

Licence No: FANR/NF/2012/001/Rev. 1

**Amended Licence for the Construction of
Units One and Two of the Barakah⁽¹⁾ Nuclear Facility and Related
Regulated Activities**

(1) Previously referred to as “Braka”.

Capitalized terms used but not defined herein shall have the meaning ascribed to them in Article (1) of Federal Law by Decree No. 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy (the **Law**). Any reference herein to Schedule means a reference to a Schedule of this Licence.

Under the powers provided in Articles (6) and (28) of the Law, and having considered that the proposed activities of Emirates Nuclear Energy Corporation comply with the relevant Safety objectives, principles and requirements of the Law, the Board of Management of the Federal Authority for Nuclear Regulation (the **Authority**) has approved the issuance of a licence (**Licence**) for the Construction of units one and two of the Barakah nuclear facility (the **Nuclear Facility**) and related Regulated Activities to:

Emirates Nuclear Energy Corporation (the Licensee)

being a corporation established by Abu Dhabi Law No. 21 of 2009.

This Licence authorizes the Licensee to conduct the following Regulated Activities set forth in Article 25 of the Law:

Construction of a Nuclear Facility and Import of Regulated Materials

The specific activities authorized by this Licence are set forth in Schedule 1. The Licence conditions are set forth in Schedule 2. A description of the Nuclear Facility, its location and its Construction is set forth in the application documents referenced in Schedule 3 (the **Application Documents**). Conditions of import of related Regulated Materials are set forth in Schedule 4.

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This Licence shall remain in force until:

- a. it is suspended or revoked by the Authority;
- b. it is amended or renewed by the Authority;
- c. it is surrendered by the Licensee; or
- d. the Authority issues a licence for the operation of any reactor unit in the Nuclear Facility covered by this Licence, at which time this Licence shall:
 - (i) terminate with respect to those reactor units for which an operating licence has been issued by the Authority; and
 - (ii) remain in force with respect to any reactor unit in the Nuclear Facility that is not covered by the licence for operation in (d)(i) above,

provided that any obligations of the Licensee under this Licence and/or the Law that are intended to remain in force following the termination of this Licence shall survive the termination of this Licence.

This Licence is granted without prejudice to any future decision by the Authority regarding the suitability and specifications of the operation of the Nuclear Facility or its structures, systems and components (SSCs).



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Description of Amendments to Licence

The Authority hereby issues this amendment to the Licence which inserts new paragraphs 13 and 14 in Schedule 2 and includes certain amendments to Schedules 3 and 4.

William D. Travers
Director General

Issued in Abu Dhabi
15 September 2014

The Licence comprises this page, the preceding page and the following Schedules:
Schedule 1: (2 pages) Activities Authorized;
Schedule 2: (4 pages) Licence Conditions;
Schedule 3: (1 page) Application Documents References; and
Schedule 4: (2 pages) Conditions of Import of related Regulated Materials.



Schedule 1

Activities Authorized

1. This Licence authorizes:

- a. The Construction of the Nuclear Facility at the Barakah site located in the Emirate of Abu Dhabi, United Arab Emirates as described in the Application Documents;
- b. The following activities reasonably associated with the foregoing:

The manufacture, use, transport, possession, Storage, assembling, installation, inspection, those parts and stages of Commissioning comprising only the preoperational testing of SSCs prior to fuel load, and carrying out of civil works comprising the Nuclear Facility, including supporting and auxiliary equipment and associated facilities; and

- c. Import to the United Arab Emirates of equipment and technology specified in Annex B, Paragraphs 1.1 to 1.10 of IAEA INFCIRC/254/Part 1 (as amended) to construct two nuclear reactors, type APR1400, subject to government-to-government assurance between the United Arab Emirates and the Republic of Korea, or to government-to-government assurance between the United Arab Emirates and the government of other supplier(s) of such equipment and technology, and exclusively for the Construction of the Nuclear Facility. This includes the import of especially designed or prepared components, equipment or technology directly associated with the APR1400 nuclear reactor, including but not limited to the import of:
 - i. items within or attached directly to the nuclear reactor vessel;
 - ii. equipment which controls the level of power in the nuclear reactor core; and
 - iii. components that contain or come in direct contact with or control the primary coolant of the nuclear reactor core.

This import authorization is subject to the conditions specified in Schedule 4.

