Rosa (Ale) Lukaszew
Program Director



Svetlana Tatic-Lucic
Program Director

Energy, Power, Control, and Networks (EPCN)



Eyad Abed
Program Director



Aranya Chakraborty
Program Director



Anthony Kuh
Program Director



Mahesh Krishnamurthy
Expert

Office of the Division Director



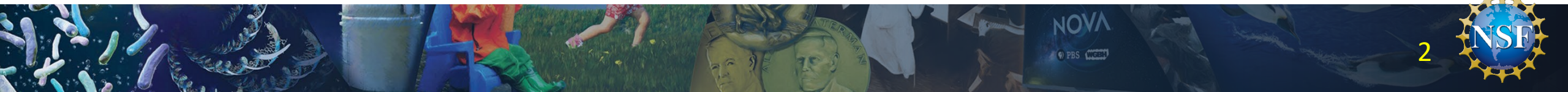
Larry Goldberg
Senior Engineering
Advisor



Matthew Cripps
Operations Specialist



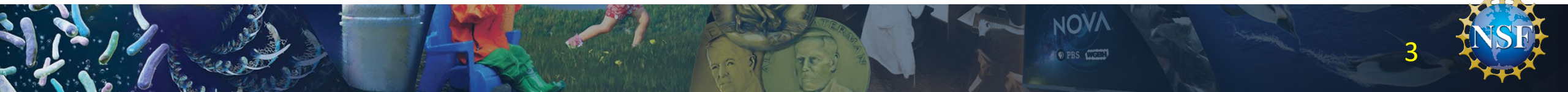
Richard Nash
Associate Program
Director



Division of Electrical, Communications and Cyber Systems (ECCS)

Mission and Priorities

- Address fundamental research issues at the nano, micro, and macro scales underlying device and component technologies for energy and power, controls, networks, communications, computation and sensing applications.
- Support research on systems and networks for advanced engineering applications.
- Support education of a diverse workforce in electrical and computer engineering to meet the technological challenges of a 21st century global economy.



Each ECCS Core Program Supports a Range of Research Areas

More details at <https://www.nsf.gov/funding/programs.jsp?org=ECCS>

or consult an ECCS Program Officer

Electronics, Photonics and Magnetic Devices

(EPMD)

- Electronic Devices
- Photonic Devices
- Magnetic Devices
- Cross-Cutting Activities

Communications, Circuits, and Sensing Systems

(CCSS)

- RF Circuits and Antennas for Communications and Sensing
- Communication Systems and Signal Processing
- Dynamic Bio-Sensing Systems

Energy, Power and Control Networks

(EPCN)

- Power Elect., Motors and Storage
- Power Systems & Controls
- Cyber Physical Systems
- Machine learning & Robotics

