

FANR, Barakah Nuclear Energy Plant, and the Operating License

مؤسسة الإمارات للطاقة النووية
Emirates Nuclear Energy Corporation

شركة بركة الواح للطاقة
Barakah One Company PJSC

شركة نواح للطاقة
Nawah Energy Company



About FANR

- The Federal Authority for Nuclear Regulation (FANR) is the regulatory body for the nuclear energy sector in the UAE and is working to protect the UAE's public, its workers and the environment.
- FANR was established in September 2009 by Decree Number 6, which was issued by the UAE President, His Highness Sheikh Khalifa bin Zayed Al Nahyan.
- Driven by a Culture of Safety and a commitment to excellence, FANR's overriding mission is to protect the public and the environment from the harmful effects of ionizing radiation and to ensure the exclusively peaceful use of nuclear energy in an integrated manner with the concerned authorities and according to international best practices.
- FANR's vision is to become globally recognized as a leading nuclear regulator.
- FANR is also dedicated to supporting the development of Emirati talent in the nuclear energy field and various other technical fields through a variety of competitive scholarship and trainee programs.
- In addition to working to protect the UAE's public, its workers and the environment, FANR oversees the implementation of the UAE's obligations under the relevant international treaties, conventions, and agreements in the nuclear energy sector.
- As a part of its mandate, FANR is also responsible for regulating the design, siting, construction, operation and decommissioning of all nuclear facilities in the UAE, including the UAE's Barakah Plant.

About the Barakah Nuclear Energy Plant

As a new source of abundant low-carbon electricity, the Barakah Nuclear Energy Plant:

- Diversifies the nation's energy supply and support energy security
- Produces emission-free energy for businesses and homes across the UAE
- Provides high-value jobs and educational opportunities for Emiratis for decades to come
- Supports electrification and the decarbonisation of the UAE's energy sources

The Barakah Plant is the first nuclear energy station to be operated in the Arab World.

- The plant consists of four identical APR1400 reactors housed in four separate units, with a total generating capacity of up to 5,600MW.
- In line with the highest standards of safety and security, the Barakah plant provides sufficient capacity in the spent fuel storage pool for 20 years of operation, after which the spent fuel waste will be transferred to an independent spent fuel storage installation (ISFSI).
- The plant is operated and maintained by the Nawah Energy Company (Nawah), a Joint Venture company co-owned by ENEC and KEPCO.
- Barakah One Company, another Joint Venture company co-owned by ENEC and KEPCO, represents the commercial interests of the Barakah project.
- The Barakah Plant, when fully operational, will produce up to 25% of the UAE's electricity needs, while also preventing the release of 22.4 million tons of carbon emissions each year - equivalent to removing 4.8 million cars from the UAE's roads annually
 - The UAE has committed to ensuring 50% of its energy requirements are met through clean and renewable energy sources by 2050.

The Barakah Nuclear Energy Plant and the UAE Peaceful Nuclear Energy Program have become international role models.

- FANR, ENEC and Nawah have collaborated with international organizations, including the International Atomic Energy Agency (IAEA), the World Association of Nuclear Operators (WANO), and the Institute of Nuclear Power Operators (INPO), and worked with partner nations since the commencement of the UAE Peaceful Nuclear Energy Program in 2008.
- FANR has conducted over 380 inspections at Barakah, and in the US and South Korea, with over 7,100 official items of correspondence, and hundreds of hours of meetings. ENEC and its subsidiaries have hosted 44 missions and peer reviews from the IAEA and WANO including:
 - The Pre-Start Up Review (PSUR) for Barakah Unit 1 was conducted in November 2019 and for Unit 2 in November 2020, while Unit 3's review was completed in February 2022. All reviews concluded that the Units were ready to start up.
 - The UAE was the first nation to complete the IAEA's Integrated Nuclear Infrastructure Review (INIR 3) in July 2018.

About the Operating License for the Barakah Nuclear Energy Plant

In 2015, ENEC submitted the Operating License Application (OLA) for Barakah Units 1 & 2, on behalf of Nawah, to FANR

- It took approximately 5 years to complete the OLA, which is around 15,000 pages in length
- Nawah's OLA seeks a license to operate Unit 1 and Unit 2 for 60 years, the expected operating life of ENEC's chosen APR1400 reactor plant design

- In 2017, Nawah submitted the OLA for Units 3&4 to FANR.

FANR has certified a total of 72 of Nawah's multinational Senior Reactor Operators (SROs) and Reactor Operators (ROs), including 42 UAE Nationals, to safety and securely operate the Barakah Plant

- The first group of 15 UAE National SROs and ROs was certified in July, 2019
- The second group of 38, including 7 UAE Nationals, was certified in August, 2019
- The third group of 5, including 4 UAE National, was certified in October, 2019
- The fourth group of 14, including 4 UAE Nationals, was certified in January, 2020

From the submission of the OLA in 2015, FANR conducted a robust program of review, assessments and inspections on Units 1&2. The same process also took place on Units 3&4 after the submission of the OLA in 2017.

Once the reviews and inspections are completed, FANR issues the Operating License for each Unit of the Barakah Nuclear Energy Plant, permitting the start of nuclear operations. By issuing the license, FANR reaches the regulatory conclusion that Nawah is organizationally ready to safely and securely operate the Unit, and that the Unit has been constructed in accordance with all the requirements and can be safely operated.

FANR has issued the licenses for Barakah:

- Unit 1 in February 2020
- Unit 2 in March 2021

