

The Peaceful Nuclear Energy Program in the United Arab Emirates: Background and history

by Amani Al Shamsi*

Introduction

Nations around the world will require a significant increase in clean, safe sources of electrical power over the next several generations to meet the needs of their citizens and to protect the environment. The United Arab Emirates' (UAE) interest in evaluating nuclear energy was motivated by the need to develop additional sources of electricity to meet future demand projections and to ensure the continued rapid development of its economy.

In 2007, the UAE began assessing the possibility of developing a peaceful nuclear energy programme. In a study released that year, the UAE Government found that existing and planned electricity generation would not meet growing demand, which presented a significant challenge for the country. Reviewed against several options, the UAE concluded that nuclear power generation would be the most reliable, efficient, safe, commercially competitive and environmentally friendly means of producing electricity and meeting demand. The UAE's main objective in developing a nuclear programme is to use nuclear power for electricity production and ensure that it is implemented in a safe and secure manner. The UAE has embarked for the first time on a nuclear energy programme and, in doing so the country adheres to the highest international standards in all areas of its programme.

To this end, the UAE established the foundation for a sustainable national infrastructure to render governmental, legal, regulatory, managerial, technological, human and industrial support for the nuclear programme throughout its life cycle. The UAE complies with international obligations, internationally accepted nuclear safety standards, security guidelines and safeguards requirements, all of which are essential for establishing a responsible nuclear power programme. The UAE is a signatory to all major international agreements in the areas of nuclear non-proliferation, nuclear safety and security. The country's commitment to these principles is the foundation of its nuclear energy policy.

UAE nuclear policy

Recognising the potential role of nuclear energy as an indispensable part of the UAE's future energy strategy, the UAE Government developed and issued an in-depth policy paper entitled, *Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy*.¹ This policy paper, also known as the "Nuclear Policy", was adopted by the UAE Cabinet of Ministers and published in April 2008. The Nuclear Policy outlines the Government's approach to civilian nuclear

* Amani Al Shamsi is a Legal Counsel in the Legal Department of the Emirates Nuclear Energy Corporation.

1. Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy (2008) (Nuclear Policy), available at: www.fanr.gov.ae/en/Lists/LawOfNuclear/Attachments/2/20100523_nuclear-policy-eng.pdf.

power, including the role of nuclear energy in the UAE's energy strategy and the country's commitment to operational transparency and the highest standards of non-proliferation, safety and security. The Nuclear Policy principles and commitments were made into law when the UAE issued Federal Law by Decree No. 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy in October 2009.²

To make its intentions clear, the Nuclear Policy emphasised six key principles regarding the potential establishment of a peaceful civilian nuclear energy programme in the UAE:

The UAE is committed to complete operational transparency.

The UAE is committed to pursuing the highest standards of non-proliferation.

The UAE is committed to the highest standards of safety and security.

The UAE will work directly with the [International Atomic Energy Agency (IAEA)] and conform to its standards in evaluating and potentially establishing a nuclear energy program.

The UAE hopes to develop any peaceful domestic nuclear power capability in partnership with the Governments and firms of responsible nations, as well with the assistance of appropriate expert organizations.

The UAE will approach any peaceful domestic nuclear power program in a manner that best ensures long-term sustainability.³

In addition to these commitments, the Nuclear Policy includes the UAE's decision to forgo domestic enrichment and reprocessing of nuclear fuel and describes the role of nuclear power as one component of the UAE's future energy portfolio.

The UAE approach has been praised as a model for how to introduce a transparent, safe and secure domestic nuclear energy programme. As a first step in its commitment to complete operational transparency, and in accordance with guidance from the IAEA, the UAE established a Nuclear Energy Programme Implementing Organization (NEPIO), which evaluated and is implementing the nuclear energy programme in the UAE. As a second step in its commitment to operational transparency, the UAE concluded the required international instruments and strictly abides by the resulting obligations.⁴ The UAE provides the necessary domestic complement to every international instrument, and ensures their direct and complete transposition into the UAE national law.

Finally, aware of the issues raised by nuclear power in respect of health, safety and the environment, and desiring that decisions leading to the potential development of nuclear power be grounded in the acceptance of its citizens, the UAE actively engages with and informs the public.