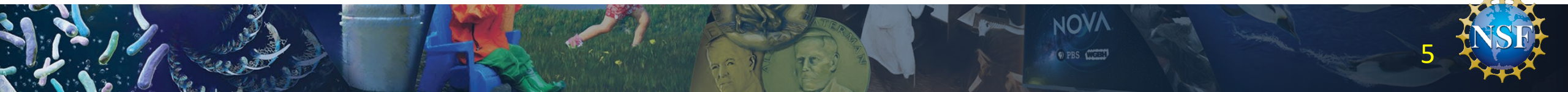


ASCENT Program

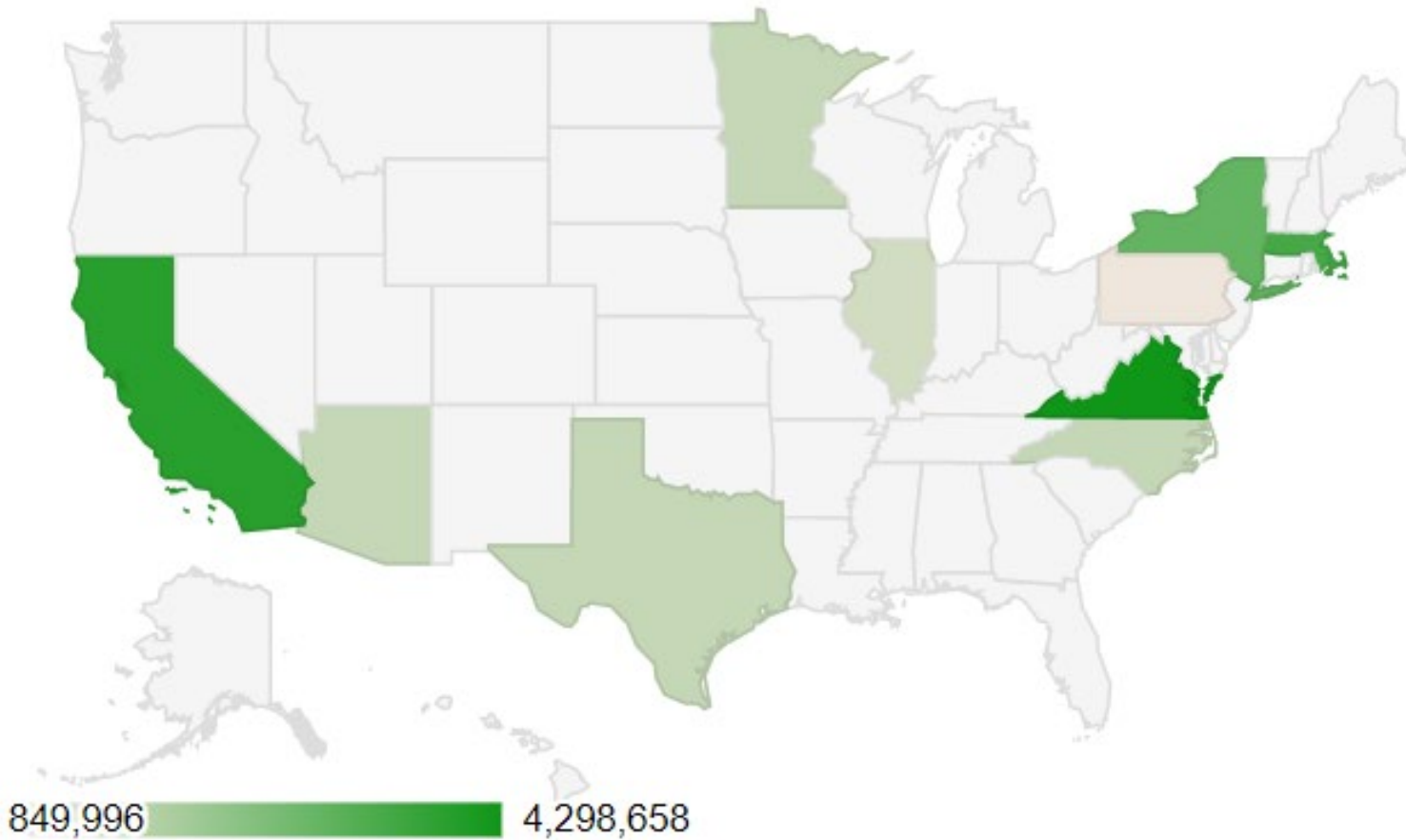
One of the **principal strategic investments** of ECCS

“The intent of the ASCENT program is to stimulate collaborations among different ECCS sub-communities and to enable synergistic effort addressing **large-scale cross-disciplinary** problems whose solutions are beyond the scope of individual or divided efforts.”

- ❑ Emphasizes on **new collaboration modalities** among various sub-disciplines of ECCS-supported research
- ❑ Is envisioned to bring **significant impact** on a variety of application domains

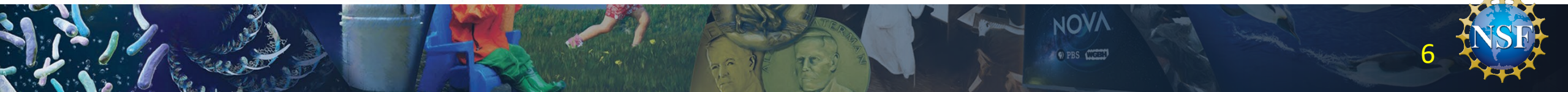


ASCENT Active Awards Geographic Distribution FY20 (5), FY21 (5), FY22 (6)



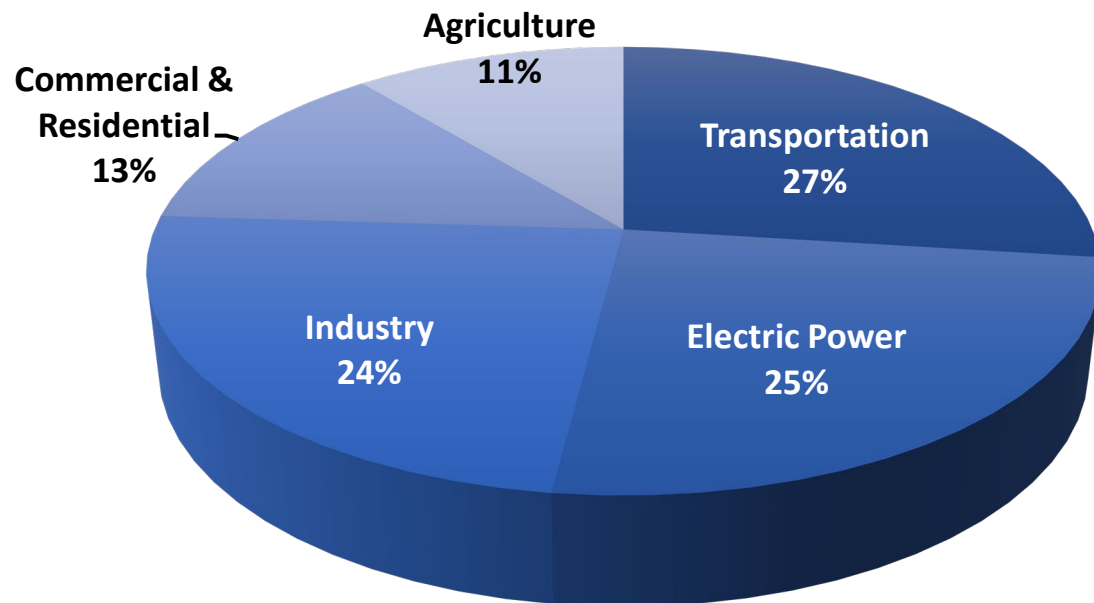
State/Territory	Awards*	Award Amount
Arizona	1	\$1,500,000
California	4	\$3,926,611
Illinois	1	\$1,300,000
Massachusetts	4	\$3,466,000
Minnesota	1	\$1,500,000
North Carolina	1	\$1,499,908
New York	2	\$2,999,921
Pennsylvania	1	\$849,996
Texas	1	\$1,500,000
Virginia	3	\$4,298,658

