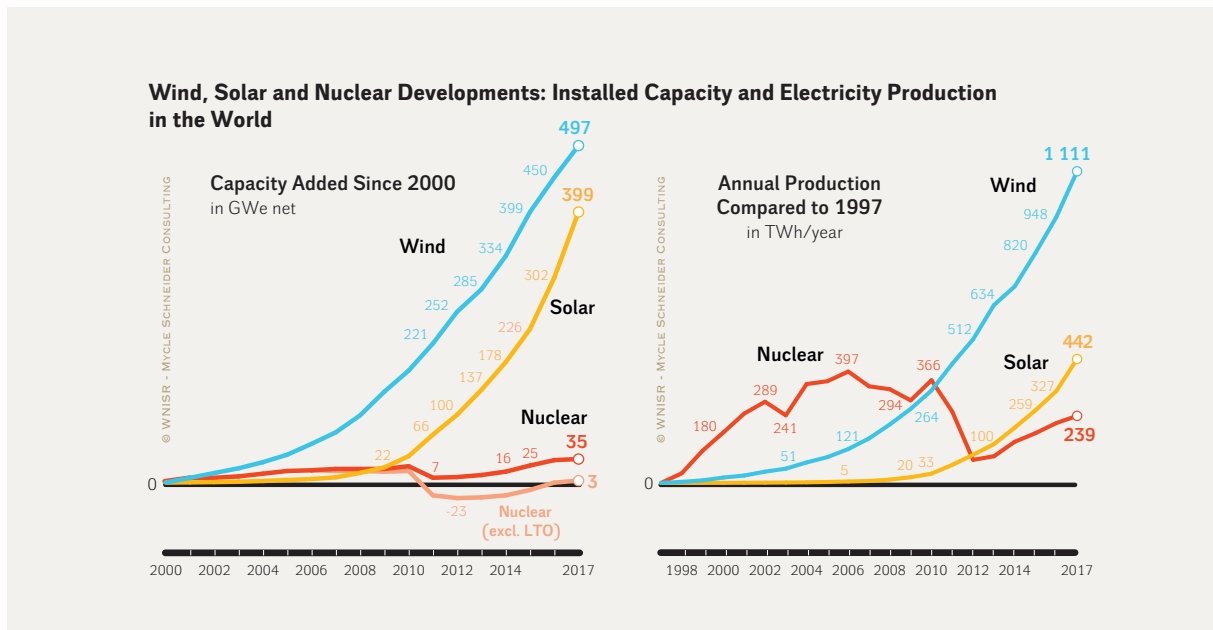


Nuclear Power: Strategic Asset, Liability or Increasingly Irrelevant?

The World Nuclear Industry Status Report 2018 Released

Paris, London, 8 September 2018. Nuclear power plants added a total of 7-gigawatt (GW) capacity to the world's electricity grids in 2017 and the first half of 2018, a tiny fraction of the total from all sources, which is estimated at some 257 GW (net) in 2017, including 157 GW of renewable capacity (the largest increase ever). Over that 18-month period, six reactors started up in China¹, two in Russia and one in Pakistan. For the third year in a row, excluding China, global nuclear power generation has declined, finds the [World Nuclear Industry Status Report 2018 \(WNISR2018\)](#).²



Source: WNISR2018

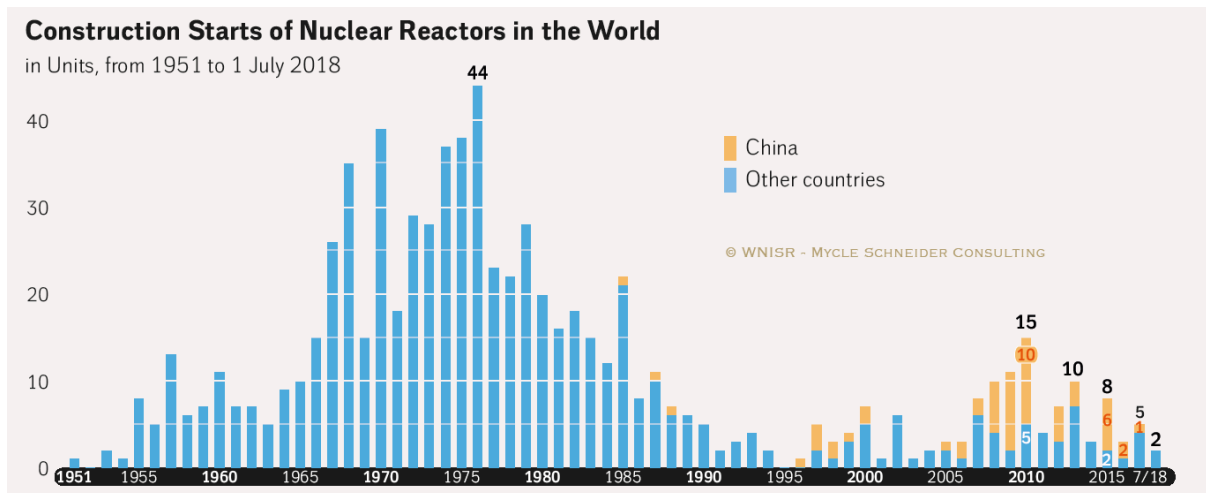
The modest 1-percent increase in global nuclear electricity output is overshadowed by the development of solar (+35 percent) and wind (+17 percent) power production. The medium-term prospective is also deteriorating for nuclear power with the number of units under construction globally declining for the fifth year in a row, from 68 reactors at the end of 2013 to 50 by mid-2018, of which 16 were in China³.