2. Federal Law by Decree No. 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy (Nuclear Law). An unofficial English translation of the Nuclear Law is available at: www.fanr.gov.ae/en/Lists/LawOfNuclear/Attachments/1/20101024_nuclear-law-scan-eng.pdf.

3. *Ibid.*, p. 1.

4. To be discussed *infra*.

Organisation and structure

A. Federal Authority for Nuclear Regulation (FANR)

FANR was established in September 2009 under the Nuclear Law as the regulatory body for the nuclear sector in the UAE. FANR protects the UAE's public, its workers and the environment with nuclear regulatory programmes in safety, security, radiological protection and safeguards, which include key objectives in licensing and inspection in accordance with the best international practices. FANR also oversees the implementation of the UAE's obligations under international treaties, conventions and agreements in the nuclear sector, and determines administrative standards, which support excellence in regulation.

FANR has achieved remarkable success in the UAE Peaceful Nuclear Energy Program through transparency in its operations and a dedication to sustainability through the capacity building of Emiratis in the nuclear sector at FANR. Furthermore, FANR has also gained international recognition as a competent regulatory body and for its close co-operation with the IAEA. In establishing its nuclear energy programme, the UAE enlisted the assistance of the IAEA and other competent bodies to ensure that the UAE's approach to fostering the independence, capability and competence of FANR fully reflects current international best practices. Conscious of its critical role in maintaining credibility through independence and competence, the Nuclear Law gave FANR the following IAEA-recommended powers:

1. establishing requirements and regulations;
2. issuing licences;
3. inspecting and assessing facilities and structures connected to facilities;
4. monitoring and enforcing compliance with regulations; and
5. establishing a state system for accounting and control of nuclear material (including spent fuel and radioactive waste) in accordance with IAEA safeguards obligations.

Among its other duties, FANR is also tasked with communicating with the IAEA on an ongoing basis to provide, for example, reports required by international agreements signed by the UAE as well as technical information concerning nuclear material and facilities.

B. Emirates Nuclear Energy Corporation (ENEC)

The Emirates Nuclear Energy Corporation was established in December 2009 by Abu Dhabi Law No. (21) of 2009, Establishing the Emirates Nuclear Energy Corporation, issued on 20 December 2009 (ENEC Law). The organisation is charged with implementing the UAE Peaceful Nuclear Energy Program as it delivers the nuclear power plant (NPP) that will produce electricity, supports economic development and provides opportunity for the people of the UAE. To this end, ENEC is:

1. working closely with the Abu Dhabi and UAE federal governments to ensure that the UAE Peaceful Nuclear Energy Program is aligned with the industrial infrastructure plans of the UAE;
2. developing the human resource capacity for the nuclear energy programme in co-ordination with the educational sector in the UAE; and
3. effectively engaging with the UAE community to ensure a high level of awareness and understanding about the programme and the role of nuclear energy in the nation's energy portfolio.

ENEC also serves as the investment arm of the Government of Abu Dhabi, making strategic investments in the nuclear sector, both domestically and internationally. ENEC commissioned and directed the studies and research required to fully evaluate the potential development of a peaceful nuclear power sector in the UAE. ENEC is also charged with directing the programmes and initiatives to develop the necessary human, technical and security infrastructure (including for the secure transport of nuclear materials and equipment) that would be required to support a safe and secure domestic nuclear power sector.

Since its inception, ENEC has been working to deliver safe, clean, reliable and efficient nuclear energy to the nation. In April 2010, ENEC selected the Barakah site in the Al Dhafra Region of Abu Dhabi for construction of the UAE's first NPP. Two years later, ENEC received a construction licence from FANR, for the construction of Barakah NPP Units 1 and 2. A second was issued in 2014 for the construction of Units 3 and 4. Once operational, the four nuclear power generating units will have a combined capacity of approximately 5 600 megawatt (MW) and will prevent the release of 21 million tons of carbon emissions annually.

The UAE began construction of Unit 1 in July 2012, followed by Unit 2 in 2013, Unit 3 in 2014 and Unit 4 in 2015. Construction of Units 2 through 4 is continuing in 2018 while Unit 1 is undergoing commissioning testing and is preparing for fuel load. The fuel is securely stored on site while the organisation ensures the first unit is operationally ready prior to loading fuel and proceeding with the remaining commissioning and testing activities. This is in line with the highest standards for NPP operation as promulgated by the World Association of Nuclear Operators (WANO), of which ENEC is a member of WANO's Atlanta Centre, and the US Institute for Nuclear Power Operations (INPO).

