
reviews for NSF SEP

1 message

Anthony Kuh <kuh@hawaii.edu>
To: Philip Johnson <johnson@hawaii.edu>

Thu, Jan 10, 2012

Philip,
Attached are reviews for the NSF SEP proposal we wrote last year.
Thanks for posting the reviews.
Tony

Sustainable Energy Pathways
FY 2012 Competition

This proposal was submitted to NSF in response to solicitation NSF 11-590 for consideration in the FY 2012 Sustainable Energy Pathways (SEP) competition. The Sustainable Energy Pathways solicitation calls for innovative, interdisciplinary basic research in science, engineering, and education by teams of researchers for developing systems approaches to sustainable energy pathways based on comprehensive understanding of the scientific, technical, environmental, economic, and societal issues. The SEP solicitation was managed by an ad-hoc working group of program directors from NSF/ENG, NSF/GEO, NSF/CISE, NSF/SBE and NSF/OISE. The proposal review process was managed by the Division of Chemistry (CHE) in the Math and Physical Sciences (MPS) directorate with involvement of staff from other Directorates and Offices across NSF. A total of 270 compliant proposals were submitted to the competition on or before the deadline of February 1, 2012.

Proposal Evaluation Process

SEP proposals were evaluated through a two-step process. First, the proposals were reviewed by 11 panels that utilized a videoconferencing platform (WebEx) to select the top 15% of the proposals for further review. These proposals were then reviewed by a multidisciplinary, on site panel of experts knowledgeable in the area of Sustainable Energy Pathways. Final recommendations were forwarded to the SEP working group that oversaw the solicitation and review process. This proposal was not among the top 15% to be forwarded for further review.

The evaluation of this and other SEP proposals was conducted by a panel, which consisted of experts from relevant physical, social, computer, and mathematical sciences, and engineering disciplines. Panelists were selected by program directors from the SEP working group. All panelists participated in the panel via a videoconference (WebEx) platform. A Webinar explaining the review process and ample room for questions and answers was held three weeks prior to the panel meeting. In addition, detailed training and testing sessions were provided to managing program directors and panelists to ensure effective panel meetings.

Three panel members were asked to read and evaluate each proposal and to submit written reviews prior to the panel meeting based on the standard NSF merit review criteria while also paying attention to the special factors associated with the SEP competition and described in the solicitation. Following introductions, the panel discussed and approved a list of proposals that would not be further reviewed by the panel. These proposals were considered non-competitive based on the reviews submitted and designated as Not Discussed in Panel (NDP). Panel summaries were not prepared for these proposals. Following discussion of the rest of the proposals, the panel placed each of the proposals into one of three categories: High Priority (forwarded for further review), Medium Priority (to be considered for further review), or Low Priority (not forwarded for further review). All non-conflicted members of the panel had access to all written reviews of a proposal when the panel discussed that proposal. A summary was prepared for each proposal that was discussed by the panel.

In reading the reviews, please keep in mind that the reviews are addressed to the NSF, and not necessarily to you, the investigator. Reviewers may make comments and criticisms without do so or without suggestions for improvement. Some reviews may contain irrelevant, non-substantive, erroneous or ad hominem statements. The SEP Program Directors disregard such statements and make a recommendation for the proposal.

External reviews and panel evaluations are advisory. Decisions to forward for further review, and later fund or decline are made by NSF. While many projects warrant support, many meritoric projects are declined due to budget limitations. In the difficult decision-making process, Program Directors consider the relative strength of each proposal as well as other factors, such as award balance across sub-disciplines, demographics and types of institutions.

Following the panel meeting, all proposals were considered by the SEP working group who agreed with the panel's assessment and placement of proposals within one of the three categories. If funds available, we anticipate funding 15-20 SEP projects with a success rate of about 7%.

Principal investigators should keep in mind that the final recommendations were based on a comparative evaluation of the relative merits of the proposed activities as described in each of the proposals, with particular emphasis placed on responsiveness to the special factors for the SEP competition.

