

Competitive Research Program Request for Applications

COLLABORATIVE, MULTI-INSTITUTIONAL RESEARCH GRANT OPPORTUNITY

The Subsea Systems Institute (SSI) is a collaborative endeavor aimed at advancing safe technologies, best practices, public policies and regulations for the development of the deepwater Gulf of Mexico. This includes the production of hydrocarbon resources at reservoir pressures exceeding 20,000 psi and reservoir temperatures in excess of 350° F. The consortium of the University of Houston, Rice University and NASA (JSC) has therefore created a Center of Excellence entitled the Subsea Systems Institute (SSI) located in Houston, the capital of off-shore energy technologies. The SSI will provide the translation, neutral third party validation, education, and training for the advancement of the offshore resource exploitation.

OBJECTIVE

The SSI Collaborative Research Grants are designed for teams (existing or new) to develop innovative research which can positively impact safe and reliable exploration and production from the deepwater Gulf of Mexico reservoirs.

PROGRAM DESCRIPTION

Specifically, the COE will immediately focus on the list of targeted areas recommended by the Ocean Energy Safety Advisory Committee, which was constituted by the Department of Interior in response to the Deepwater Horizon incident, and the recommendations of industry wide groups (American Petroleum Institute, API; Center for Offshore Safety, COS; IADC; IPAA) and joint industry partnerships (including Deepstar). These recommendations cover research topics across a range of technology readiness levels (TRLs), but predominantly over TRLs 2 through 5; these include a focus on current and future technologies, including, but not limited to:

- a. **Early kick detection:** Improved early kick detection systems which would improve the probability of responding to a well kick with minimal volume influx;
- b. **Wellbore Monitoring:** Development of technologies, including smart cement technologies, to enable continuous monitoring of well-bore integrity throughout the full depth of a well using real-time data of temperature pressure, acoustic and other signals;
- c. **Blowout Preventer (BOP) Intervention:** Development of enhanced technologies to wholly cut drill pipe, tool joints, and casing strings, which can assure the sealing of the wellbore under maximum anticipated pressure;
- d. **BOP Validation and Monitoring:** Define and develop testing and validation technologies for current and future needs in BOP instrumentation, monitoring data recording and interference strategies for safe operation of BOPs;
- e. **Remotely Operated Vehicle & Subsea Processing:** Development of engineered interfaces between ROV and subsea processing equipment, including improved pump capabilities, flow assurance and subsea power. Flow assurance research and development requires the ability to both identify flow assurance problems using state-of-the-art prediction tools, and to develop solutions that eliminate, mitigate, or remediate flow assurance problems in deepwater production systems.

Successful applications will be cross-disciplinary, inter-institutional collaborations among investigators and institutions that incorporate technology advancement consistent with the mission objectives of the SSI.

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The SSI is in the process of completing a detailed strategic plan that will include input from industry and other stakeholders. This invitation represents the first in a series of invitations that will be issued in the future following further definition of the key technology, safety/reliability and policy targets.

AWARD INFORMATION

The SSI Collaborative Research Grant funding is made possible through RESTORE Act Center of Excellence (COE) funds made available to SSI through the Texas Commission on Environmental Quality (TCEQ).

Type of award: SSI Collaborative Research Center Grants with at least two Collaborators from two different non-profit research institutions.

Estimated Number of Awards: 4

Anticipated funding amount Up to \$300k total funding for 22 months expiring on 8/31/2017

ELIGIBILITY INFORMATION

The SSI is pleased to invite applications from non-profit organizations as described below. The objective is to bring together multidisciplinary subject matter experts from across our institutions and those in research (not for profit) institutions along the Gulf Coast (Texas, Louisiana, Alabama, Mississippi and Florida) to collaborate and create new solutions to complex challenges, furthering the goals of safe and reliable exploration and production in the deepwater Gulf of Mexico.

BUDGETARY INFORMATION

The duration of grants should be a maximum of twenty-two (22) months (with an expiration date no later than 8/31/2017) and for a total maximum budget of \$300,000, including direct and indirect costs. Initial funding will be for one year at up to \$150,000, including direct and indirect costs. A mid-term review will be held to assess progress. If significant progress is made in the first year, additional funding of up to \$150,000 for the remainder of the award period may be awarded. Approximately four (4) awards are anticipated. Cost-sharing is strongly encouraged.

