

EGYPT'S NUCLEAR MEGAPROJECT FACES UNCERTAINTY AS RUSSIAN FUNDING SQUEEZED

Egypt seems to be making slow progress on its Russian-funded 4.8GW Dabaa nuclear plant, where start-up from 2028 is targeted. Analysts are wary Cairo's reliance on \$25bn Russian financing and technical input could threaten the megaproject amid Moscow's draining war in Ukraine.

Russia's ongoing war in Ukraine has left the fate of Cairo's nuclear power ambitions uncertain, with Egypt's nascent nuclear plans almost entirely reliant on Russian funding and technical involvement.

The two countries signed an intergovernmental agreement in 2015 to build a 4.8GW nuclear power plant at Dabaa on the Mediterranean coast 170km west of Alexandria. This was followed by a 2017 agreement greenlighting several contracts for construction (MEES, 15 December 2017), which effectively began in 2022 (MEES, 8 July 2022).

Under the agreements, Russian state nuclear energy firm Rosatom will build the four Russian-designed 1.2GW VVER-1200 pressurized water reactors. The build-own-operate (BOO) terms will also see Rosatom operate the facility and supply nuclear fuel for the project's 60-year life span.

Russia also agreed to meet over 80% of the project's \$30bn cost via a \$25bn loan, repayable over 22 years from October 2029, with Egypt stumping up the remaining \$5bn.

Egypt currently relies on natural gas for over 90% of its power generation, but with domestic output slumping to multi-year lows (MEES, 5 January), the country is looking to diversify its power sector and source over half of its power from clean energy – 42% from renewables and 10% from Dabaa – by 2035 (MEES, 8 December 2023).

SLOW PROGRESS?

Officially, groundwork appears to be on schedule, with Rosatom even announcing that some stages have been completed earlier than planned.

"Our project continues to develop rapidly," Andrey Petrov, Rosatom's First Deputy General Director for Nuclear Energy, said following the installation of the Russian-built 'core catcher' at Dabaa's no2 reactor in November. "The installation of the core catcher at power unit two is one of the key construction milestones planned for 2024, which was completed ahead of schedule in November 2023."

Updates from the Egyptian Nuclear and Radiological Regulatory Authority, supported by recent satellite images, show some progress in the basic infrastructure of the four reactor units since the beginning of groundwork in

EGYPT'S DABAA NUCLEAR POWER PLANT - A TIMELINE

SOURCE: IAEA (2022), ENRRA (2023), ROSATOM

2015	Presidential decree 484/2015 approves \$25bn Russian loan
2017	Egypt's Ministry of Electricity and Rosatom sign agreement to start construction
March 2019	Egypt approves Dabaa site allocation
June, Oct 2022	Construction starts on reactor 1, reactor 2...
Mar, Aug 2023	...reactor 3 & reactor 4
2028	Expected start-up of reactors 1 & 2...
2029, 2030	...reactor 3 & reactor 4

2022 (see table). But work to date has mainly consisted of site infrastructure and the construction of a harbor adjoining the facility, with no confirmed timeline for when the reactors, to be built in Russia, would be installed.

Despite the official reports of progress at Dabaa, the expensive megaproject faces uncertainty amid global and local economic challenges.

Egypt faced a crippling debt crisis (MEES, 15 December 2023) even before regional instability threatened its key Suez Canal revenue stream (see p16 & MEES, 12 January). As such, it remains unclear how Cairo intends to raise its \$5bn contribution to the Dabaa project.

More importantly, Russia is drained by ongoing Western sanctions and a costly war in Ukraine, raising questions about Moscow's ability to meet its \$25bn commitment.

Marina Lorenzini of Harvard Kennedy School's Middle East Initiative expects the ongoing war in Ukraine to lead to "complications" in Russian funding transfers and Egypt's ultimate loan repayments.

NUCLEAR DIPLOMACY

That said, Moscow sees 'nuclear diplomacy' as a key opportunity to garner both revenues and prestige overseas so it will be keen that Egypt's Dabaa moves ahead in a timely manner. Rosatom hopes other African countries will see in Dabaa "the largest and most advanced [nuclear power] initiative on the African continent" and sign up for more of the same. A further "significant milestone in Rosatom's commitment to strengthening its partnership with Egypt" came with its opening of an office in Cairo on 27 December.

As such, even though funding constraints may see Moscow "deprioritize" the Dabaa project leading to delays, Russia will likely try to continue to demonstrate progress, Ms Lorenzini says. "[Putin] has used the Russian nuclear energy industry, through Rosatom, as a strategic export to build deep dependencies with geopolitically significant countries, such as Bangladesh, Egypt, and Turkey. So, even as times get tough in Moscow, Rosatom's foreign projects may not receive an immediate axe, as Putin must continue to rely on state

EGYPT'S PLANNED DABAA NUCLEAR PLANT

■ ELECTRICITY GRID



instruments to buttress the economy," she adds.

NUCLEAR FUEL

Another possible challenge facing Dabaa is that it will rely entirely on Russian technology and nuclear fuel for its reactors, leaving it with limited options if Moscow fails to meet its part of the deal.

As Ms Lorenzini explains, the nuclear industry is not internationally standardized, meaning that other companies cannot necessarily replace Rosatom if needed, leaving Cairo "in a bind to negotiate with Moscow on a point-by-point basis on how to purchase and integrate new equipment."

"It is very challenging, but not impossible, for countries to introduce alternative nuclear fuel suppliers to their Russian-built reactors," she adds. In any case "Moscow will likely not welcome such a move, and Cairo may not have a strong enough bargaining position, especially if it's not paying its bills on time, in order to introduce non-Russian supplies on site."

Aside from its \$5bn obligation, Egypt will have to start repaying the Russian loan in 2029. But with a struggling economy and crippling debt crisis, it is unclear if Cairo will be able to make the payments. "If [Egypt] can't pay on time, Moscow may pressure Cairo for deals in other arenas given the geopolitical needs of President Putin," she says. ◆◆