

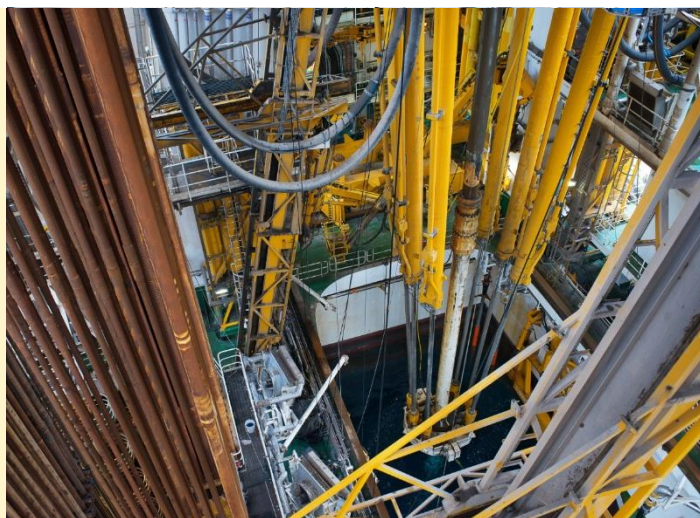
Oil and Gas

Call for Downhole Power Harvesting Solutions



CONTEXT

The pursuit of reliable and cost-effective downhole monitoring requires a move from conventional wired completions to wireless concepts. Lithium batteries suffer from self-drainage at high temperature and cannot sustain performance over a sufficient time period. Development of disruptive power harvesting devices that are suitable for downhole operation environments are expected to offer game changing opportunities for future downhole power management and wireless intelligent completion systems.



WHAT WE ARE LOOKING FOR

Novel and disruptive power harvesting technologies to work in a subsurface downhole environment, while having minimum effect on the current completion designs. Winning proposals should target technological solutions that generate sufficient amounts of power to run monitoring systems, operate downhole electric control devices and beyond.

Specifications for the required concepts are outlined in the table. The power requirements will likely be increased in later development stages to generate sufficient power to operate the completion systems entirely in wireless mode.

Attribute	Threshold value
Qualified Life Time (YRS / DEGREES CENTIGRADES)	10 / 150
Temperature Rating (DEGREES CENTIGRADES)	150
Working Pressure (PSI)	15,000
Power Requirements (watts)	100 - 120

IN SCOPE

- Novel /disruptive technology ideas to harvest power in operating downhole environment
- A complete wireless technology solution for downhole power management system to the specs, including power harvesting and wireless data transmission

OUT OF SCOPE

Systems solely powered by batteries are out of scope.

HOW TO SUBMIT YOUR PROPOSAL

- Visit the [GameChanger submission form](#).
- In the "One-line description (max 100 characters)" field, label your proposal as "Downhole Power Harvesting Solutions".
- Submit your proposal by: December 14th, 2018
- For questions contact GameChanger-Solutions@shell.com

WE APPLY THE FOLLOWING CRITERIA FOR CONSIDERATION:

1. Novel – Is the idea fundamentally different and unproven?
2. Valuable – Could the idea create substantial new value if it works?
3. Doable – Is there a plan to prove the concept quickly and affordably?
4. Relevant – Is the idea relevant to the future of energy?

Any information submitted as part of the process will be considered by Shell as NON-CONFIDENTIAL data and information at this stage and will be treated as such. The funding opportunity will be in the range USD 150,000 – 300,000 to progress a "proof of concept" in a phased approach over a period of no more than 12 months. There is a possibility of further support by Shell depending on the overall outcome of the initial award.