If you have questions regarding the evaluation of your proposal, you may contact the SEP program at sep@nsf.gov.

Panel Summary #1

Proposal Number: 1231091

Panel Summary:
Panel Summary

The goal and brief description of the proposed energy pathway
This is a proposal from University of Hawaii, Manoa.

The proposal goal is to transform the campus of UHM from a passive to an active contributor of its energy needs operating it as a micro-grid of 5 MW of solar generation with short-term scale of storage.

Comments on Intellectual Merit:

The overall panel impression is that the proposal attempted to address the SEP requirements in a very comprehensive manner. However, a concern about the interdisciplinarity in the proposal was raised. A panelist asked what is the transformative element in the proposal and answered the question by suggesting that it is probably the integration of the different elements.

Strengths:

- Platform is a good testbed for energy sustainability
- Security, privacy issues considered
- Multi-disciplinary team

Weaknesses:

- Coverage of environmental and economic issues seems weak

Comments on the Broader Impacts:

The panel discussion on the broader impact of the proposed recognized the possible benefit that the results can bring to Hawaii with high energy cost.

Strengths:

- Collaboration with the Utility company
- Multi-faceted test-bed

Weaknesses:

- No major weaknesses discussed

SEP Specific Criteria : Vision for Sustainable Energy pathways, SEP economic, environmental, and societal consideration, synergy between investigators from multiple disciplines, education and workforce development, public understanding and engagement for achieving a sustainable energy economy

-The issue of interdisciplinarity was raised by the panel as most of the PIs seem to have engineering background. However, it was pointed that one of the PIs brings the background of Energy and Resource that addresses the concerns raised

Strengths:

The team is inter-disciplinary. Addresses all SEP requirements.

Weaknesses:

- Coverage of environmental and economic issues are weak
- Rationale for Panel Recommendation:

The panel feels that the proposal is a strong proposal that addresses the key issues of SEP.

The summary was read by/to the panel and the panel concurred that the summary accurately reflects the panel discussion.

Panel Recommendation: Medium Priority

Review #1

Proposal Number: 1231091

NSF Program: Sustainable Energy Pathways

Principal Investigator: Kuh, Anthony

Proposal Title: SEP: Pathway to Smart Sustainable Microgrids

Rating: Very Good

REVIEW:

What is the intellectual merit of the proposed activity?

Intellectual Merit

This proposal presents a plan to restore sustainability to the energy future of the University of Hawaii at Manoa. It proposes to use the campus as a test-bed for various R&D activities "smart grid" objectives. The project covers a multitude of research areas.

Strengths

This is a very well presented proposal with a clearly enunciated vision for sustainability. The proposal is very well structured and is very cross-cutting. The research team is also suitably disciplinary and well qualified to conduct the proposed research. The research can leverage numerous microsources already present on the campus.

Weaknesses

This is a well-written and well-integrated proposal, and weaknesses are not apparent. However, the PIs have covered so many areas of research that they did not have the opportunity to provide more than an overview of each area of innovation. Another weakness is that the PIs are all in technical areas.

1) Does the proposal have a Vision for a Sustainable Energy Pathway? Does the Vision consider all three of the following Fundamental Considerations? Please comment.

Scientific knowledge & technological innovation,
Environmental, societal and economic imperatives,
Education and workforce development,

The vision is clearly enunciated and the proposal covers each of the above areas. The coverage of environmental issues is, however, scant.

2) Does the proposed Project contain synergistic efforts from researchers in more than one discipline? How effectively will the Team's interdisciplinarity address the Scientific and Societal Challenges proposed? Please explain.

In the context of the vision presented, the project team is adequately multidisciplinary and qualified. The vision has been intelligently built around the DoE's smart grid objectives, and the project team appears to have been selected to cover these areas. However, all the PIs are in technical areas.

