

## Space Nuclear Power Spotlighted in Public Meetings

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The U.S. Department of Energy (DOE) has scheduled public meetings regarding a proposal to consolidate the operations required to support the production of radioisotope power systems at the new Idaho National Laboratory at Idaho Falls, Idaho.



NASA and DOE are advancing the idea of the expanded use of radioisotope power systems for future Moon, Mars and beyond.

NASA has used radioisotope thermal generators (RTGs) to energize a variety of probes, including the Galileo mission to Jupiter, as well as the Cassini spacecraft now circling Saturn. This type of power technology is utilized on certain spacecraft because they provide electricity and heat over long periods of time without any maintenance.

Nuclear power is also essential to the now being built New Horizons mission to Pluto, slated for a 2006 sendoff.

The DOE announced the environmental review of the proposed consolidation of nuclear operations related to the production of radioisotope power systems (RPS) -- technology that enables space exploration projects as well as certain national security-related missions.

The RPS is a unique technology for missions that require a long-term, unattended source of heat and/or electrical power for use in harsh and remote environments -- such as deep-space. The Pu-238 in these units serves as the source for generating heat and electricity. The heat source can be used directly to warm critical spacecraft components.

### **Consolidate operations**

Currently, DOE plans to produce RPS in support of Government national security and space exploration missions at three geographically separate and distant DOE sites: the Oak Ridge National Laboratory (ORNL), Tennessee; Los Alamos National Laboratory (LANL), New Mexico; and the Idaho Site, Idaho. The department is proposing to

Space and Security Power Systems Facility Last October, Deputy Secretary of Energy Kyle McSlarrow announced the commissioning of the new Space and Security Power Systems Facility, the new radioisotope facility, at Idaho's Argonne National Laboratory-West site.

The new facility will assemble and test radioisotope power systems that the DOE builds for NASA and various national security agencies. When the new facility begins operations later this year, its first major mission will be to assemble, test and deliver a power system to NASA for the 2006 New Horizons mission to Pluto.

"More than 40 of DOE's radioisotope power systems have flown on spacecraft, beginning in the 1960s with the manned missions to the moon and continuing today with the three systems providing electricity to the Cassini spacecraft now orbiting Saturn," Deputy Secretary McSlarrow said. "The completion of this facility is an important new mission for Idaho and we look forward to continuing our work with NASA."

### **Public meetings**

These radioisotope power systems are effective for use in space exploration because they can safely and reliably produce electricity 24 hours a day, seven days a week for several decades. They are particularly advantageous when distances from the sun are so great that solar panels would not be feasible.

Comprised of two principal parts -- a heat source and an energy conversion system -- they work by converting the heat from radioactive decay of plutonium-238 into electricity using a thermocouple. The largest of the radioisotope power systems are the three that are currently onboard the Cassini spacecraft, each system producing about 285 watts of electricity, roughly equivalent to three 100-watt light bulbs. DOE's power systems have proven to be very reliable and durable: the Voyager 1 spacecraft, launched in 1977, was still sending signals back to Earth when it left the solar system late last year.

Several of the meetings have already taken place. Future public-invited meetings are slated for Dec. 13: Los Alamos County Golf Course, Los Alamos, New Mexico; Dec. 15: Oak Ridge Comfort Inn, Oak Ridge, Tenn.; and Dec. 17: Hyatt Regency on Capitol Hill, Washington, D.C.

More information can be found on the Internet at <http://ConsolidationEIS.doe.gov>.