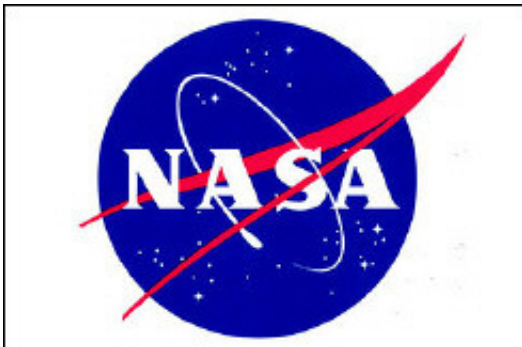


Fuel for deep space exploration running on empty

May 7 2009, By SETH BORENSTEIN , AP Science Writer



(AP) -- NASA is running out of nuclear fuel needed for its deep space exploration.

The end of the Cold War's nuclear weapons buildup means that the U.S. space agency does not have enough [plutonium](#) for future faraway space probes - except for a few missions already scheduled - according to a new study released Thursday by the National Academy of Sciences.

Deep space probes beyond Jupiter can't use solar power because they're too far from the sun. So they rely on a certain type of plutonium, plutonium-238. It powers these spacecraft with the heat of its natural decay. But plutonium-238 isn't found in nature; it's a byproduct of nuclear weaponry.

The United States stopped making it about 20 years ago and [NASA](#) has been relying on the Russians. But now the Russian supply is running dry because they stopped making it, too.

The Department of Energy announced on Thursday that it will restart its program to make plutonium-238. Spokeswoman Jen Stutsman said the agency has proposed \$30 million in next year's budget for preliminary design and engineering. The National Academy's study shows why it is needed, she said.

"If you don't have this material, we're just not going to do" deep space missions, said Johns Hopkins University senior scientist Ralph McNutt, who has had experiments aboard several of NASA's deep space missions.

So far only NASA undertakes these missions, so the shortage limits the world's look at deep space, added Doug Allen, a satellite power expert and member of the National Academy's study panel.

By law, only the Department of Energy can make the plutonium. Last year then-NASA administrator [Michael Griffin](#) wrote to then-Energy Secretary Samuel Bodman saying the agency needed more plutonium.

The National Academy report says it would cost the Energy Department at least \$150 million to resume making it for the 11 pounds a year that NASA needs for its space probes.

Without that material "a lot of things will be shut down and they will stay shut down for a long time," McNutt said.

Upcoming NASA missions using plutonium include the overbudget and delayed Mars Science Laboratory, set to launch in 2011, and a mission to tour the solar system's outer planets scheduled for launch in 2020.

The last two missions to use plutonium were the New Horizons probe headed for Pluto and the Cassini space probe that is circling Saturn. Plutonium-powered probes last a long time. The twin Voyager spacecraft headed beyond our solar system and launched in 1977 are expected to keep working until about 2020, McNutt said.

Solar power is preferable to plutonium because it is cheaper and has fewer safety concerns, McNutt and Allen said. But solar power just doesn't work in the darkest areas of space, including deep craters of the moon.

Some have protested past nuclear-powered missions, such as Cassini, worrying about potential accidents.

On the Net:

National Academy of Sciences: <http://www.nationalacademies.org/>

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