2. The Licensee is required to obtain additional licences and/or authorizations from the Authority for:
 - a. Possession, use, manufacturing, import or handling of any Nuclear Material;
 - b. Import of any equipment that contains Nuclear Material;



- c. Export or re-export of any Nuclear Material, equipment and technology specified in IAEA INFCIRC/254/Part 1 (as amended) or any nuclear-related dual-use equipment, materials, software and related technology specified in IAEA INFCIRC/254/Part 2 (as amended);
 - d. Loading Nuclear Fuel into any reactor unit of the Nuclear Facility; and
 - e. Undertaking any other Regulated Activity, including, without limitation, those involving Radiation Sources not exempted by the Authority from Regulatory Control.
3. The Licensee shall obtain all necessary licences, permits and authorizations from other government agencies for conducting any activities authorized by the Authority under this Licence.



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Schedule 2

Licence Conditions

This Licence is subject to, and the Licensee shall comply with, the conditions specified and incorporated below:

- 1. Compliance with the Law, regulations, Licence and the Licensee's submissions:** The Licensee shall conduct the activities authorized by this Licence in accordance with:
 - a) The Law;
 - b) The applicable regulations issued by the Authority pursuant to the Law;
 - c) The terms and conditions of this Licence; and
 - d) The documents referenced in and/or submitted with the Licensee's application for this Licence and the additional information submitted by the Licensee (the Application Documents, Schedule 3).
- 2. Transfer of Licence:** This Licence or any right hereunder shall not be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of this Licence or the Licensee to any person, without the express written approval of the Authority.
- 3. Modifications:** The Licensee shall obtain the written approval of the Authority prior to implementing modifications to any of the following which may result in significant Safety, Security or safeguards implications:
 - a) any Management System and organizational arrangements;
 - b) the SSCs of the Nuclear Facility; or
 - c) any of the Applications Documents submitted by the Licensee.
- 4. Plan of activities:** The Licensee shall provide the Authority, within 30 days of the grant of this Licence, with schedules and timelines of the principal activities to be undertaken under the general authority of the Licence. The Licensee shall update this information as may be deemed necessary by the Authority.
- 5. Regular reporting:** The Licensee shall provide to the Authority, within 15 days of the end of each calendar quarter, a report on the activities carried out under this Licence during that quarter.



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6. Reporting of unplanned events:

- a) The Licensee shall notify the Authority of any violation of the conditions of this Licence.
- b) The Licensee shall notify the Authority of any Accident or event during the conduct of the activities permitted by this Licence having the potential to affect quality, Safety, Radiation Protection, Nuclear Safety, Nuclear Security or safeguards.
- c) The Licensee shall notify the Authority of each deficiency found in Design and Construction, which, were it to have remained uncorrected, could have affected adversely the Safety or Security of the Nuclear Facility at any time throughout the expected lifetime of the Nuclear Facility, and which represents:
 - i. A material and/or significant breakdown in any portion of the quality assurance program;
 - ii. A material and/or significant deficiency in final Design as approved and released for Construction such that the Design does not conform to the criteria and bases stated in the most recent version of the Preliminary Safety Analysis Report (the **PSAR**) or this Licence;
 - iii. A material and/or significant deficiency in Construction of, or material and/or significant damage to, an SSC which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in the PSAR or this Licence or to otherwise establish the adequacy of the SSC to perform its intended safety function; or
 - iv. A material and/or significant deviation from performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of an SSC to meet the criteria and bases stated in the PSAR or this Licence or to otherwise establish the adequacy of the SSC to perform its intended Safety function.
- d) The Licensee shall:
 - i. Notify the Authority within 72 hours of its finding of each reportable violation, Accident, event or deficiency in Licence Condition 6(a), (b) or (c) above; and
 - ii. Submit to the Authority a written report within 30 days. The report shall include a description of the reportable violation, Accident, event or deficiency, an analysis of the Safety implications and the corrective action taken, and sufficient information to permit review and evaluation of such corrective action. If sufficient information is not available for a definitive report to be submitted within 30 days, an interim report containing all available information shall be filed with the Authority, together with a statement that indicates when a complete report will be filed with the Authority.



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- 7. Access to facilities and documents, and assistance:** The Licensee shall provide the Authority and its authorized representatives or inspectors with unfettered access to any place, to any document, record or report or to any person under the Licensee's control or the control of any of the Licensee's affiliates, contractors, subcontractors, suppliers, agents or other legal entities acting on behalf of the Licensee, and shall provide all assistance necessary to enable the Authority to inspect the licensed activities in accordance with the provisions of the Law including, without limitation, Articles (5), (35) and (36).
- 8. Records:** The Licensee shall develop, maintain and implement arrangements for making and retaining adequate and detailed records of:
- the Design and Construction of the Nuclear Facility; and
 - compliance with the conditions and requirements of this Licence.

The Licensee shall retain all the foregoing records until the Nuclear Facility has been decommissioned.