In addition to holding the construction licences for the project, ENEC also provides construction oversight and contract management services and leads the joint venture companies responsible for operating the NPP and the long-term sustainability of the programme. ENEC remains the title owner to both the Barakah site and the Barakah NPP.

C. Korea Electric Power Corporation (KEPCO)

The prime contractor selection process was designed to identify the best long-term partner for the UAE as it undertakes its nuclear energy programme. The process was guided by the Nuclear Policy, which set strict standards for safety and security, non-proliferation and sustainability. A team of more than 75 dedicated experts evaluated the bids for the UAE's first NPP. Collectively, the team had more than 900 years of directly relevant experience in NPP safety, design and construction; operations and maintenance; nuclear quality assurance, supply chain management and procurement; nuclear fuel management; siting analysis (including environmental impact assessment, seismology, geology, meteorology and hydrology); finance (including generation cost modelling and project finance); legal and contracting; programme management; utility operations; and communications and community relations.

After this thorough review process, ENEC selected KEPCO as the prime contractor in December 2009 to design, build and jointly operate the four 1 400 MW civil nuclear power reactors at the Barakah site. The value of the contract equalled approximately USD 20 billion, with a high percentage of the contract being offered under a fixed-price arrangement. KEPCO is Korea's largest public power electric utility with more than 40 years of experience in nuclear technology and NPP operation. KEPCO has developed a strong record for constructing nuclear power plants that meet stringent industry quality standards and are delivered on time and on budget.

KEPCO's APR1400 design is a third-generation, 1 400 MW pressurised water reactor (PWR). This design combines the latest developments in safety and performance with technology proven over decades of operations. The APR1400 is based on the System 80+ design, previously certified by the United States Nuclear Regulatory Commission (US NRC). The design has been adapted to suit the UAE's unique climate conditions and FANR's specific requirements. KEPCO submitted the APR1400 design to the US NRC for certification, which is undergoing review.

In 2016, ENEC signed a joint venture agreement with KEPCO that aims to ensure the long-term sustainable operation and commercial viability of the Barakah NPP. This agreement is an unprecedented partnership between two countries in the field of nuclear energy and is designed to successfully develop and operate a nuclear energy programme in adherence to the highest standards of safety, quality, security and operational transparency. The joint venture also established two subsidiary companies: Nawah Energy Company, the company responsible for operating the four Barakah units, and Barakah One Company (BOC), which manages the NPP's commercial interests. ENEC is the majority shareholder with 82%, while KEPCO holds an 18% stake in each company.

In parallel with the construction project, extensive training, human resource development, and education programmes have been launched as the UAE builds the capacity to staff the vast majority of the nuclear energy programme elements with national talent and develops the industrial infrastructure and commercial businesses to serve a thriving nuclear energy industry.

D. Nawah Energy Company (Nawah)

Nawah was incorporated in 2016 as a private joint stock company and is a joint venture between ENEC and KEPCO. Nawah is a multinational, multicultural and Emirati-led company, fostering the next generation of nuclear energy leaders in the UAE. It provides top national and international talent with a diverse, fast-paced and dynamic work environment where they can grow and develop.

Nawah was created to operate the four reactors at the Barakah site on behalf of ENEC via arrangements with Barakah One Company (BOC) via a plant services agreement (PSA). Under the PSA, Nawah is responsible for managing, operating, maintaining and eventually decommissioning the reactors at Barakah. Nawah is being developed into a fully staffed and qualified nuclear operator and works closely with KEPCO subsidiaries to operate and maintain the NPP.

E. Barakah One Company (BOC)

Established as a joint venture company, BOC is a part of ENEC's new corporate governance structure that will lead the delivery and long-term sustainability of the UAE Peaceful Nuclear Energy Program. Its mandate is to manage the commercial interests of the Barakah project, secure project finance from institutional and commercial lenders, and receive funds for the electricity generated from Barakah Units 1 through 4.