GRANT APPLICATION REQUIREMENTS AND SUBMISSION INFORMATION

Grant applications must be prepared under the following guidelines. The grant application should utilize 12-point font with at least one inch margins. Submit applications as a single computer file, preferably in PDF format. Applications that do not adhere to these guidelines will be returned without review.

1. **Title and Affiliations:** Page 1 will include the title, names and affiliations of the Principal Investigator and Co-Investigators involved in the project.

2. **Abstract:** Page 2 will be a one-paragraph abstract (limit 500 words) that clearly includes a description of the area(s) of research that will be the focus of the grant application, the planned multi-disciplinary approach, and the specific goals of the project, including the potential impact(s).

a. Grant applications are expected to describe the relevance to deepwater Gulf of Mexico exploration and production

b. The Collaborative Research Center Grant Application will require cross-disciplinary collaboration between at least two (2) investigators from a minimum of two (2) different (not for profit) research institutions across the five Gulf Coast States.

c. Industry collaboration and participation including cost-sharing is strongly encouraged.

3. **Research Plan: (Maximum 8 pages + References).** The following elements are required:

- a. Specific Goals
- b. Background and Significance
- c. Preliminary Studies and Rationale
- d. Approach and Research Envisioned (include timetable and milestones)
- e. Industry Collaborations and Partnerships
- f. Strategy for Future Funding and Technology Impact
- g. References (Not Included in eight (8) page limit)

4. **Budget and Budget Justification:** Key budget items and justification should be identified detailing travel and consumables. No equipment (over \$5000) can be purchased using these research funds.

5. **Biographical Sketches.** Provide a biographical sketch of the Principal Investigator and all Co-Investigators. Limit to two (2) pages each with relevant publications using the standard NSF format.

6. **Resources:** Please list equipment and facilities available for the project at each institution including shared resources and major equipment.

7. **Institutional Approval:** Approval and sign off by the appropriate institutional representative will be required after selection. Other compliance documents may also be required.

Please submit grant applications via email by 5:00pm (CST), October 05, 2015 to Bill Maddock. (wmaddock@central.uh.edu).

KEY DATES

Full Grant Applications:

Firm Deadline: October 05, 2015 - 5 PM CST

Planned Start Dates:

October 15, 2015

REVIEW AND SELECTION PROCESS

An SSI Grant Review Committee consisting of industry subject matter experts will serve in an advisory role to the SSI Steering Committee. The SSI Steering Committee will perform an initial review evaluating scope and applicability of research to the mission of the COE and then obtain detailed review from a group of industry subject matter experts evaluating the technical methods and approach, personnel qualifications, and appropriateness of the budget.

AWARD ADMINISTRATION INFORMATION

1. REPORTING REQUIREMENTS

Successful Applicants are advised of the following requirements for post-award reporting:

- Concise, quarterly reports on scientific progress at dates as advised by the SSI Director;
- Annual scientific reports;
- Further reporting instructions will be disseminated to awardees.

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2. AWARD TERMS AND CONDITIONS

- In addition to the terms and conditions in the notice of award, the projects selected will be subject to Federal Terms and Conditions applicable to the original funding provided to the SSI COE and are described in Appendix 1 of this Request For Grant Applications

RELEVANT LINKS

- NASA Chief Technologist roadmaps: <http://www.nasa.gov/offices/oct/home/roadmaps/index.html>
- NASA Software catalog: <https://software.nasa.gov>
- ISS Research opportunities: <http://www.iss-casis.org>
- NASA Technology Transfer Program: <http://technology.nasa.gov>
- NASA (TechPort): http://www.nasa.gov/centers/johnson/external_relations/university/index.html

CONTACT INFORMATION

Please direct any questions or concerns regarding this Request for Grant Applications to Bill Maddock, Director, Subsea Systems Institute. wmaddock@central.uh.edu, (713) 743-0578.