* Awards & Subawards



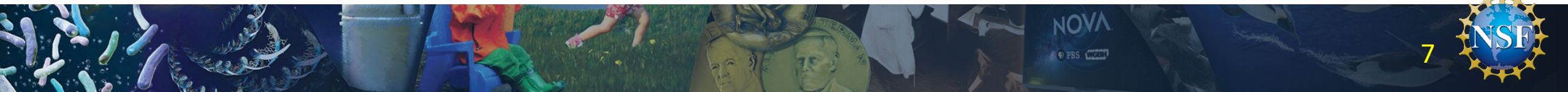
ASCENT 2023 – Reduce Greenhouse Emissions

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2020

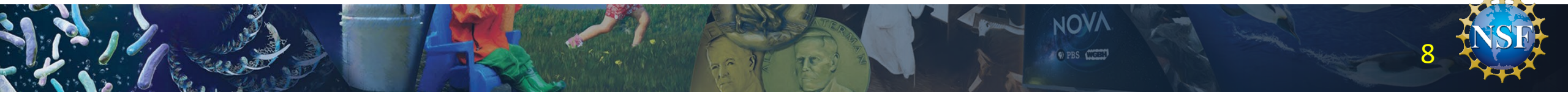
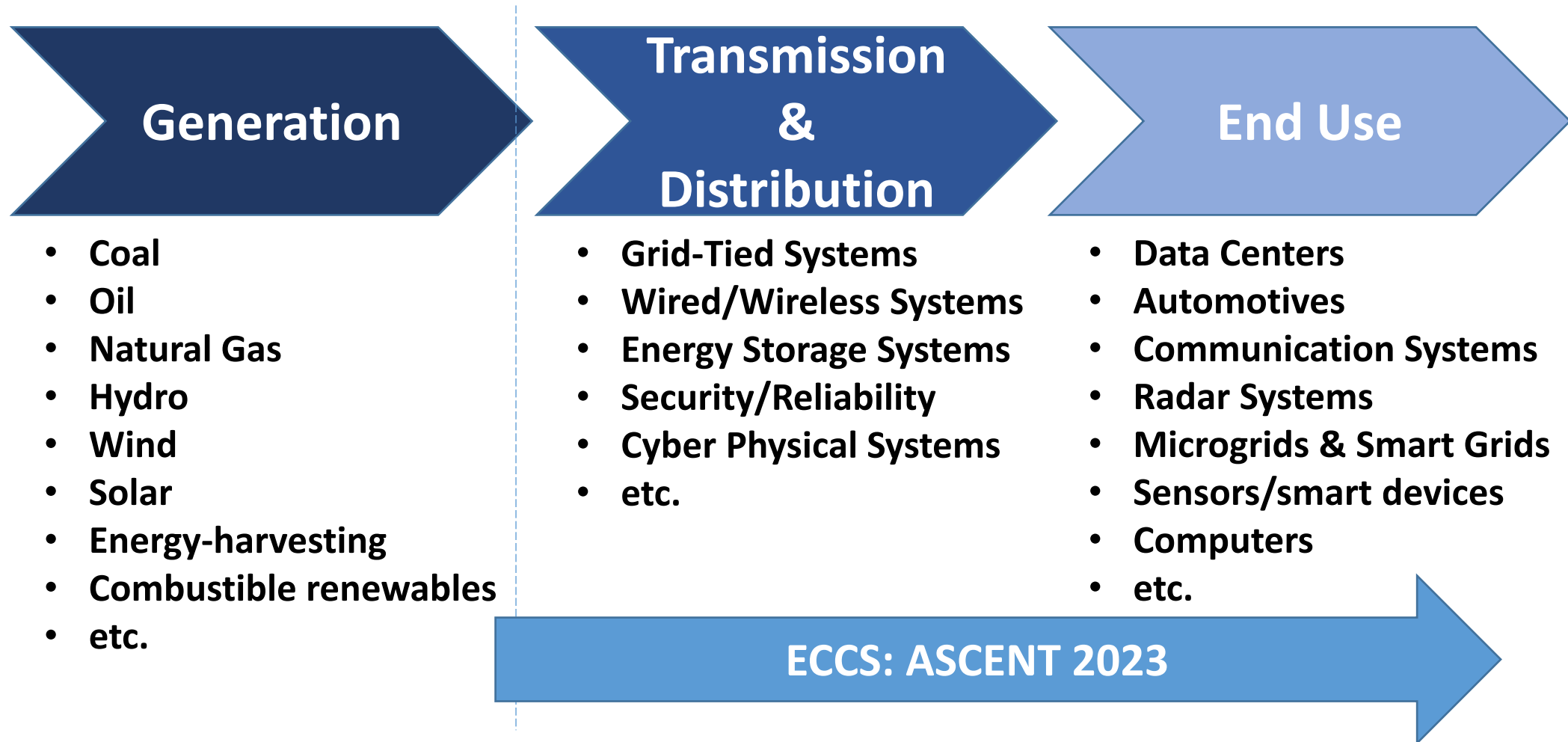