In the past year construction started in two countries for the first time, Bangladesh and Turkey. However, as illustrated by the experience in the other countries building reactors for the first time, Belarus and the United Arab Emirates, projects rarely go to plan, with both facing significant delays. In fact, at least two thirds of global constructions are behind schedule, including half of the Chinese ones. While only one quarter of the 16 units scheduled to start in 2017 at the beginning of the year succeeded.

¹ Two additional reactors started up in China in August 2018.

² The WNISR2018 is available for free download at www.WorldNuclearReport.org as of 4 September 2018, at 9h00 London time.

³ After the grid connection of two additional units in August 2018, as of 1 September 2018, 14 reactors remain under construction in China.



Source: WNISR2018

Mycle Schneider, WNISR’s Convening Lead Author and Publisher, stated: “China continues to dominate the developments in the nuclear sector due to decisions taken years ago. However, with no new construction on a commercial nuclear plant in China since December 2016 how long can China be the exception?” Antony Froggatt, WNISR’s Lead Author, added: “Nine of the 31 countries that operate nuclear power plants—Brazil, China, Germany, India, Japan, Mexico, Netherlands, Spain and U.K.—generated more electricity in 2017 from non-hydro renewables than from nuclear power.”

HAN Wenke, former Director General of the Chinese Government’s Energy Research Institute (until 2016), and ZHOU Jie, Secretary General of the Macao-based International Forum for Clean Energy, noted in their joint Foreword to WNISR2018: “Nuclear power has consistently throughout the last 20 years been the most important option to replace coal-fired power generation, [it] no longer plays that role today.” Indeed, China spent an unprecedented US\$126 billion on renewables in 2017, three times as much as the second largest investor, the United States. Anton Eberhard, Cape Town University, South Africa, states in his Foreword to WNISR2018: “Unless the nuclear industry, in the next few years, is able to develop commercially available, smaller, factory-assembled, modular reactors, at lower cost (...)—the prospects of which seem remote—it is hard to see how nuclear has a place in our energy transition 4.0 or the 4th industrial revolution.”

Considering the overwhelmingly superior economic performance of nuclear power’s main competitors renewables and natural gas, what makes nuclear power surprisingly resilient in some countries? Research presented in WNISR2018 suggest that one of the potential drivers for lifetime extension of commercial nuclear reactors and new-build is the interdependence between civil and military nuclear infrastructures. The U.K. Nuclear Industry Council’s “Nuclear Sector Deal” stated for example that “the sector is committed to increasing the opportunities for transferability between civil and defense industries and generally increasing mobility to ensure resources are positioned at required locations” and that 18 percent of projected skills gaps can be met by “transferability and mobility”. The question merits more public attention.

The world nuclear fleet continues to age and has reached a mean age of 30 years with over 60 percent of reactors having operated for 31 or more years. In many markets the economic pressure for “early closure” is increasing with falling wholesale electricity prices, increasing operational costs and aggressive competitors. In the U.S. alone, 18 reactors have been scheduled for closure between 2009 and 2025. The WNISR’s new Decommissioning Status Report chapter provides an overview of the status of the post-operational situation of the commercial nuclear reactors and highlights that only 19 of 173 reactors that have been closed have been decommissioned, of which only 10 sites have been returned to “green field” status and therefore available for other uses.

Background: The WNISR2018 has been elaborated by an interdisciplinary team of nine experts from five countries. The WNISR is “the best independent source of documented data and objective analysis on global nuclear power”, according to **Amory Lovins**, Cofounder and Chief Scientist, Rocky Mountain Institute. The report presents a comprehensive global overview into the state of the nuclear industry as of mid-2018, covering reactors in operation and under construction, assessing potential newcomer countries, as well as a comparison of the development trends with the renewable energy sector. This detailed country-by-country analysis of the nuclear programs provides an up-to-date reference of the global industry.

“The report provides authoritative, important information that cannot and should not be ignored, regardless of one’s attitudes about the nuclear industry”, stated **John Mecklin**, Editor in Chief of the prestigious *Bulletin of the Atomic Scientists*, USA. “The WNISR is especially very useful to teach students the distinction between opinions and facts”, according to **Arnaud Delebarre**, Professor, Energy Major Coordinator at Shanghai Jiao Tong University ParisTech Elite Institute of Technology (SPEIT). The WNISR is mandatory reading at universities like Princeton in the U.S. or the Technical University in Berlin. Politicians, media, researchers, industry, utilities and NGOs refer to it alike as a reliable and independent source of information and analysis.

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