

Beam Me Up, Scotty

By Steve Huntoon

There was a big event the other day *rolling out* the U.S. Army's new Janus Program, "a next-generation nuclear power program that will deliver resilient, secure and assured energy to support national defense installations and critical missions."



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The Army *will contract* for 18 nuclear "microreactors" (two each at nine Army bases). "The reactors will help keep weapons powered and maintain critical base operations when other energy sources go down because of bad weather, cyberattacks or other grid disruptions."

This is wasteful, counterproductive and dangerous. It is worse than the Department of Defense microgrid initiative that *critiqued* eight years ago.

Like the microgrid initiative, the Janus Program ignores the fact that the vast bulk (87%) of Army base power outages are from problems on the base's distribution system. Existing building-specific diesel backup generators provide backup for distribution system outages. Nuclear microreactors (like microgrids) would not provide backup for distribution system outages. Thus, micro-

reactors would cause base buildings to lose backup for 87% of outages, eliminating the vast bulk of existing backup capability.

Moreover, Army bases don't need complex microreactors to add to their infrastructure burdens. Instead, our bases need expansion of sensible and incredibly cheap resilience exercises, like those provided by MIT's *Lincoln Laboratory*.

With specific focus on cyberattack disruptions, microreactors and the rest of the base's electric system would be connected to communication networks. Building-specific diesel backup generators are not. So microreactors would create new vulnerability to cyberattacks.

And these microreactors would pose a huge threat to our troops. It appears they would not have containment structures, which means that an attack could spread highly radioactive nuclear fuel across a base and *surrounding areas*. If captured, the fuel could furnish the nuclear material for *a dirty bomb* or even fissile material for a crude *nuclear bomb*. No such risks exist with diesel or other fossil fuel generators.

This vulnerability exposes the irrationality of microreactors. If they are sited overseas because of attack threats to fossil fuel supplies, then those same attack threats would exist for the microreactors, with much worse potential consequences. If they are sited on or close to U.S. soil, then there are no threats to fossil fuel supplies that microreactors would relieve.

This intractable dilemma would appear to explain changing DOD messages about siting: first far-flung *bases*, then dropping that *approach*, and then resurrecting it during the Janus Program *rollout*.

Oh, on the minor matter of cost: Diesel backup generators cost *about* \$600,000/MW. The Army says the Janus Program would build on DOD's Project Pele, which involves a 1.5-MW microreactor contracted for in 2022 at an estimated cost of \$300 million, *amounting to* \$200 million/MW. That is 33,300% more than the cost of diesel backup generators. It's even 1,200% more than the cost of *the new Vogtle units* in Georgia.

And did I mention that in 2022, the deliv-

Why This Matters

Army bases don't need complex microreactors to add to their infrastructure burdens. Instead, our bases need expansion of sensible and incredibly cheap resilience exercises, says Steve Huntoon.

ery date for the Project Pele microreactor was *said to be* 2024? The delivery date now is *said to be* 2028. Two years until delivery has tripled to become six years until delivery, which should surprise no one familiar with the nuclear industry.

Speaking of money, where are the untold billions for the Army microreactors going to come from? The Janus Program rollout mentions the Defense Innovation Unit (DIU), which has an *annual budget* of about \$1 billion. The planned microreactors would cost many times that, hurting existing DIU initiatives and spending money that Congress has not authorized or appropriated (not to put too fine a point on it).

In normal times we might look to the Pentagon press corps to ask about some of this, but the Trump administration *has revoked* almost all Pentagon press passes. And we know how congressional oversight is going *these days*.

To the Moon, Alice!

Not to be outdone by DOD, NASA plans to send a 100-kW *microreactor* to the moon, at an estimated *cost* of \$6.2 billion. This works out to \$62 billion/MW. What this microreactor would do on the moon is not entirely clear, other than somehow compete with China and/or Russia in somehow *laying claim* to something. Maybe it could charge Elon Musk's cellphone when he shows up?

Speaking of Musk, where is DOGE when we need it? ■

— Columnist Steve Huntoon, a former president of the Energy Bar Association, practiced energy law for more than 30 years.



The delivery date for the Project Pele microreactor has been extended from 2024 to 2028. | *BWXT Advanced Technologies*