- 9. Fulfilment of commitments:** The Licensee shall comply with the commitments made in the Application Documents. Amendments to commitments made in the Application Documents shall be subject to the approval of the Authority's Director General.
- 10. Update of PSAR:** The Licensee shall provide the Authority, within 180 days of the approval of this Licence, with a revised version of the PSAR. The revised PSAR shall include the proposed revisions to the PSAR in conformance with the Application Documents.

11. Construction Inspection and test plan:

- The Licensee shall provide the Authority with written reports on the completion and status of all the inspection items identified in the construction inspection and test plan (CITP) at six-monthly intervals.
- The Licensee shall submit the CITP Tables as described in Chapter 14 of the PSAR for Stage III (Cold Function Test) and Stage IV (Hydrostatic & Hot Function Test) pre-operational testing to the Authority for review and approval twelve (12) months following the grant of this Licence. The Licensee shall not begin any of the activities at the Nuclear Facility for Stages III and IV until the Authority issues written approval for each stage.

- 12. Addressing extreme events:** The Licensee shall provide to the Authority information on the Design changes for dealing with lessons learned from the Fukushima event and shall obtain the prior written approval of the Authority before implementing the Design changes in the Construction of the Nuclear Facility.



- 13. Design of the alternate alternating current source:** The Licensee shall provide to the Authority a revised Design of the alternate alternating current source (AAC) that meets the Authority's requirements, and shall also obtain the prior written approval of the Authority before implementing such revised AAC Design in the Construction of the Nuclear Facility.
- 14. Molten core-concrete interaction:** the Licensee shall provide to the Authority additional information on the validity of its molten core-concrete interaction submissions provided as evidence that the Authority's requirements for containment integrity have been met. If the Licensee is not able to demonstrate the validity of its submissions to the Authority's satisfaction, the Licensee shall submit a revised Design and shall also obtain the prior written approval of the Authority before implementing such revised Design in the Construction of the Nuclear Facility.





Schedule 3

Application Documents References

- 1) The application documents detailed in FANR - NSD - ENEC - COR - 00725-2012 letter dated July 1, 2012, entitled "Record of Application Documents for Construction Licence Application of Barakah Nuclear Power Plant Units 1 and 2".
- 2) ENA-FANR-0158L letter dated May 12, 2014 entitled "Barakah 1&2 Construction License – Applicability of Barakah 3&4 Commitments to Barakah 1&2".





Schedule 4

Conditions of Import of related Regulated Materials

1. Any equipment or technology imported into the United Arab Emirates pursuant to paragraph 1(c) of Schedule 1 (**Imported Items**) shall be under IAEA full scope safeguards and shall meet the obligations and requirements of the United Arab Emirates Safeguards Agreement (IAEA INFCIRC/622) and the Protocol Additional to the Safeguards Agreement (IAEA INFCIRC/622/Add. 1) , and the obligations set out in IAEA INFCIRC/254/Part 1 (as amended);
2. Thirty days prior to shipment from the port of embarkation of any of the Imported Items, the Licensee shall provide the Authority with the information required by the Authority's regulations, and international obligations, which include, without limitation:
 - (i) List of Imported Items within each shipment detailing the following:
 - a. Item specification code according to IAEA INFCIRC/254/ Part1 (as amended); and
 - b. Identification and concise technical specifications of each Imported Item, as issued by the manufacturer;
 - (ii) Quantity and the customs harmonized system code of each Imported Item within the shipment;
 - (iii) Certificates of origin of Imported Items;
 - (iv) Port and expected date of arrival of the Imported Items to the United Arab Emirates and the expected date of arrival to the Nuclear Facility; and
 - (v) Copy of shipping documents;
3. The Licensee shall confirm to the Authority, with a confidential notification in writing at least 10 working days in advance, the date of arrival of the Imported Items to the United Arab Emirates;
4. The Licensee shall confirm to the Authority, without any delay, for each shipment, the arrival of the Imported Items to the United Arab Emirates through an encrypted notification. The method of such notification will be agreed between the Licensee and the Authority, at least five working days prior to the date of arrival of the Imported Items;
5. The Licensee shall confirm to the Authority the arrival of the Imported Items to the Nuclear Facility. The confirmation shall be submitted to the Authority in writing within one working day following the date of such arrival;
6. The Licensee shall meet any other conditions that may be notified to it by the Authority based on the requirements and additional conditions of supply applied by the competent authorities of the Imported Items country of origin as a matter of national policy;



7. Conditions 2, 3 and 4 of this Schedule 4 are not applicable to import of technology. Notification and confirmation by the Licensee, related to the arrival of imported technology, will be specified by the Authority on a case by case basis; and
8. The authorization for Imported Items under this Licence shall be considered void if the Licensee fails to adhere to any of the conditions of this Schedule 4.



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