

## 1. Location and capability of nuclear facilities

About 97% of South Korea's energy needs are supplied by imports. The country began operating a nuclear power program in 1977, and today 20 nuclear reactors provide about 40% of the country's electricity. Most of the nuclear power generation in South Korea is state owned but a privatization process has started and a few private producers exist. <http://www.world-nuclear.org/info/inf81.html>; <http://www.eia.doe.gov/emeu/cabs/skorea.html>; <http://www.world-nuclear.org/info/reactors.htm>

### Power Reactors

Operational: 20

Under construction/planned: 8

Decommissioned: 2 are slated for decommissioning around 2008

<http://www.iaea.or.at/programmes/a2/>; <http://www.world-nuclear.org/info/inf81.html>

On 28 April 2006, a ground-breaking ceremony for Units 1 and 2 of the Shin-Wolsong Nuclear Power Plant took place. Unit 1 should be complete by 2011, and Unit 2 by 2012. [http://www.doosanheavy.com/eng/5/bbs01/view.asp?tablename=ENG\\_NEWS\\_TBL&bbs\\_type=2&num=204&page=9&inform\\_num=0](http://www.doosanheavy.com/eng/5/bbs01/view.asp?tablename=ENG_NEWS_TBL&bbs_type=2&num=204&page=9&inform_num=0)

### Research Reactors

Operational: 2

Shut down: 2

<http://www.iaea.or.at/worldatom/rrdb/>

### Fuel cycle facilities

The Korean Atomic Research Institute (KAERI) has developed both pressurized water reactor (PWR) and CANDU fuel technology. It and Korea Nuclear Fuel Company (KNFC) have supplied PWR fuel since 1990 and unenriched CANDU fuel since 1987. Uranium for fuel comes from Canada, Australia, and elsewhere. <http://www.world-nuclear.org/info/inf81.html>

In October 2004, South Korea admitted several activities to the IAEA that had not been previously declared as required under the safeguards agreement. In particular, the Korean Atomic Energy Research Institute (KAERI) had separated small quantities of plutonium in 1982, manufactured depleted uranium munitions from 1983 to 1987, and experimented with uranium enrichment in 2000. South Korea insisted that the experiments were conducted without political or military oversight or direction and were not supported by the government. The quantities of fissile material from either the plutonium separation or uranium enrichment experiments would not have been enough to create weapons. However, the fact that South Korea did this research and kept it secret could have troubling implications for the future of non-proliferation in the region.

[http://www.cdi.org/program/document.cfm?DocumentID=2429&ProgramID=32&StartRow=261&ListRows=10&from\\_page=../whatsnew/index.cfm](http://www.cdi.org/program/document.cfm?DocumentID=2429&ProgramID=32&StartRow=261&ListRows=10&from_page=../whatsnew/index.cfm)

### Uranium Mining

Uranium prospecting and exploration is being performed by Oriental Minerals Inc., a Canadian-based company. <http://www.wise-uranium.org/upasi.html#KR>

## 2. Fissile Material Holdings

### Irradiated Civil Plutonium end 2003

In country: 44 tons

[http://www.isis-online.org/global\\_stocks/end2003/civil\\_heu\\_watch2005.pdf](http://www.isis-online.org/global_stocks/end2003/civil_heu_watch2005.pdf)

[http://www.isis-online.org/global\\_stocks/end2003/plutonium\\_watch2005.pdf](http://www.isis-online.org/global_stocks/end2003/plutonium_watch2005.pdf)

### Highly Enriched Uranium end 2003: 0.002 tons

Supplied by: US

### **Radioactive waste disposal**

*Low- and intermediate-level waste:* Spent fuel is stored at each reactor site. A central disposal repository is proposed for low- and intermediate-level waste from about 2008. The location for the site should be selected by September 2005, and residents of the candidate site will take the final decision by a vote.

*High-level waste:* Spent fuel is stored on the reactor site. A centralized interim storage facility with a 20,000 ton capacity is expected to be constructed by 2016. Dry storage is used for CANDU fuel after 6 years cooling. In June 2006, the government announced that the Gyeongju repository would have a number of silos and caverns some 80m below the surface, initially with capacity for 100,000 drums and costing US\$ 730 million. A further 700,000 drum capacity would be built later, with a total cost of to US\$ 1.15 billion. <http://www.world-nuclear.org/info/inf81.html>

## **3. Nuclear Activities**

### **Research Centers**

APCTP: Asia Pacific Center for Theoretical Physics  
DICER: Digital Information Center for Environment Research  
Hanaro Research Reactor  
KAERI: Korea Atomic Energy Research Institute  
KBSI: Korea Basic Science Institute  
KEEI: Korea Energy Economics Institute  
KEPRI: Korea Electric Power Research Institute  
KIST: Korea Inst of Science & Technology  
KISTEP - Korea Institute of Science & Technology Evaluation & Planning KR / EN  
KNICS - Korea Nuclear I&C System R&D Center  
KORTIC: Korea Radiation Technology Institute  
NETEC: Nuclear Environment Technology Institute  
NUPERM: Nuclear Power Performance Management Research Center  
Pohang Pulsed Neutron Facility  
SAFE Research Center  
TCNC: Technology Center for Nuclear Control  
<http://www.radwaste.org/research.htm>

