# Guest Columnist-Steve Huntoon

## A Billion Here and a Billion There

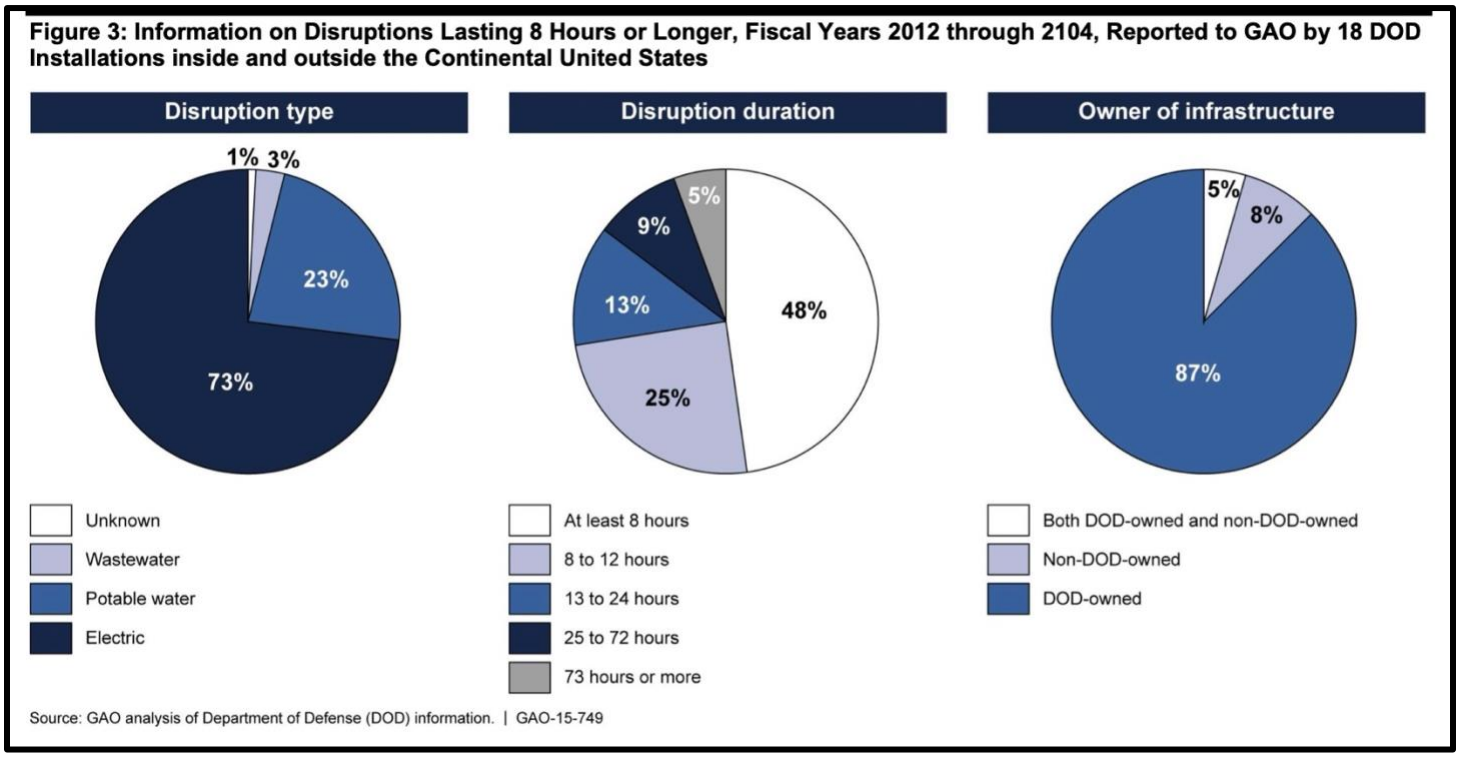
Steve Huntoon has been a celebrated contributor to the Burrito by way of his many columns in RTO Insider He has stepped away from that role after a very long tenure. When I saw a WSJ article on the U.S. Army's selection of bases and vendors for small nuclear reactors, I recalled that Steve had previously opined on the topic and asked him for a reprise of sorts as a guest in today's edition.

*The U.S. Army has announced it will spend $2.2 billion on five nuclear microreactor projects at five of its bases, pursuant to a Trump executive order.*

*This is the "Janus Program." The stated rationale: "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…"*

*The Janus Program is wasteful, counterproductive and dangerous.*

*As a threshold matter, the Janus Program ignores the fact that the vast bulk, 87%, of Army base power outages are due to problems on the base's own distribution system. See figure below.*




*Existing building-specific diesel backup generators provide backup for distribution system outages. Nuclear microreactors would not provide backup for distribution system outages.*

*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, as with the rest of the base's distribution 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. And if captured they could furnish the nuclear material for a dirty bomb. Or even fissile material for a crude nuclear bomb. These risks are now greater in this new era of drone warfare. 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 generation 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 generation that microreactors would relieve.*

*This intractable dilemma would appear to explain changes in DOD messaging about siting: first, far-flung bases, then dropping that approach, and then resurfacing it at the Janus Program rollout.*

*The latest Janus Program announcement identifies five specific projects so we can evaluate these projects relative to specific attempts to justify the program.*

*Claimed purpose: "project power globally." Three of the five Army bases are deep inside the U.S. A fourth, Fort Drum, is on Lake Ontario (oops, Lake America <sic>). Are we projecting power vis-à-vis Canada?*

*The fifth, Ford Hood, is in Texas. Projecting power vis-à-vis Mexico?*

*Claimed purpose: " ... energy resilience ... without relying on potentially vulnerable external grids." So, the grids in North Carolina, Kentucky, Texas, Georgia and New York are "potentially vulnerable"? To what?*

*Not to mention the existing diesel backup generators, that actually protect against base distribution system outages for which the microreactors would be useless.*

*Let's focus on the biggest of the five microreactor projects: 20 MWs at Fort Campbell in Kentucky. Please consider that in addition to its diesel generators Fort Campbell recently added a 12 MW natural gas microgrid that "ensures Fort Campbell readiness." And the Army announced a couple years ago that a 17 MW solar project would be added to an existing 6 MW solar array in order to have "a local, resilient power source."*

*So, Fort Campbell has its existing utility supplier, its diesel generators, its natural gas microgrid, and its solar arrays. It needs the headaches of a nuclear microreactor?*

*And on the minor matter of cost. Diesel backup generators cost about $600,000/MW. The $2.2 billion in taxpayer dollars for the Janus Program would buy us 48 MWs of microreactors, which amounts to $46,000,000/MW (assuming the absence of cost overruns). That is 7,638% more than the cost of diesel backup generators.*

*BTW the Army didn't provide individual or total MW figures for the five projects – one has to research each project.*

*In normal times we might look to the Pentagon press corps to ask about some of the foregoing, but the Trump administration has barred the press from the Pentagon press office. And we know how Congressional oversight is going (or not going) these days.*

*Bottom line: Our military needs missiles, not microreactors.*