



Peaceful Nuclear Energy

The UAE is pursuing a peaceful, civilian nuclear energy program that upholds the highest standards of safety, security, nonproliferation and operational transparency. Government officials, nonproliferation advocates, and energy experts worldwide have called the UAE approach a gold standard for countries interested in exploring nuclear energy for the first time.

The Need for Electricity

The development of a peaceful, civilian nuclear energy program was based on an in-depth evaluation of the UAE's future energy needs. An initial study determined that national annual peak demand for electricity is likely to rise to more than 40,000 megawatts by 2020, reflecting a cumulative annual growth rate of about nine percent from 2007. Even with adjustments to account for the worldwide economic slowdown, the projected demand is well beyond current capacity.

The UAE then studied options to meet this demand. This evaluation was wide-ranging and determined that:

- Natural gas that could be made available to the nation's electricity sector would be insufficient to meet future demand.
- The burning of liquids (crude oil and/or diesel) would be logistically viable but costly and environmentally harmful.
- Coal-fired power generation, while potentially cheaper, would be environmentally unacceptable, and potentially vulnerable from a security of supply standpoint.
- And finally, deployment of renewable and other alternative energy supplies, while desirable, would be able to supply only 6 to 7 percent of the required electricity generation capacity by 2020.

The UAE Policy on Nuclear Energy

In developing its nuclear energy policy, the UAE government made its peaceful objectives unambiguous. A policy document released in April 2008 outlined a series of commitments, including the decision to forgo domestic enrichment and reprocessing of nuclear fuel, the two parts of the nuclear fuel cycle that can most readily be used for non-peaceful purposes. Other commitments were:

1. The UAE is committed to complete operational transparency.
2. The UAE is committed to pursuing the highest standards of non-proliferation.

3. The UAE is committed to the highest standards of safety and security.
4. The UAE will work directly with the IAEA and conform to its standards in evaluating and potentially establishing a peaceful nuclear energy program.
5. 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.
6. The UAE will approach any peaceful domestic nuclear power program in a manner that best ensures long-term sustainability.

These policies are enshrined in a number of mechanisms, including the UAE Nuclear Law signed in October 2009.

In April 2009, the UAE and IAEA signed the Additional Protocol to the Comprehensive Safeguards Agreement, which establishes a procedure for stringent inspections of nuclear facilities and operations.

The UAE Nuclear Law takes into account the obligations that stem from the Additional Protocol and other international instruments. The UAE views the application of a comprehensive safeguards agreement, bolstered by the IAEA Additional Protocol, as an important component of its model for the adoption of peaceful nuclear energy and as being consistent with its commitment to complete operational transparency and the highest standards of non-proliferation.

The UAE has now signed or is in the process of signing agreements for cooperation in the field of peaceful nuclear energy with numerous countries, including France, Korea, the United States and others.

Nuclear Energy Infrastructure and Implementation

The key entities implementing the UAE's nuclear energy program are the:

- **Federal Authority for Nuclear Regulation (FANR).** An independent federal agency charged with regulation and licensing of all nuclear energy activities in the UAE with public safety as its primary objective. It will be headed by a former high-level official with the US Nuclear Regulatory Commission.
- **Emirates Nuclear Energy Corporation (ENEC).** A corporation, wholly Abu Dhabi-owned, charged with developing nuclear power plants within the UAE. ENEC will contract with a primary contractor for the construction of Abu Dhabi's nuclear plants.
- **International Advisory Board.** This advisory body, to include former heads of national regulatory bodies, nuclear industry leaders, and recognized academic authorities, will report directly to the Ministry of Presidential Affairs and provide independent assessments of the status and performance of the various entities associated with the UAE civil nuclear program, as well as analyze progress made in addressing any areas of potential concern.

ENEC announced in December 2009 that it had selected a consortium led by Korea Electric Power Corporation (KEPCO) to design, build and help operate civil nuclear power plants for the UAE peaceful nuclear energy program. The KEPCO team includes US-based Westinghouse. The first of the four units is scheduled to begin providing electricity to the grid in 2017, with the three later units being completed by 2020.

ENEC is in the process of developing and implementing a strategy for the management

of all nuclear fuel cycle activities including the procurement, use, and short- and long-term management of nuclear fuel for its nuclear power plants. The strategy conforms to IAEA guidelines and will be continually updated, taking into account new information and technological advances from the nuclear industry during the next decades, before the long-term spent fuel management plan is implemented.

US-UAE Peaceful Nuclear Energy Cooperation

In December 2009, a US-UAE bilateral agreement for peaceful nuclear cooperation went into force, enhancing international standards of nuclear non-proliferation, safety and security. Known as a “123 Agreement,” the pact establishes a required legal framework for commerce in civilian nuclear energy between the two countries.

A number of US firms are involved in the UAE nuclear energy program.

- Westinghouse, headquartered in Cranberry, Pennsylvania, is part of the winning KEPCO team and will provide major components, instrumentation and control equipment, and design technical and engineering support services.
- Virginia-based Lightbridge Corporation has provided consulting services to the UAE on the design, development and management of the key organizations required to implement a nuclear energy program according to the highest international standards.
- Englewood, Colorado-based CH2M Hill won a 10-year contract to manage the UAE's nuclear program in October 2008.
- Paul C. Rizzo Associates, a leading global engineering and consulting firm based in Pennsylvania, is working on site placement and engineering during the planning process.

Other Steps to Support Nonproliferation

- The UAE joined the Nonproliferation Treaty in 1996, is a member of the International Atomic Energy Agency, and cooperates with the Missile Technology Control Regime. The UAE is also a partner nation on the Global Initiative to Combat Nuclear Terrorism.
- In August 2008, the UAE pledged \$10 million to support an IAEA-administered international uranium fuel bank initiative, resulting from a proposal by the Nuclear Threat Initiative (NTI). The fund is designed to provide assurances against supply disruptions, while strengthening the nuclear non-proliferation regime.
- The UAE is working with the US Department of Energy to implement the Megaports Initiative, a cooperative effort aimed at deterring terrorists from using the world's seaports to ship illicit materials; detecting nuclear or radioactive materials if shipped via sea cargo; and interdicting harmful materials so they cannot be used by terrorists.
- The UAE is a signatory to the Proliferation Security Initiative (PSI), which is aimed at stopping shipments of weapons of mass destruction, their delivery systems, and related materials worldwide.
- The UAE participates in the US Container Security Initiative (CSI), a security regime that includes a team of US Customs and Border Protection officers permanently stationed inside Dubai's ports, where they work closely with Dubai Customs to screen containers destined for the United States.

- Ports operated by Dubai Ports World participate in the Secure Freight Initiative, a US Department of Homeland Security pilot program to test the methods used to screen US-bound cargo for radiation.
- Dubai Ports World has been certified as a partner in the Customs-Trade Partnership Against Terrorism, a government-business cargo security initiative led by the US Department of Homeland Security's Customs and Border Protection component.
- The US Department of State, through its Export Control and Related Border Security Assistance program, is helping the UAE improve its enforcement and licensing capabilities aimed at curbing the transshipment of illicit materials.

January 2010