In October 2016, ENEC and KEPCO announced the financial close of the Barakah project. This deal is an important milestone and evidences the continued diversification of the Abu Dhabi energy sector. The support from credit agencies and commercial banks to the programme is a reflection of the robust project management and quality of the programme. Project financing was provided via direct loans from the Government of Abu Dhabi and the Export-Import Bank of Korea, loan agreements with five local and international commercial banks, and equity commitments for the establishment of the BOC in exchange for equity interest in the company, shared between ENEC and KEPCO. The BOC financing is the largest financing for a power project in the world and the first hybrid sovereign/project

financing structure for a contemporary new-build nuclear power station. It is also one of the largest joint venture transactions underpinning a contemporary new nuclear programme and the largest power deal in the Gulf region by far.

In November 2016, BOC signed the first nuclear energy power purchase agreement with Abu Dhabi Water and Electricity Company for the purchase of the nuclear-generated safe, clean, efficient and reliable electricity produced at the Barakah NPP.

International co-operation

The UAE established its Permanent Mission of the UAE to the IAEA in Vienna, Austria in 2008 to work closely with the IAEA. The objective of the Mission is to advance the interests of the UAE government in the area of peaceful uses of nuclear energy through effective diplomacy, negotiations, and daily engagement with the IAEA and the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), and to facilitate co-operation in nuclear safety, nuclear security, non-proliferation, safeguards, technical co-operation, and implementation of relevant international obligations. Through its active engagement with the international organisations in Vienna, the Mission represents the UAE government in various *fora*, including the IAEA General Conference, the IAEA Board of Governors, meetings on international conventions, IAEA committees and working groups, review conferences, CTBTO Preparatory Commission meetings, and others.

The Permanent Mission co-ordinates the implementation of international obligations stemming from agreements and conventions signed by the UAE with the IAEA. The Mission oversees the submission of required national reports and declarations, presents the UAE's efforts in implementing the provisions of the conventions and agreements and co-ordinates Technical Cooperation (TC) project implementation among national stakeholders. The UAE recognises the important role that the IAEA plays in facilitating the implementation of effective programmes aimed at improving the scientific and technological capabilities of member states. The UAE strongly supports the IAEA's TC programme, which assists its member states, including the UAE, in obtaining technical expertise in the areas of nuclear energy, nuclear security, nuclear safety and other nuclear applications in various fields.

The Permanent Mission assumes the role of National Liaison Officer, which constitutes the official channel through which the UAE partakes in IAEA activities, but also provides guidance to the Agency's TC Programme through General Conference resolutions and Board Decisions. The Mission facilitates dialogue with key national stakeholders in the TC programme, and supports human resource development in the nuclear field, through co-ordinating the participation of delegates and experts from the UAE in IAEA meetings and trainings. Furthermore, it oversees the planning and implementation of national and regional TC projects with the IAEA.

In addition to the UAE's co-operation with international organisations, the UAE has also signed a number of bilateral agreements for co-operation in the field of peaceful nuclear energy with numerous countries, including Argentina, Australia, Canada, France, Japan, Korea, the Russian Federation, the United Kingdom and the United States.

Adopted international agreements

The UAE has subscribed to all international instruments, treaties, agreements and conventions in connection with nuclear energy, nuclear safety, nuclear security and non-proliferation. In the 30 years prior to the deployment of the nuclear energy programme, the UAE joined/concluded/implemented eight international agreements. With the announcement of its nuclear energy programme and establishment of the Permanent Mission in 2008, the UAE joined seven additional international agreements.

The UAE is a party to all major international conventions and agreements under the auspices of the IAEA, including the:

- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (acceded, 2 October 1987);⁵
- Convention on Early Notification of a Nuclear Accident (acceded, 2 October 1987);⁶
- Treaty on the Non-Proliferation of Nuclear Weapons (acceded, 26 September 1995);⁷
- Comprehensive Nuclear-Test-Ban Treaty (ratified, 18 September 2000);⁸
- Comprehensive Safeguards Agreement between the UAE and the IAEA (signed, 15 December 2002);⁹
- Convention on the Physical Protection of Nuclear Material (acceded, 16 October 2003);¹⁰
- United Nations Security Council Resolution 1540 (implemented, first report submitted 2004);¹¹
- International Convention for the Suppression of Acts of Nuclear Terrorism (acceded, 10 January 2008);¹²

