



Energy under the Trump Administration

Nuclear Energy, Advanced Reactors, and International Cooperation Under Trump

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By Tom Blees

The election of Donald Trump to the presidency of the United States is unlike any previous change of power in Washington, generating uncertainty on a host of issues. In regard to nuclear power in particular, there is plenty of speculation but there remains considerable ambiguity as to actual expectations.

On the one hand, it's probable that with Republicans firmly in control in DC and with that party's longstanding position on climate change issues, we can likely expect subsidies for renewables to be slashed or eliminated. The people Trump has so far indicated he'll appoint to positions in the energy sphere are fossil fuel advocates, but that still doesn't provide solid clues to either renewable or nuclear policy. Gas companies are generally fans of renewables, since they know that wind and solar installations require natural gas back-up approximately 80% of the time, so it's just as possible that gas executives will frown upon the elimination of wind and solar subsidies. Furthermore, savvy fossil fuel executives have long recognized that nuclear power is the one energy system that could ultimately drive them out of business. Yet nuclear power has generally been looked upon favorably by Republicans, at least in part because they know that many progressives and Democrats are resolutely opposed to it.

In the midst of this uncertainty, there are some things that are rather apparent, such as the Obama administration's decidedly mixed record on nuclear power issues, both domestically and internationally. His appointments to certain nuclear energy-related posts have led to impediments for the U.S. nuclear industry. However, and arguably worse than that, advocates of the "ostrich" approach for international nuclear power policy have had the ear of White House advisors.

The United States should be a leader in international efforts to formulate and enforce regulations and oversight programs to minimize the dangers of nuclear proliferation. Yet we've seen negotiations and policies that relinquish that responsibility as if hiding our heads in the sand will just make nuclear power go away. Rather than encouraging the deployment of more proliferation-resistant nuclear technologies, such as the Integral Fast Reactor (IFR) technology developed by the USA in the 80s and 90s, academics who aspire to be proliferation watchdogs encourage dead-end policies such as the continuance of once-through fuel cycle concepts. This makes absolutely no sense. Such systems require continuous use of enrichment facilities, and such facilities can definitely create bomb-grade material, not to mention the vast amounts of spent fuel (aka "nuclear waste") that they end up producing. Contrast that with IFR technology, which requires no enrichment whatsoever, consumes spent fuel inventories, and never isolates any bomb-grade material. Not only that, but it can utilize the nearly one million tons of depleted uranium that is currently stockpiled in this country, producing sufficient energy to power our country for many hundreds of years.

Some politically influential advisors have consistently used the threat of weapons proliferation as a reason to resist advanced nuclear power systems. The irony is that such advanced systems are actually more proliferation-resistant than the existing light water reactors predominantly in use around the world. When the United Kingdom expressed an interest in using IFR technology to dispose of its plutonium inventory (the largest such stockpile in the world), these contrarians instead argued that it should be buried, despite the fact that the plutonium could provide vast amounts of clean energy for Great Britain.

One thing should be made crystal clear in this discussion: wherever nuclear power is used, there will be a finite risk of diversion of material for weapons purposes. But nuclear power is not going to simply disappear. On the contrary, more and more countries already are in the process of planning reactors, many of which are not countries that have nuclear weapons. Russia, China, and other countries are in the process of selling nuclear reactors, or attempting to sell them, to countries on every continent but Antarctica. The situation calls for constructive engagement at the highest level by the USA to strengthen international security regimes to minimize the threat of proliferation. That involvement should honestly evaluate the technologies that are most resistant to proliferation, and encourage their deployment in future nuclear construction projects.

The United States is so encumbered by outmoded nuclear regulations and financial impediments to innovation that many companies involved in developing advanced reactors are moving to other countries. China and Russia, on the other hand, are working on a variety of new designs, and South Korea has been expressing an intense interest in deploying America's IFR technology for years. Regarding Korea in particular, that country certainly possesses the requisite technical and industrial capabilities to develop the IFR, but until very recently it was hamstrung by an outdated Section 123 Agreement with the United States that severely curtailed its ability to move ahead. One of the reasons the United States has maintained its position on advance consent for South Korean pyroprocessing is the Joint Declaration of South and North Korea on the Denuclearization of the Korean Peninsula, under which both the South and North pledged not to possess reprocessing facilities. However, when South Korea was renegotiating the 123 during the last few years, the USA maintained a hard line stance even though North Korea had already built nuclear weapons, and despite the fact that the South Koreans made it clear that their interest was in deploying nuclear power technology with enhanced passive safety characteristics and more manageable waste streams. In fact, Korean negotiators made it abundantly clear that their interest in utilizing IFR technology was in large part as a solution to their spent fuel problem (their light water reactors, like those of other countries, have produced a significant stockpile of spent fuel that needs to be managed). A

new agreement was finally reached last year that leaves the door open to future deployment of pyroprocessing, based on an ongoing ten-year R&D project between the two countries.

Unless the U.S. government succeeds in overcoming specific issues within its own nuclear regulatory process, the deployment of IFR technology might very well be first achieved in South Korea, though Russia, India, and China are all working on it as well. The irony is that the country that developed this excellent technology may be one of the last to see it built. But the benefits that can accrue to humanity by its eventual deployment should encourage the U.S. to keep an open mind to South Korea's ambitions in this field, especially since our two nations have been engaged for years in working on it together. Hopefully, the Trump administration will recognize South Korea as the critical and strategic ally that it is, and realize the benefits of cooperation and trust in this most important field of endeavor.

Tom Blees is the author of *Prescription for the Planet - The Painless Remedy for Our Energy & Environmental Crises*, which is available as a free download at thesciencecouncil.com. He is the president of the Science Council for Global Initiatives, an international NGO dedicated to uplifting the standard of living of people in all nations while repairing our damaged environment. Many of the goals of SCGI, and the methods to achieve them, are elucidated in the pages of Blees's book.

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