3) To what extent are Education and Workforce Development integrated into the proposed activities? How do these activities promote public understanding and engagement of issues achieving a sustainable energy economy?

This aspect is reasonably well integrated, although predominantly through university and community college curricula. There is a statement that student will work on the projects "in partnership with" utility engineers, though details are not provided. There are also references to engaging the campus community through informing them of costs and behavioral choices.

What are the broader impacts of the proposed activity?

Strengths

The project will result in a useful, multi-faceted test-bed. The proposal includes plans for inclusion of women and underrepresented groups.

Weaknesses

Minor weakness is that there is no specific section on broader impacts, apart from inclusion of minorities, within the body of the proposal.

Summary Statement

This is a very good and well-written proposal, with few weaknesses.

Review #2

Proposal Number: 1231091

NSF Program: Sustainable Energy Pathways

Principal Investigator: Kuh, Anthony

Proposal Title: SEP: Pathway to Smart Sustainable Microgrids

Rating: Very Good

REVIEW:

What is the intellectual merit of the proposed activity?

INTELLECTUAL MERIT

Strengths:

- The SEP solicitation review criteria of scientific knowledge and technological innovation are considered
- Social, Environmental, economic, privacy and security imperatives considered in the proposed activity
- Education and workforce development considered

Weakness:

The details on societal engagement need better clarity

What are the broader impacts of the proposed activity?

BROADER IMPACT:

Strengths:

- Integration of research to undergraduate and graduate education
- Integration of members of under-represented groups in the project

Weaknesses:

- Dissemination of results need better articulation

ADMINISTRATIVE & PROJECT MANAGEMENT:

Strengths:
Proposal involves engagement of a multi-disciplinary team. Project responsibility for each participant is outlined. Each team member's expertise and area of focus also provided. Interactions the interdisciplinary team members through project meetings are clearly stated in the proposal.
Weaknesses:
Lots of activities proposed for the project period.

Summary Statement

Review #3

Proposal Number: 1231091
NSF Program: Sustainable Energy Pathways
Principal Investigator: Kuh, Anthony
Proposal Title: SEP: Pathway to Smart Sustainable Microgrids
Rating: Good

REVIEW:

What is the intellectual merit of the proposed activity?

Objective (brief)
Development of a microgrid at the University of Hawaii using distributed generation

Intellectual Merit

Strengths
Good structure using 4 components that have associated graduate and undergraduate training and industry partners.1) data collection, 2) modeling 3) provide decision making capability 4) social, economic and policy implications
Weaknesses
Potentially non-transferable results. Could have increased the collaborative aspects and the viability of incorporating more sustainable energy by including a specialist in this area. Also the Environmental, societal and economic imperatives look like an afterthought.

What are the broader impacts of the proposed activity?

Broader Impacts

Strengths
Mainly through University based activity with the Hawaiian Electric Company and an advocacy group

Weaknesses
Limited remit.

Summary Statement

Additional SEP-Specific Review Criteria

1) Does the proposal have a Vision for a Sustainable Energy Pathway? Does the Vision consider all three of the following Fundamental Considerations?

Scientific knowledge & technological innovation, Development and deployment of sensors and networks
Environmental, societal and economic imperatives, This part of the proposal is weak
Education and workforce development Development of graduate courses

2) Does the proposed Project contain synergistic efforts from researchers in more than one discipline? How effectively will the Team's interdisciplinarity address the Scientific and Sustainability Challenges proposed?
Kuh (Engineering), Fripp (Engineering), Johnson (Information and Computer Science), Kavcic (Engineering), Nakafuk=ji (Hawaiian Electric Company)

3) To what extent are Education and Workforce Development integrated into the proposed activities? How do these activities promote public understanding and engagement of issues for achieving a sustainable energy economy?
Data management plan/ PDF plan are present. Not very innovative in this regard.

Summary
The research is not particularly transformative except in a regional sense. The budget seems high for a microgrid. The proposal has very good aspects but isn't inter-disciplinary.