



Nuclear growth: the reality check

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Is nuclear power really growing as James Conca asserts in the opening line of his recent column (*The Nuclear Weapons States: Who Has Them and How Many*)? That rather depends on how you define “growing.”

Growing in operating units and if so, compared to what and when? Growing in capacity or output? Growing in share of the world’s power generation? Growing in new construction sites?

Let’s take a reality check before accepting the “growth” myth. This can readily be done by consulting the independent [2014 World Nuclear Industry Status Report](#), which deliberately omits plans and aspirations and looks only at empirical data.

Conca cites the 430 “operational number” pulled from the International Atomic Energy Agency, which considers a reactor as “in operation” even when it is idle. The IAEA counts all 48 of the currently shuttered reactors in Japan as “operating.” More correctly, the IAEA number should be defined as “operable.” The true count is 388, as found in the *WNISR (page 16)*, 50 fewer than the peak in 2002. So operationally, nuclear power is in decline.

There are currently 67 reactors under construction worldwide in 14 countries. But “under construction” does not indicate eventual completion. Eight of the 67 have been “under construction” for more than 20 years including one in the U.S. -- at Watts Bar, TN -- which has been “under construction” for a whopping 41 years.

Significant construction delays and sky-rocketing cost over-runs are par for the nuclear course as witnessed at the remaining four sites underway in the U.S. and the plodding pace of the French EPR in France and Finland also mired in fights over financing and safety.

While 67 represents “growth” compared to the lowest ebb of 2005, it is far behind the peak years of the 1980s. As the *WNISR (pg. 19)* states, “simply having an order for a reactor, or even having a nuclear plant at an advanced stage of construction, is no guarantee for grid connection and power production.”

Even if all 67 reactors currently under construction miraculously reached completion and came on line by 2020, installed nuclear capacity would still drop globally by 7.5 GW according to the *WNISR (pg. 23)*. Therefore, the promise of new reactors, even if realized, does not in fact represent growth.

Nuclear electricity production has declined dramatically worldwide from its historic peak in 2006. Stability over the last two years does not necessarily indicate growth either, as the trajectory over time remains downward. This is also the case with the nuclear share of the electricity marketplace, which has declined steadily from a historic peak of 17.6 percent in 1996 to 10.8 percent in 2013, according to the *WNISR* (page 6.)

The report also observes that any “increases in nuclear generation are mostly as a result of higher productivity and uprating at existing plants rather than due to new reactors.” However, this pathway inevitably lowers safety margins.

The *WNISR* (pg. 24) concludes that “the number of reactors in operation will stagnate at best but will more likely decline over the coming years unless lifetime extension beyond 40 years becomes widespread.” The costs of running these aging and degrading plants 60 or even 80 years makes this scenario economically unappealing. In the past year we have already witnessed the closure of four reactors in the U.S., where the owners preferred shutdown over expensive safety fixes (a fifth, Vermont Yankee, is scheduled to shut permanently in December.)

Conca’s other myth, that “No nuclear weapons program ever came out of a nuclear energy program,” is not borne out by the facts. A look back at the genesis of the nuclear weapons programs in France, India, Pakistan, China, South Africa, Israel and North Korea all point to the development, *first*, of so-called civilian nuclear power plants to establish the pathway to the bomb. Iran is another case in point where debate still rages around that country’s true nuclear intentions. The eagerness to develop expensive nuclear power programs in solar-friendly countries, particularly in the Middle East and Asia, is a clear indicator that even just the *potential* this affords to transition to an atomic weapons program is a desirable political bargaining tool.

So where is genuine growth to be found in the energy sector?

In terms of installed capacity, renewables have soared since 2000 while nuclear has stagnated. Solar PV has seen an annual growth rate of 43 percent, 25 percent for wind and 0.4 percent for nuclear. Given the rapidity with which renewable energy capacity is installed, and the falling costs (which explains the recent slight decrease in renewable investment globally even as capacity increases) we can fully expect the upward trajectory for renewable energy to continue as nuclear continues to decline.

Spinning the numbers may create an illusion of growth in the nuclear sector, but the hard facts paint a very different story. The real “growth” is happening in the renewable energy sector, which, for the sake of planetary survival, is exactly the way things need to be.

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