ERC Planning Grant required proposal components

I.   Abstract/Summary (1 page) must contain a header within overview section titled "Proposed Vision" in addition to Broader Impacts and Intellectual Merit

II. Project Description (6 pages) see outline prepared

III. References Cited (maximum 3 pages): See PAPPG for format guidelines; the submitting team may be asked to submit a BIBTEX file of the references at a later date.

IV. Biographical Sketches (2-page limit for each): See PAPPG for guidelines. Should be included for the PI and up to four co-PIs responsible for managing the planning grant.

V.   Budget: Budget justification should explain how the budget allocation supports the overall goal of the planning grant. Reviewers will closely examine all allowable expenses such as Salary/wages, Materials and supplies, Travel, Participant support costs for planned workshops, and Other (specify). Proposal budgets should include travel funds to support one PI or co-PI to attend two NSF-sponsored cohort meetings. The planning grant is for one year and the proposed budget for each planning grant should not exceed $100,000.

VI. The following sections should be included in the proposal, in accordance with the guidance in the NSF PAPPG:
     a. Current and Pending Support;
     b. Facilities, Equipment, and Other Resources;
     c. Data Management Plan;
     d. Postdoctoral Mentoring Plan;
     e. Collaborators & Other Affiliations Information.

No other items, letters of collaboration, appendices, or supplementary documents are permitted: If any supplementary documents and appendices are submitted, the planning grant proposal will be returned without review.

ERC Planning Grant

Project Description Outline (maximum 6 pages total):

In addition to separate sections labeled "Intellectual Merit" and "Broader Impacts" as required by the PAPPG, the Project Description must contain the following sections:

***Intellectual Merit (of the planning grant AND potential center)* does not have to be in this order**

***Broader Impacts (of the planning grant AND potential center)* does not have to be in this order**

1. Currently Planned Proposing Team: *The description must start with a table that has four columns: (1) Name of the PI or CoPIs, (2) Institution(s), (3) Department(s), and (4) Most Relevant Field(s) of Expertise. There will be up to five rows, one for the PI and one each for up to* **four Co-PIs**.

Name of PI/CoPI	Institution	Department	Most Relevant Field/Expertise

2. Targeted Societal Impact: *Describe the specific societal impact(s) that the intended ERC will potentially target. (plug in Broader Impacts)*

3. Rationale: *Make the case for why an ERC is appropriate and why a convergent research approach is needed for the targeted societal impact. Identify some key, enabling ideas that will be built upon. Describe the intellectual approach and qualifications for carrying out the proposed strategies.*

The conduct of research involving multiple disciplines and constituencies presents a number of challenges which may impede progress toward stated research goals. The need for integration of expertise and broad perspectives in the proposed project requires transdisciplinary engagement of experts and stakeholders because the desired outcomes are highly interdependent, require diversity of ideas, communities, environments, and cultures……..

This project could substantially change the way……..
As such, it has implications that transcend the already transformative contributions generated by the technically specific engineering innovations.
We see at least three critical areas of analysis that must be addressed as part of the broader proposal.

4. Expected Benefits: *What would the planning grant enable that isn't currently in place? (plug in Intellectual Merit)*

This project, while fundamentally rooted in the technical specificities of XXX engineering, has such broad implications for public economics, public administration, and the human condition that it is quite impossible to fully implement and study without a transdisciplinary approach that requires multiple

academic perspectives. The principal challenge is to be open to the views of non-technical experts. These kinds of interdisciplinary projects require both patience and open-mindedness.

how planning grant will contribute to:
- *Goal alignment*
- *leadership*
- *Team processes*
- *Organizational supports (including virtual platform management)*
- *Professional development in Team Science*

5. Stakeholder Community: *Describe the proposed strategies that will be used to better understand and engage the stakeholder community most appropriate for your ERC. The stakeholder community should be identified with consideration of all key components of the ERC.*

The stakeholder communities most appropriate for the proposed ERC are broad and diverse and represent the deep knowledge across disparate disciplines necessary for significant societal impacts. X, X, X are a few of the impact areas of the proposed center. Additionally, as a center, the project will have a vested interest in education of the future scientific workforce, as well as skilled labor force. Policy makers in multiple arenas and at all levels, economists, corporate and private entities, social scientists, and public audiences all have a critical voice in these issues. As a result, strategic efforts must be undertaken to engage these constituencies in meaningful and effective ways.

In this emerging area of study and application, the stakeholders' interests on the technology has not been previously addressed. The integration of diverse energy sources into existing infrastructures, and/or, potentially, the creation of new platforms, affects a broad and complex swath of stakeholders.

Stakeholders currently identified include representatives from

Stakeholder groups must represent entities with either a real or perceived negative impact, examples of which include……..

What methods and procedures will the co-Is use to identify and recruit additional technical experts?