-
5. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986), IAEA Doc. INFCIRC/336, 1457 UNTS 134, entered into force 26 February 1987 (Assistance Convention).
 6. Convention on Early Notification of a Nuclear Accident (1986), IAEA Doc. INFCIRC/335, 1439 UNTS 276, entered into force 27 October 1986 (Early Notification Convention).
 7. Treaty on the Non-Proliferation of Nuclear Weapons (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 March 1970 (NPT).
 8. Comprehensive Nuclear-Test-Ban Treaty (1996) (not yet entered into force), available at: www.ctbto.org/fileadmin/content/treaty/treaty_text.pdf (Nuclear Test Ban Treaty).
 9. Agreement between the United Arab Emirates and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-proliferation of Nuclear Weapons, IAEA Doc. INFCIRC/662, entered into force 9 Oct. 2003.
 10. Convention on the Physical Protection of Nuclear Material, (1980), IAEA Doc. INFCIRC/274 Rev. 1, 1456 UNTS 125, entered into force 8 February 1987 (CPPNM).
 11. United Nations Security Council Resolution 1540 (2004), "Non-proliferation of weapons of mass destruction", UN Doc. S/RES/1540, adopted 28 April 2004.
 12. International Convention for the Suppression of Acts of Nuclear Terrorism (2005), 2445 UNTS 137, entered into force 7 July 2007 (Nuclear Terrorism Convention).

- Protocol Additional to the Comprehensive Safeguards Agreement between the UAE and the IAEA (signed, 8 April 2009);¹³
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (acceded, 31 July 2009);¹⁴
- Convention on Nuclear Safety (acceded, 31 July 2009);¹⁵
- Amendment to the Convention on the Physical Protection of Nuclear Material (accepted, 31 July 2009);¹⁶
- Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (acceded, 29 May 2012);¹⁷
- Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (acceded, 29 August 2012);¹⁸ and
- Convention on Supplementary Compensation for Nuclear Damage (ratified, 7 July 2014).¹⁹

A. Security, non-proliferation and trade

To enhance confidence and to support the non-proliferation efforts of the international community, the UAE adopted and enforces all major international non-proliferation instruments and is prepared to undertake further obligations to underpin the establishment of its peaceful and transparent nuclear energy programme.

The political commitment of the UAE to the peaceful use of nuclear power was made in 1995 upon its accession to the NPT as well as its ratification of the IAEA Comprehensive Safeguards Agreement in 2003. The UAE signed the Additional Protocol to its Comprehensive Safeguards Agreement in 2009, which establishes a procedure for stringent inspections and further demonstrates the UAE commitments to the highest standards of non-proliferation. The Additional Protocol was brought into force in 2010. The UAE views the application of a Comprehensive Safeguards Agreement, strengthened by the IAEA Additional Protocol, as an important component of its model for adopting a peaceful nuclear energy programme and it

-
13. Protocol Additional to the Agreement between the United Arab Emirates and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, IAEA Doc. INFCIRC/662/Add.1, entered into force 20 Dec. 2010.
 14. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), IAEA Doc. INFCIRC/546, 2153 UNTS 357, entered into force 18 June 2001 (Joint Convention).
 15. Convention on Nuclear Safety (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 October 1996 (CNS).
 16. Amendment to the Convention on the Physical Protection of Nuclear Material (2005), IAEA Doc. INFCIRC/274/Rev.1/Mod.1, entered into force 8 May 2016 (ACPPNM).
 17. Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (1997), IAEA Doc. INFCIRC/566, 2241 UNTS 302, entered into force 4 October 2003 (1997 Vienna Convention); Federal Decree No. 32 of 2012 Ratifying the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage of 1997.
 18. Joint Protocol Relating to the Application of the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Damage (1988), IAEA Doc. INFCIRC/402, 1672 UNTS 293, entered into force 27 April 1992 (Joint Protocol); Federal Decree No. 33 of 2012 Ratifying the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention of 1988.
 19. Convention on Supplementary Compensation for Nuclear Damage (1997), IAEA Doc. INFCIRC/567, 36 ILM 1473, entered into force 15 April 2015 (CSC); Federal Decree No. 51 of 2014 Ratifying the Convention on Supplementary Compensation for Nuclear Damage.

considers that these instruments are consistent with its commitment to complete operational transparency and to the highest standards of non-proliferation.

