Public Executive Summary

Title: Ultra-Reliable Deepwater Electrical Power Distribution System and Power Components

Name of Offeror: GE Global Research
Project Director/Principal Investigator: Satish Gunturi

Additional participants: Texas A&M University; Rensselaer Polytechnic Institute; GE Oil & Gas

Solicitation Number: RFP2008DW2901 (08121-2901-01)

Project Start Date: November 24, 2009
Project End Date: November 23, 2012

Total Estimated Cost:	$ 6,249,959.00
RPSEA Maximum Share:	$ 1,249,992.00
GE Global Research Cost Share:	$ 4,937,467.00

GE Global Research will design an electrical power transmission and distribution (T&D) system to enable subsea oil and gas production for a deepwater field development scenario, and design, build, and qualify critical components in a system demonstration to advance technology readiness level (Figure 1).

GE Global Research will be the overall project and technical leader for project execution, augmented by VetcoGray, a GE Oil & Gas company, in developing certain technologies like marinization of variable speed drives and connectors. GE's Rajib Datta will be the principal investigator. Other participants, Texas A&M University and Rensselaer Polytechnic Institute—premier institutes in the area of electric power, will collaborate with GE on developing fault tolerant designs and diagnostics.

Growing demand for oil and gas worldwide, along with the depletion of existing fields, is driving production towards deepwater assets further away from the shore or a host facility. Such fields require ultra-reliable bulk power T&D with long tiebacks, and present severe challenges to conventional alternating current systems. GE is proposing a direct current T&D architecture based on a modular stacked DC (MSDC) system. The potential benefits include reduced number of subsea components, higher reliability and flexibility, and cost-effective access to widely distributed deepwater reserves.

In Phase I, the MSDC system will be assessed against existing subsea T&D solutions. Critical building block components to enable the technology will be identified. In Phase II, four components (identified and agreed upon with RPSEA) will be designed, developed, and qualification tested using a demonstration system. Reports documenting the tasks in each phase will be provided.

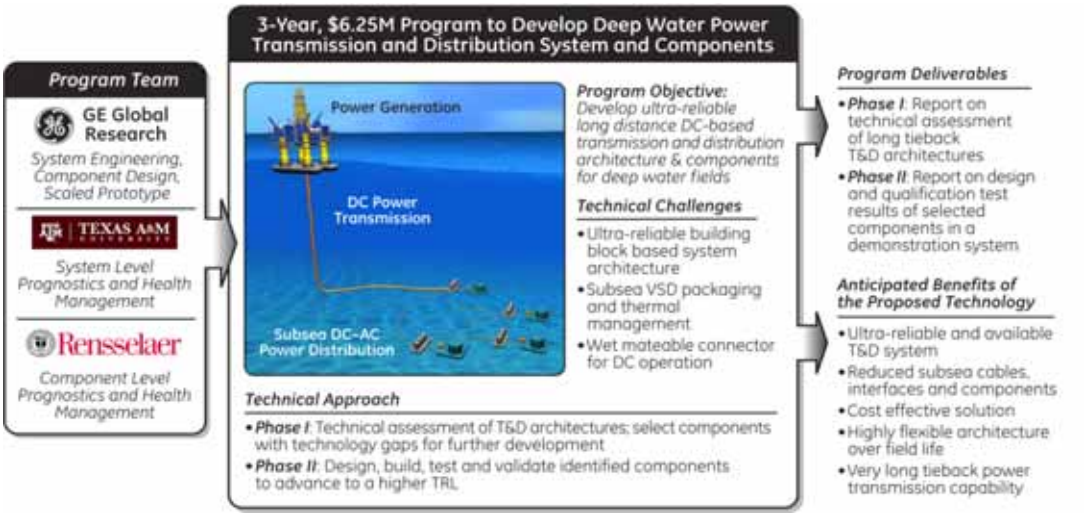

Figure 1. Project summary.

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