### **Nuclear Cooperation**

*US, Europe, Canada:* In 1996, South Korea imported units from ABB Combustion Engineering in USA, Framatome in Europe and AECL in Canada.  
<http://www.iaea.org/About/Policy/GC/GC47/Documents/gc47inf-8.pdf>

*China:* In 1994, the two countries signed an agreement for cooperation in Chinese nuclear power projects. A number of similar agreements have been signed since then.  
<http://www.nti.org/db/china/nca.htm>

*North Korea:* North Korean technicians have attended safety training programs in South Korea during 2001. KHNP (Korea Hydro & Nuclear Power Co Ltd) is building two reactors at Kumho in North Korea, contracted by the Korean Energy Development Organisation. The Joint Declaration on the Denuclearization of The Korean Peninsula was signed in 1992, but both sides have failed to implement the agreement on a bilateral inspection regime. [http://www.cscap.nucstrans.org/Nuc\\_Trans/links/cossasum-2002.htm](http://www.cscap.nucstrans.org/Nuc_Trans/links/cossasum-2002.htm); <http://www.world-nuclear.org/info/inf81.html>

*Uzbekistan:* In 2006, the Uzbek and South Korean prime ministers signed an agreement to ship Uzbek uranium ore concentrate to South Korea at the rate of 300 tons of uranium per year between 2010 and 2014. <http://www.wise-uranium.org/upasi.html#UZGEN>

*Algeria:* During May 2006, an 11-member Algerian delegation visited South Korea to discuss bilateral nuclear cooperation. [http://www.wmdinsights.com/16/16\\_AF2\\_AlgeriaSeeks.htm](http://www.wmdinsights.com/16/16_AF2_AlgeriaSeeks.htm)

#### 4. International Non-proliferation Efforts

##### **Treaties Signed and Ratified, date of deposit**

##### **Antarctic Treaty, 28 November 1986**

Biological Weapons Convention, 25 June 1987

Certain Conventional Weapons Convention, 9 May 2001

Chemical Weapons Convention, 28 April 1997

Comprehensive Nuclear Test Ban Treaty, 24 September 1999

Convention on the Physical Protection of Nuclear Material, 7 April 1982

Nuclear Non-Proliferation Treaty, 23 April 1975

Outer Space Treaty, 13 October 1967

Seabed Treaty, 25 June 1987

South Korea ratified the IAEA Additional Protocol on 19 February 2004.

##### **Multilateral Groups**

##### **Australia Group**

Conference on Disarmament

Hague Code of Conduct

Nuclear Suppliers Group

Proliferation Security Initiative

South Korea is also one of six states involved in negotiations over North Korea's nuclear weapons programme.

#### 5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

*Negative Security Assurances:* "To relieve the security concerns of non-nuclear weapon states, we believe that strong and credible security assurances should be granted by nuclear weapon states to NPT States Parties that are in full compliance with the Treaty and other safeguard obligations. Through such actions the nuclear weapon states could significantly reduce the misguided perception of some non-nuclear weapon states that acquiring nuclear weapons is a path to increased security. And let me state here very clearly that the acquisition, development, and maintenance of nuclear arsenals is not a sustainable path to peace or security." - **Statement by Ambassador Y.J. Choi to the Sixty-First General Assembly First Committee on Disarmament and International Security, 4 October 2006.** <http://www.reachingcriticalwill.org/political/1com/1com06/statements/rokoct4.pdf>

*Fissile Material Cut-off Treaty:* "We call for a prompt commencement of negotiations on the Fissile Material Cut-off Treaty (FMCT) and its early conclusion. We call upon all nuclear weapon states and the non-NPT states to declare and abide by a moratorium on the production of fissile material or any nuclear weapons pending the entry into force of the FMCT." - **Statement by Deputy Minister Chun Yung-woo to the Seventh Review Conference of the NPT, 3 May 2005.** <http://www.un.org/events/npt2005/statements/npt03korea.pdf>

*Nuclear Disarmament:* "Through substantial and unequivocal progress made on disarmament, we believe that nuclear weapon states would enhance their moral authority with which to discourage the potential proliferators from seeking nuclear ambitions, by assuring them that the long-term goal of a world free of nuclear weapons is indeed seriously pursued and universally shared." - **Statement by H.E. Ambassador Park In-kook to the Seventh Review Conference of the NPT, 19 May 2005.** <http://www.reachingcriticalwill.org/legal/npt/RevCon05/MCI/SKorea.pdf>