- **National Priority** – Tackling the Climate Crisis & Building a Clean Energy Economy
- **Goal: reduce the greenhouse gas emissions responsible for climate change.**
 - Enhance the generation and adoption of clean/green/renewable energy
 - Efficient distribution of energy
 - Efficient use of energy
 - Manufacturing innovation in the energy sector

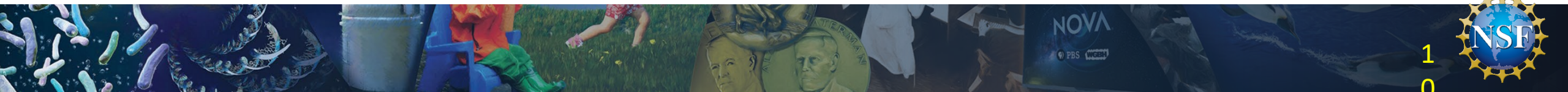
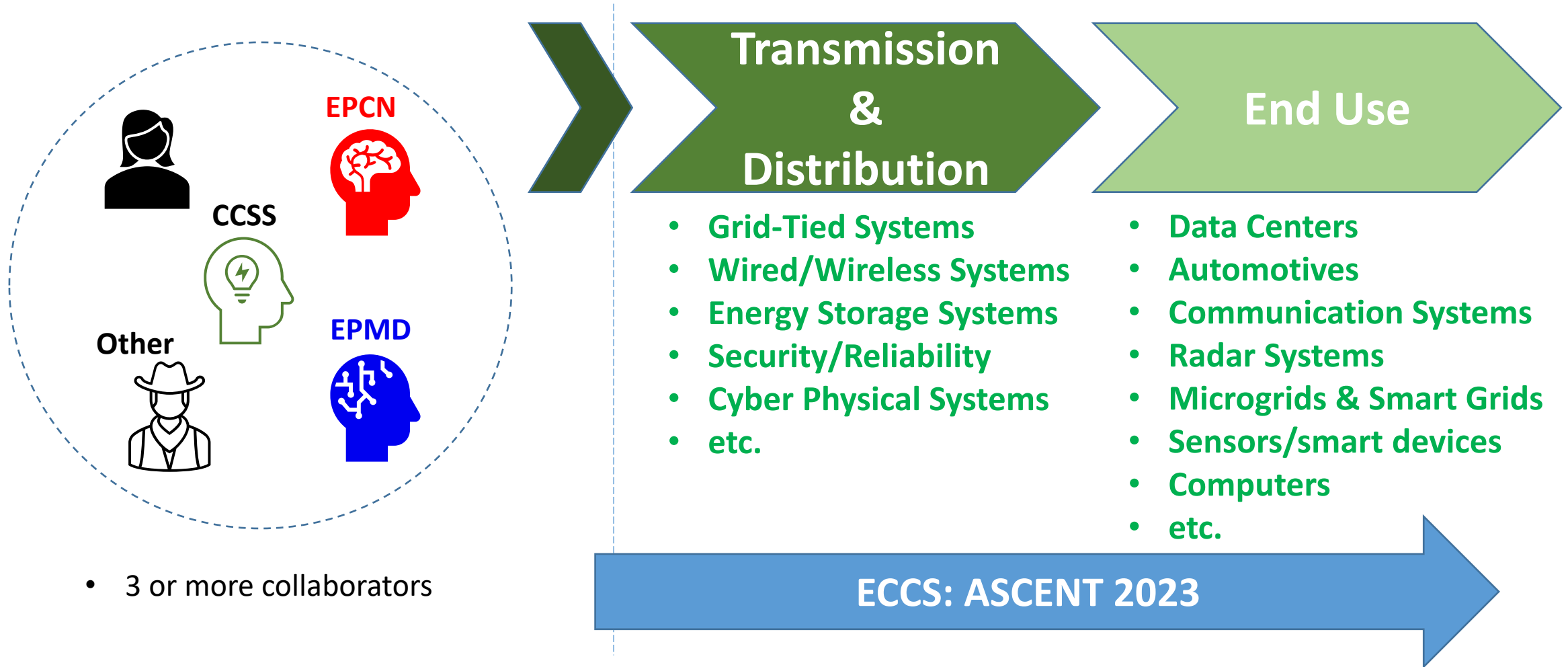
<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>