6. Team Formation: *Describe the proposed strategies that will be used to identify and bring together the best team, including effective leadership/management, to address engineering challenges for the targeted societal impact.*

For a research team this dynamic and potentially large, cohesiveness at the development and planning stage will be maintained by having the PI work with leaders on a routine basis and through a hierarchical structure. The Thrusts that have been identified are X, X, X. These themes are inherently transdisciplinary and function both independently and in convergence with one another and in multiple combinations. *(GRAPHIC HERE?)*

As the management entity, MSU will oversee the administrative and regulatory requirements of the planning grant and manage deliverables toward the production of the full ERC proposal. MSU has the

capacity and is committed to providing the facilities and resources to host the planning forum. *Examples…..*

The investigators proposed herein to lead planning activities are established collaborators, yet recognize significant gaps in expertise and multi-disciplinary representation pertaining to the potential synergy areas and impacts of the proposed center. In order to build the necessary infrastructure of personnel, knowledge, experience, and resources across and among disciplines and constituencies, the project team members will utilize their professional and institutional networks and the proposal development and planning process itself to identify additional technical and scientific expertise, gaps in collaboration skills and acuity, and community, public, and private stakeholders.

The identified co-investigators will lead the scientific technical team. In addition to the engineering and technical team, other discipline-specific academic specialists identified to date (see Facilities, Equipment, and Other Resources*) include educators, sociologists, economists, political scientists, and finance specialists from each of the three partner universities, What methods and procedures will the co-Is use to identify and recruit additional technical experts?*

7. Planning Procedures: *Please describe in detail how you will use this planning grant. Include possible dates, locations, participants, objectives and outcomes of proposed planning meetings or activities, and any other relevant information.*

The proposed planning period is….
The goal of the project team is…. To this end, our team will maximize planning grant funds to support activities essential to the development of a comprehensive, impactful Engineering Research Center proposal, and ultimately, the successful establishment of such a center.

Describe in detail the specific activities. Use charts, timelines, etc.

8. Anticipated Impacts: *What aspects of the proposed approach would be most likely to change as a result of the activities described in this planning grant? Where do you see the planning grant having the most impact? What are the anticipated impacts of the activities listed in the previous section? How do you assess these impacts?*

In addition to project organizational activities, identification of and input from appropriate stakeholders and tech experts, the planning process is expected to provide insight into the ideal management structure and plan for a full center proposal. Due to the convergent and transdisciplinary nature of the work to be undertaken, a unique model for project management may emerge (read: lead assisted by a program manager OR a lead supported by a technical/scientific lead, an engagement and outreach lead, and a program manager?)

Other benefits include…

Planning Grant Project Description

Team Contribution Prompts

For each prompt below, please provide a brief response capturing your unique disciplinary perspective and thoughts. Our goal is to use this feedback to craft inclusive goals and a comprehensive, long-term, broad vision to justify funded exploration for justifying our proposed center.

Each prompt represents a required element or specific review criteria of the planning grant proposal. For NSF's definition of the bold-faced topics, please see the accompanying document, "Engineering Research Center Planning Grant RFP Synopsis."

"Wow" issue: What about this project do you see as potentially transformational to engineering, scientific community, and society? Immediate, mid-range, and long term?
From your perspective, why is a **convergent** approach essential to the success of this project?
How will your specific expertise inform and contribute to this effort?
What do you see as **Targeted Societal Impact**(s) potentially resulting from a center for this purpose?
Rationale – why this, why now? What is significance and urgency? Any links to quantifiable info we should know from your perspective?
Intellectual Merit: How will this project (creation of this center) fill a void in the body of scientific knowledge in the affected fields?
Expected Benefits of Planning Funding: What would the funds from the planning grant enable that we can't do now to prepare for this center?
Planning procedures: activities for planning grant funds (workshops, stakeholder analysis, educational programs, identifying/strengthening collaborations) What types of activities, interventions, services, do you see as essential to planning our proposed ERC?
What potential challenges, obstacles, and limitations must we plan for during the planning and development processes?
Stakeholder Community: what voices are essential to the success of this center from your perspective as a discipline expert? Positive and negative beneficiaries?
Team Formation: Given the diversity of stakeholder types and diverse discipline, what best practices do you suggest for effectively organizing and managing the planning efforts? Do you know of cultural expectations or limitations of any potential partner or team member we must consider?
Anticipated Impacts of the planning grant (not the center) What do you consider to be successful performance measures for planning activities?

Effective Leadership/Management: do you have ideas for the organizational structure of the planning process to enable full participation of multidisciplinary fields and industries, management of diverse ideologies, working styles, and heterodoxies

What examples or ideas do you suggest for Diversity/cultural inclusion (minority populations, those with disabilities, economic, educational disparities, etc. Consider opportunities for inclusion in education – k-20, workforce, university and post-doc - , community engagement, stakeholder representation, outreach, global engagement,

Innovation/transfer of technology and knowledge: What opportunities exist via this project for novel approaches, products, ideas, etc. (potentially commercially viable for public or private use). How will we prepare for sharing knowledge? Open access pubs? Student exchanges, student learning, citizen science, youth programs, etc…….

Sustainability. If this planning grant results in a successful center application and we launch a ERC on this project, what potential exists to sustain the center beyond the project period? Where would funding come from? What new paradigms may exist in 10-20 years as a result of the center on which we can build?