With regard to control of trade, the UAE continues to strengthen its export control regime to block and respond effectively to illicit trade of nuclear material or equipment. To this end, the UAE implements commitments under the NPT, the CPPNM and the Joint Convention. As a means of ensuring the establishment and maintenance of the most comprehensive and up-to-date export control regime, the UAE implements import and export control rules for nuclear and nuclear-related equipment and technology in line with the Nuclear Suppliers Group (NSG)²⁰ Guidelines.²¹ In connection with the broader need to regulate trade, the UAE established, under Federal Law No. 13 of 2007, a legal regime for commodities that are subject to import and export control procedures. Included within the scope of Federal Law No. 13 is a list of export-controlled technologies addressing nuclear materials, technologies and equipment.

B. Nuclear safety

In tandem with a commitment to reinforce non-proliferation obligations, the UAE undertakes all recommended international obligations for ensuring safety of nuclear activities. The UAE joined the Assistance and Notification Conventions in 1987 as a consequence of the Chernobyl accident and joined both the CNS and the Joint Convention in 2009.

With regard to the safety of facilities and as required by the CNS, the UAE implements a comprehensive regime that maintains a high level of safety according to international standards and ensures that all nuclear-related installations are operated in a safe, well-regulated and environmentally sound manner. With regard to the safety of radioactive waste and as required by the Joint Convention, the UAE will maintain a high level of safety in the management of spent fuel and radioactive waste. In such a scenario, appropriate measures will be established to ensure protection against radiological hazards at all stages of spent fuel and radioactive waste management, and emergency plans will be implemented at waste management and spent fuel facilities.

Nuclear liability

The UAE recognises that dealing with eventual nuclear liability claims under existing national compensation laws is greatly limited by the unique character of the risks posed by radioactive material. Consequently, as a critical element underpinning the establishment of a peaceful nuclear energy programme, the UAE joined two international instruments in this area in 2012, specifically, the 1997 Vienna Convention and the Joint Protocol. That same year, the UAE issued Federal Law by Decree No. 4 of 2012 Concerning Civil Liability for Nuclear Damage,²² which aims to regulate the provisions and determine the scope of civil liability and compensation for nuclear damage that could occur as a result of a nuclear incident.

20. The NSG “is a group of nuclear supplier countries that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of Guidelines for nuclear exports and nuclear-related exports.” NSG (n.d.), “About the NSG”, www.nuclearsuppliersgroup.org/en/about-us (accessed 2 May 2018).

21. IAEA (2016), “Guidelines for Nuclear Transfers”, IAEA Doc. INFCIRC/254/Rev.13/Part1; IAEA (2018), “Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software, and Related Technology”, IAEA Doc. INFCIRC/254/Rev.10/Part 2a (corrected).

22. Federal Law by Decree No. 4 of 2012 Concerning Civil Liability for Nuclear Damage (Nuclear Liability Law). An unofficial English translation of the Nuclear Law is available at: www.fanr.gov.ae/en/Lists/LawOfNuclear/Attachments/3/Federal-Law-by-Decree-No-4-of-2012-Concerning-Civil-Liability-for-Nuclear-Damage-English.pdf.

Two years later, the UAE joined the CSC, an international treaty developed as an umbrella for international liability conventions, providing the basis for a global nuclear liability regime.

The provisions of the Nuclear Liability Law are in line with the 1997 Vienna Convention and best international practices, providing for:

1. the legal and exclusive channelling of the liability for nuclear damage onto the operator of the NPP where the incident occurred (i.e. the exclusive liability of the operator);
2. the possibility of establishing the operator's liability without having the person suffering the damage prove negligence or any type of fault on the part of the operator (i.e. strict liability of the operator). Under the Nuclear Liability Law, the strict liability of the operator begins upon the arrival of fuel assemblies on site;²³
3. the unity of jurisdiction, i.e. the Federal Courts in Abu Dhabi will have sole jurisdiction for actions that may be brought in accordance with the Nuclear Liability Law;
4. the limitation of the liability amount, which is set under the Nuclear Liability Law not to exceed 450 million Special Drawing Rights (SDR);²⁴
5. the obligation of the operator to maintain insurance and guarantees required by FANR with respect to its liability for nuclear damage, i.e. up to SDR 450 million or any other amount determined by FANR. This insurance or other financial security shall be of such type and on such terms as approved by FANR;
6. the limitation in time of any actions for compensation under the Nuclear Liability Law, which may only be brought against the operator or the person providing financial security within 3 years from the date the person suffering damage had knowledge or ought reasonably to have had knowledge of the damage and of the operator liable, provided that such action is brought with respect to loss of life and personal injury within 30 years from the date of the nuclear incident, or with respect to other damage within 10 years from the date of the nuclear incident; and
7. the compensation of nuclear damage without discrimination on the basis of nationality, domicile or residence.

In accordance with the Nuclear Liability Law, FANR is deemed to be the competent authority for the implementation of the Law and may issue rules and regulations relating to the application of the provisions of the law.

For purposes of the Nuclear Liability Law, the term "nuclear damage" is consistent with the definition given by the 1997 Vienna Convention and includes death or personal injury, loss of or damage to property, economic loss, cost of restoring the impaired environment or loss of income from an economic interest as

23. The scope and limit of liability for fuel assembly transit is provided under the Nuclear Liability Law.

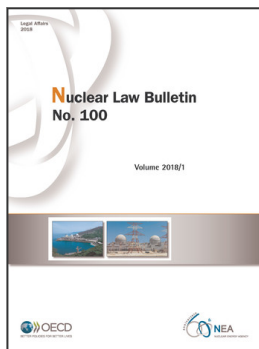
24. The SDR is a reserve asset defined and maintained by the International Monetary Fund (IMF). The value of the SDR is defined by a weighted currency basket of five major currencies: the US dollar, the euro, the British pound sterling, the Chinese renminbi and the Japanese yen. For more detailed discussion on the SDR, see IMF (2018), "Special Drawing Rights (SDR)", www.imf.org/en/About/Factsheets/Sheets/2016/08/01/14/51/Special-Drawing-Right-SDR. As of 2 May 2018, SDR 1 equals approximately USD 1.43. For the current SDR value, see IMF, "SDR Valuation", www.imf.org/external/np/fin/data/rms_sdrv.aspx.

a result of such impairment, preventive measures arising from further loss or damages of the said measures, and any other economic loss as a result of a nuclear accident. The Nuclear Liability Law sets standards to provide financial protection against nuclear damage resulting from nuclear incidents. If the operator is not able, after exhausting all efforts, to obtain full insurance coverage, FANR may determine that the required insurance is not available in domestic or international insurance markets, or that the insurance coverage is not available or is temporarily suspended, in which case the non-insurable risks will be covered directly by the UAE up to SDR 450 million until such time as FANR announces the availability of the insurance coverage and gives the relevant parties a period of time to obtain such insurance. The provisions of the law will not impede the rights or obligations of any person to obtain compensation under any health insurance scheme, employees' compensation or other occupational disease compensation scheme.

Conclusion

ENEC is proud to lead the development of the UAE Peaceful Nuclear Energy Program and deliver the country's first nuclear power plant. With this first peaceful, civilian nuclear energy programme, the UAE serves as an example for countries around the world embarking on or considering the development of nuclear energy.

The UAE's approach to peaceful nuclear energy was thoughtful and deliberate. The country's leadership insisted on looking beyond obvious energy solutions in the planning stage, such as long-term reliance on the nation's oil wealth. UAE decision makers also engaged and involved the best experts in energy development issues around the world and opted to develop civilian nuclear energy only after careful and extended study. As the Barakah site prepares to become a combined construction and operating site in 2018, the UAE contributes to the global nuclear energy industry with lessons learnt from the construction project and it will continue to do so as the nuclear power plant enters commercial operation.



From:
Nuclear Law Bulletin

Access the journal at:
<https://doi.org/10.1787/16097378>

Please cite this article as:

OECD (2018), "Studies", *Nuclear Law Bulletin*, Vol. 2018/1.

DOI: https://doi.org/10.1787/nuclear_law-2018-5j8jpspsxf1

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.