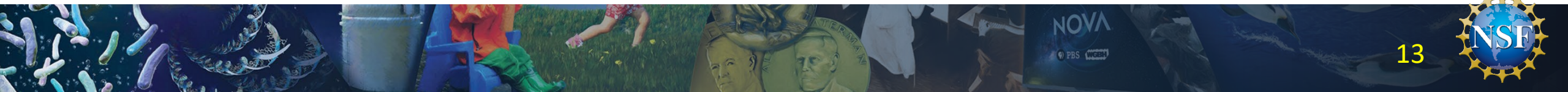
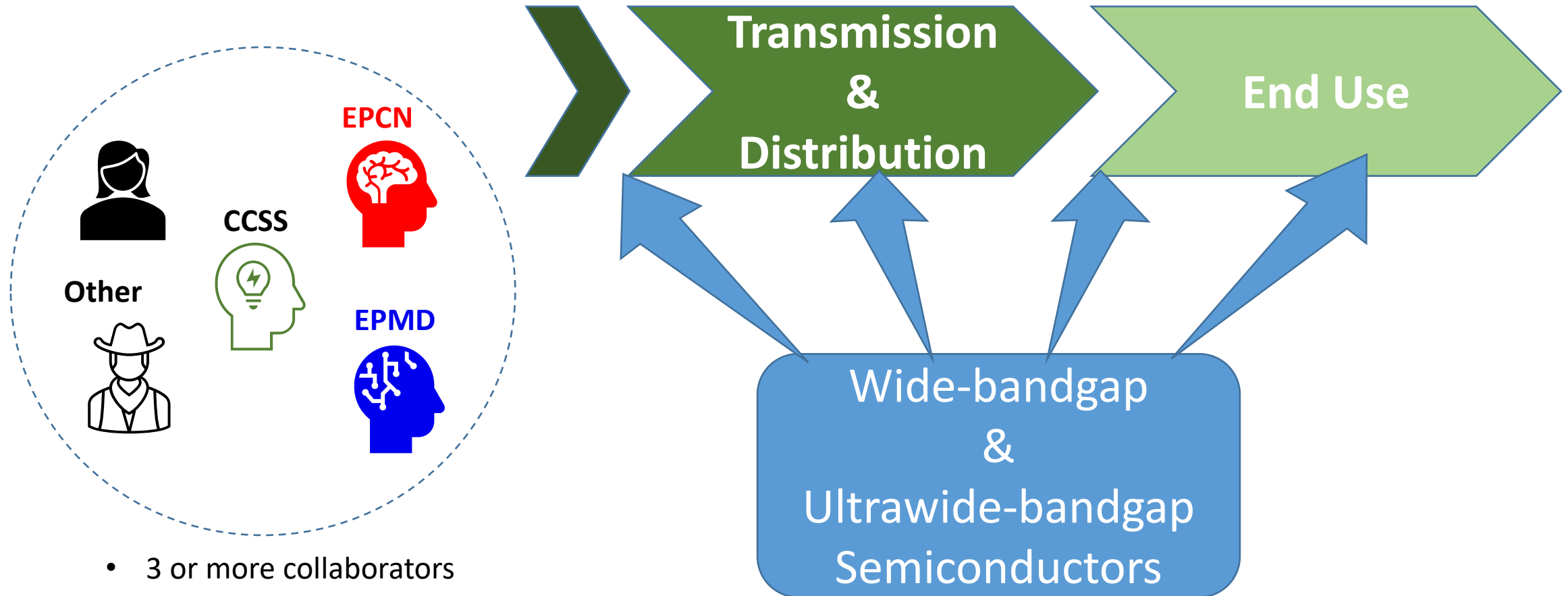
ASCENT 2023 – Reduce Greenhouse Emissions



ASCENT 2023 – Energy Efficient Systems



ASCENT 2023 – Theme 1



ASCENT 2023 – Theme 2

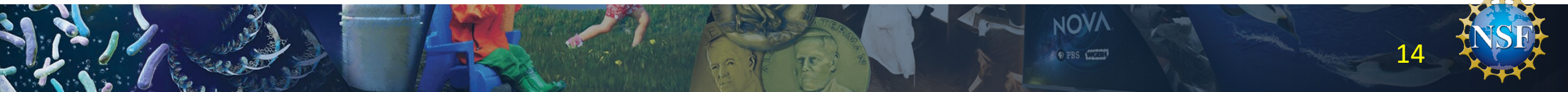
Theme 2: Integrated Power Systems for Clean Energy.

- Fundamental research on modeling, control, sensing and cyber-security of an autonomous electric power grid, with its seamless and massive integration with power electronics, renewables, storage, and charging stations for electric vehicles.
- Cross-cutting research on power electronics, rare-earth-free electric motors, controls and optimization, wireless power transfer, communications, networking, etc.,
- The outcomes of the research should include energy-efficient integrated power systems for clean energy.

