Setting Up the Next Phase of U.S.-UAE Nuclear Cooperation

by Noam Raydan **(/experts/noam-raydan)**

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Brief Analysis

With the U.S. point man on energy development touring the Gulf and Chinese and Russian nuclear initiatives on the rise, the Trump administration should consider how best to replicate the responsible Emirati model elsewhere in the region.

To kick off his first official tour **(https://www.energy.gov/articles/us-secretary-energy-kicks-middle-east-trip-uae)** of the Middle East, U.S. energy secretary Chris Wright arrived in the United Arab Emirates this week, where he has been meeting with key stakeholders and is expected to make a timely visit to the Barakah civil nuclear power plant in al-Dhafra. The plant visit comes amid growing global enthusiasm about nuclear energy, both to meet decarbonization targets and to address tech company plans for more data centers and artificial intelligence initiatives that require substantial amounts of nonstop power **(https://www.iea.org/news/growth-in-global-electricity-demand-is-set-to-accelerate-in-the-coming-years-as-power-hungry-sectors-expand)** . Yet Wright also has an opportunity to underscore the importance of solid nuclear policy in a region where such technology is usually associated with proliferation risks.

The UAE's Responsible, Cooperative Nuclear Approach

In 2008, the Emirati government adopted a policy document **(https://www.enec.gov.ae/about-us/overview/the-uae-nuclear-energy-policy/)** regarding "The Evaluation and Potential Development of Peaceful Nuclear Energy"—a landmark step toward building a civil nuclear power program while working closely with the International Atomic Energy Agency (IAEA). At the time, authorities highlighted the need to meet long-term projections of increasing power demand. By 2020, the first of Barakah's four advanced Korean-designed reactors was connected to the grid. In September 2024, the final reactor entered commercial operation, enabling the facility to achieve its full capacity of 5.6 gigawatts. Today, the UAE is the only nation in the Arab world operating a nuclear power plant, with Barakah providing around 25 percent **(https://www.enec.gov.ae/doc/factsheet-enec-and-barakah-plant-eng-6073db2e34e19.pdf)** of the country's power needs and the largest share of low-carbon energy in its overall energy mix **(https://www.washingtoninstitute.org/policy-analysis/gulf-energy-transition-assessing-saudi-and-emirati-goals)** .

In laying out the program's intended contributions to Emirati power needs, the 2008 document highlighted the government's plans for implementing six important benchmarks:

1. Operational transparency
2. Nonproliferation
3. Safety and security
4. Direct collaboration with the IAEA
5. Partnerships with companies and governments from "responsible" countries
6. Long-term sustainability

The UAE has also adopted multiple international nonproliferation treaties and instruments, including the Additional Protocol **(https://www.uae-embassy.org/news/uae-and-iaea-sign-additional-protocol-safeguards-agreement#:~:text=and%20the%20International%20Atomic%20Energy%20Agency%20(IAEA),agreement%20between%20the%20Agency%20and%20the%20UAE)** to its safeguards agreement with the IAEA, which gives the agency "the right and obligation **(https://www.iaea.org/topics/safeguards-legal-framework/more-on-safeguards-agreements)** to ensure that safeguards are applied on all…nuclear material for the exclusive purpose of verifying that such material is not diverted to nuclear weapons." Additionally, it has reached fundamental arrangements with the United States—most notably the "123 Agreement **(https://usuaebusiness.org/focusareas/supporting-peaceful-nuclear-energy-cooperation-the-123-agreement/)** " for peaceful nuclear energy cooperation, under which Abu Dhabi "renounced uranium enrichment and spent fuel reprocessing." This was a crucial prerequisite for accessing U.S. nuclear equipment and services, providing a potential model of success for other regional countries seeking nuclear cooperation with Washington—particularly Saudi Arabia, which has made civil nuclear initiatives **(https://www.washingtoninstitute.org/policy-analysis/saudi-arabia-increases-its-cooperation-worlds-nuclear-watchdog)** one of the platforms in its ongoing effort to broker a bilateral U.S. defense pact **(https://www.reuters.com/world/us/us-saudi-defense-deal-with-civil-nuclear-component-nears-completion-official-2024-05-21/)** .

Why Nuclear?

In addition to being a low-carbon energy source, nuclear facilities offer a reliable, flexible power flow that can be controlled according to demand on the electrical grid or other needs. This contrasts with renewable energy plants, which are currently limited to providing power intermittently (ongoing advancements in grid-scale battery storage may overcome that limitation in the future, though that option carries difficulties of its own). Compared to natural gas, coal, solar, wind, and other sources, nuclear energy has the highest capacity factor, which measures **(https://www.energy.gov/ne/articles/what-generation-capacity)** how often a facility is running at maximum power. Nuclear plants are also versatile—for instance, the excess heat they generate can be redirected **(https://www.energy.gov/ne/articles/3-surprising-ways-use-nuclear-energy)** toward industrial uses like metal refining.

Nuclear power experienced stagnation over the past decade, due in part to the 2011 tsunami-induced accident at Japan's Fukushima plant, which led some countries to announce they would phase out their nuclear generation. More recently, however, the sector has been making a comeback. In 2023, during the UN's COP28 climate conference in Abu Dhabi, participants endorsed **(https://www.energy.gov/articles/cop28-countries-launch-declaration-triple-nuclear-energy-capacity-2050-recognizing-key)** a "Declaration to Triple

Nuclear Energy," which aims to reach that target by 2050. At the time, an estimated 410 nuclear reactors (https://www.iea.org/reports/the-path-to-a-new-era-for-nuclear-energy) were operable in more than thirty countries, and nuclear energy was providing around 9 percent of global power generation.

Yet challenges abound to expanding the civil nuclear sector. Building new plants has traditionally involved high capital costs and long construction times that affect financing. Although the United States and other countries have pinned their hopes on next-generation small modular reactors, that technology must still overcome obstacles (particularly cost and uranium supply chains (https://www.energy.gov/ne/articles/russian-uranium-ban-will-speed-development-us-nuclear-fuel-supply-chain)), and the industry will have to improve its safety. Meanwhile, China and Russia have taken the lead in nuclear expansion. According to the International Energy Agency (https://www.iea.org/reports/the-path-to-a-new-era-for-nuclear-energy) , the majority of the fifty-two reactors that began construction between 2017 and 2024 were Chinese- or Russian-designed technologies in emerging market and developing economies (EMDEs).

Addressing these challenges requires international cooperation and consistent investment in research and development. As nuclear technologies advance and more countries begin applying them, policies and regulations to ensure nuclear safety (https://www.iaea.org/bulletin/what-the-nuclear-declaration-at-cop28-means-for-iaea-verification#:~:text=than%20around%20it.-,The%20'Declaration%20to%20Triple%20Nuclear%20Energy'%20reflects%20a%20collective%20commitment,sustainable%20and%20low%2Dcarbon%20future.) need to advance in parallel. The UAE and the United States have more opportunities to explore in this regard, especially now that Abu Dhabi seeks to become a regional AI hub (https://www.csis.org/analysis/united-arab-emirates-ai-ambitions) and invest in nuclear power plants overseas, including the U.S. market (https://www.ft.com/content/f949780a-3eb2-44f2-9db1-f69ce16161b7) .

Noam Raydan is a senior fellow at The Washington Institute and co-creator of its Maritime Spotlight platform (https://www.washingtoninstitute.org/policy-analysis/series/maritime-spotlight) . ❖

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