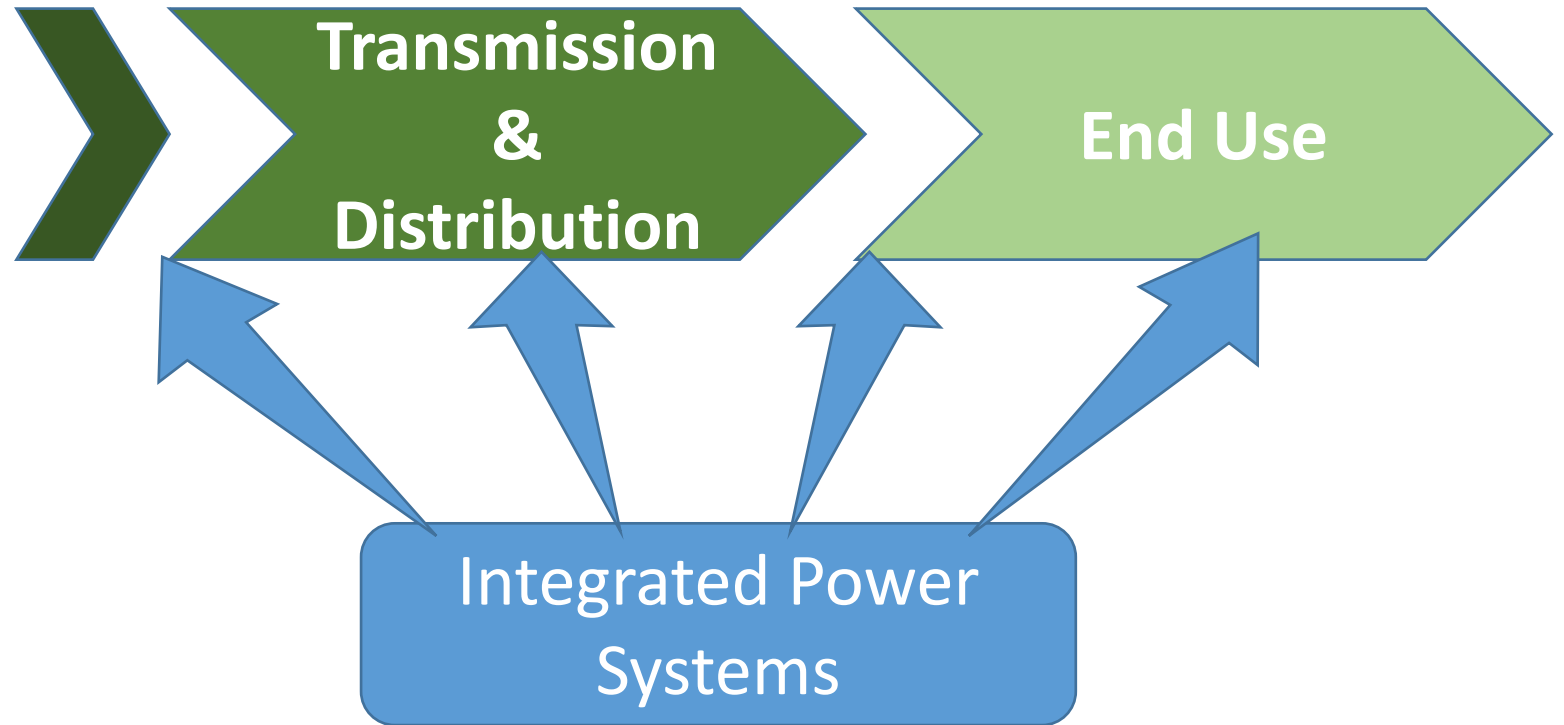
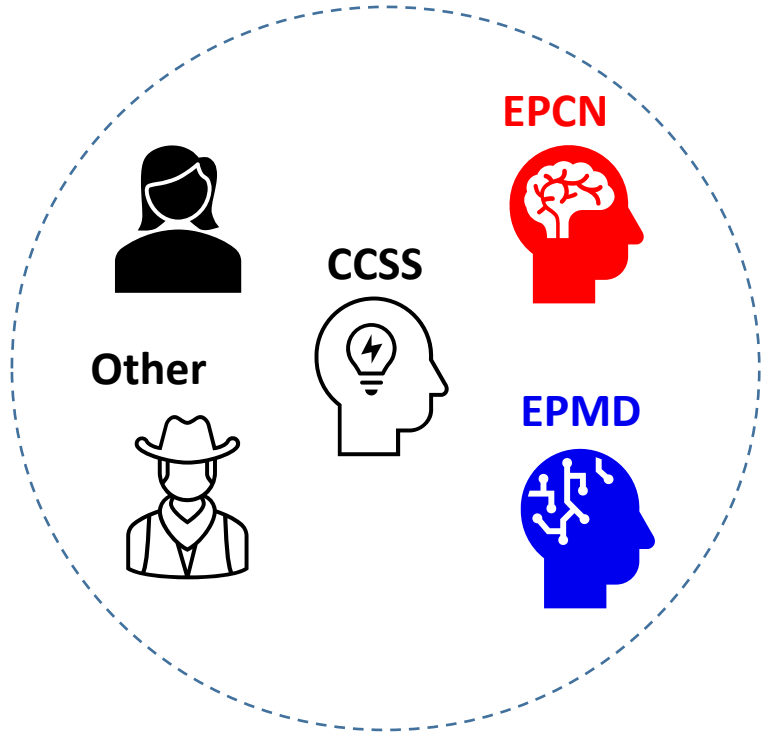
Examples of topics include, but are not limited to:

- Power systems integrated with grid-connected converter architectures;
- Power electronics-enabled energy storage systems for the grid and electric vehicles;
- Next-generation wireless power transfer (WPT) and on-board fast charging systems; and
- Integrated power modules for clean energy systems.

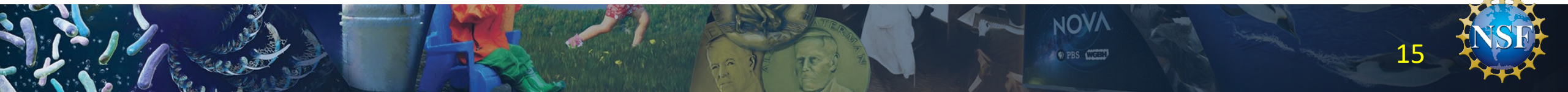
* Proposals should clearly articulate the advantages in relation to clean energy.



ASCENT 2023 – Theme 2



- 3 or more collaborators



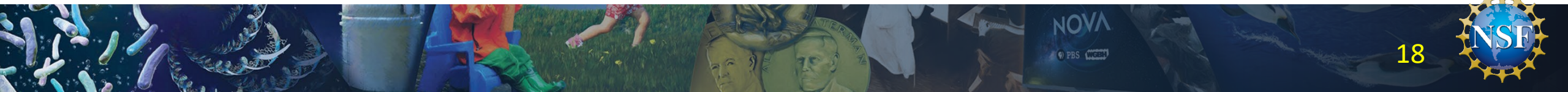
Timelines for ASCENT 2023

Letter of Intent – Required

- **Due February 1, 2023**, Submit through Research.gov
- Do not submit through FastLane

Full Proposals – 15 pages Project Description

- **Due April 19, 2023**, Submit through Grants.gov, or Research.gov
- Project description (15 pages) must contain a section labeled “Addressing ASCENT Solicitation Specific Review Criteria” Requires a Research Integration Plan – 2 pages supplementary document



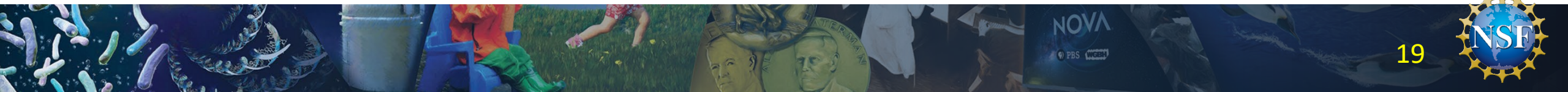
Merit Review Criteria (see solicitation for details)

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.

The following elements should be considered in the review for both criteria:

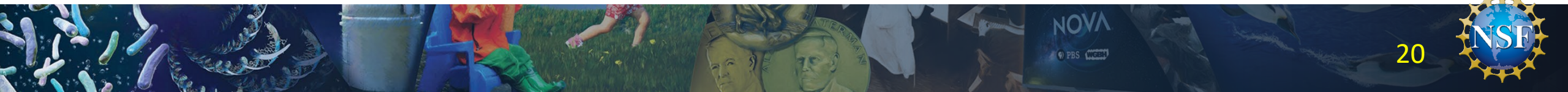
1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?



ASCENT Specific Review Criteria (see solicitation for details)

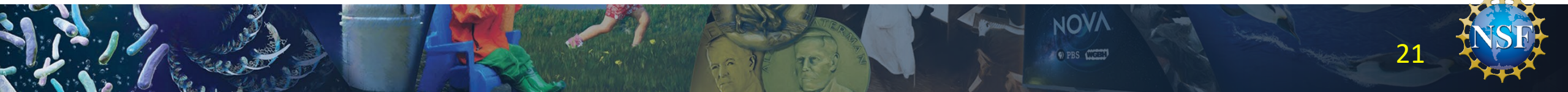
ASCENT Specific Review Criteria:

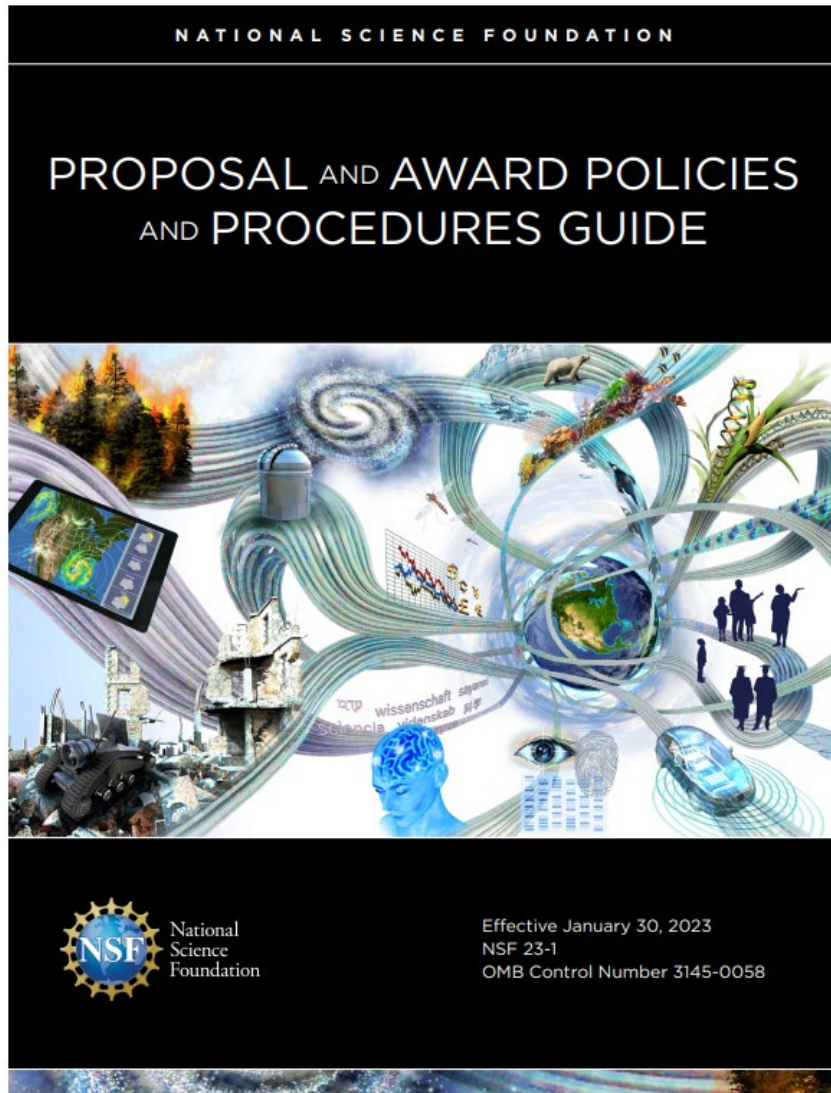
- **Project Scope:** compelling large-scale convergent engineering research that critically integrates more than one ECCS research area
- **Commitment of the Investigators:** work synergistically to accomplish the project objectives including engaging and training students in collaborative and convergent research
- **Composition of the Team:** Investigators have the necessary expertise in related research fields to accomplish the project objectives.
- **Justification for Support:** Project scope commensurate with requested budget, size of the team, and project duration.



Letter of Intent (LOI) – Due Feb. 01, 2023

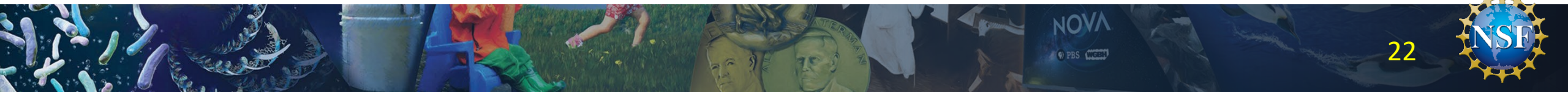
- Submission of a Letter of Intent (LOI) is mandatory.
- LOIs must be submitted via Research.gov ([do not use FastLane](#)).
- The LOI allows the NSF to examine the proposals with respect to the eligibility requirements and to categorize proposals in order to prepare for the proposal review process.
- Letters of Intent are not reviewed for merits and no feedback is provided to the submitters.
- Enter the requested core LOI information as prompted by Research.gov. In the "Synopsis" field briefly describe the intellectual merit, broader impacts, and objectives of proposed research. In the "Other Comments" field outline a clear need for a larger project budget to complete the proposed work.
- LOIs are restricted to the number of data fields and the number of characters that can be entered in Research.gov.
- Submission of multiple Letters of Intent by the same PI/Co-PI is not permitted.





Resources and Program Officers are Available to Help

- Be sure to fully read the solicitation 23-541
- Be sure to fully read the PAPPG
 - PAPPG Part 1-Chapter 2 – Proposal preparation guide
 - PAPPG Exhibit II-1:
 - Proposal Checklist
- Email: ascent@nsf.gov



For More Information

Funding page with links to solicitation and events:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505853

Contact Program officers listed in the solicitation by email: ascent@nsf.gov



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Reach out to more ECCS Program Officers: https://www.nsf.gov/staff/staff_list.jsp?org=ECCS&from_org=ECCS

