Pakistan’s Nuclear Programme
M. Suleman Shahid

Outline:
- Origin.
- Weapon development.
- Nuclear tests.
- Nuclear force.
- Nuclear doctrine/policy.
- Command and control system.
- Nuclear power production.
- Nuclear power plants.
- Peaceful uses of nuclear energy.
- Nuclear safety measures.
- Discrimination by the NSG.

Origin

The Pakistan Atomic Energy Commission (PAEC) was set up in 1956 so that it could participate in the Atoms for Peace programme launched by U.S. President Eisenhower. In 1960, the U.S. gave Pakistan a $350,000 grant to help prepare the country for its first research reactor which America agreed to supply two years later. This reactor, a 5 MW light-water research reactor known as the Pakistan Atomic Research Reactor (PARR-1), began operating in 1965 at the Pakistan Institute of Nuclear Science and Technology (PINSTECH) in Nilore, near Islamabad. In 1963, Zulfiqar Ali Bhutto became the foreign minister, carrying his interest in nuclear capabilities into office with him. He watched with growing concern as China moved closer to nuclear capability, and in response India's domestic rhetoric on the subject grew more bellicose. In 1971, the Canadian General Electric Co. completed a 137 MW (electrical) CANDU power reactor for the Karachi Nuclear Power Plant (KANUPP) which went critical in August 1971 and began commercial operation in October 1972.¹

Weapon development

Pakistan's nuclear weapons programme was started in 1972 by Zulfiqar Ali Bhutto while he was the Minister for Fuel, Power and Natural Resources, and later...

¹ http://nuclearweaponarchive.org/Pakistan/PakOrigin.html
became President and Prime Minister. In view of the 1965 war with India, the loss of East Pakistan in the 1971 war with India and unreliability of Pakistan’s allies during these wars, gave the motivation for Pakistan to start its nuclear programme. Pakistan felt an existential threat from India's 1974 testing of a nuclear "device" and that gave Pakistan's nuclear programme added momentum. The arrival of Dr. Abdul Qadeer Khan in 1975 considerably advanced nuclear weapons efforts. Dr. Khan is a German-trained metallurgist who brought with him knowledge of gas centrifuge technologies that he had acquired through his position at the classified URENCO uranium enrichment plant in the Netherlands. In 1985, Pakistan crossed the threshold of weapons-grade uranium production, and by 1986 it is thought to have produced enough fissile material for a nuclear weapon. Pakistan continued advancing its uranium enrichment programme.

Tests

In 1998, the Bharatiya Janata Party (BJP)—a hardcore right-wing Hindu party—came into power in India. The BJP has more aggressive attitude towards Pakistan than any other Indian political party. Immediately upon seizing power in India by BJP, on May 11 and May 13, India conducted five nuclear tests. After these tests, Indian leaders directly threatened Pakistan to change its stance on the core issue of Kashmir and another war. Indian Home Minister, Lal Krishna Advani, next in power and influence in the ruling BJP to the prime minister, warned that Pakistan should realize that the Indian nuclear tests had changed the strategic balance. He demanded that Pakistan roll back what he described as its anti-India policy. The minister for Parliamentary Affairs, Madanlal Khurana, challenged Pakistan to “a fourth war”. Pakistan could not ignore the threats. The spokesman for the U.S. Department of State said, “India is foolishly and dangerously increasing tensions with its neighbors.”² Keeping all these developments in view, on May 28, 1998, Pakistan successfully conducted five nuclear tests in response to the five Indian nuclear tests which had been conducted on May 11 and May 13, 1998. On May 30, 1998, Pakistan successfully conducted another nuclear test.

² Abdul Sattar, Pakistan’s Foreign Policy 1947-2005: A Concise history, p. 201.
<table>
<thead>
<tr>
<th>Date</th>
<th>Country</th>
<th>Total tests</th>
<th>Code Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 28, 1998</td>
<td>Pakistan</td>
<td>5</td>
<td>Chagai-I</td>
</tr>
<tr>
<td>May 30, 1998</td>
<td>Pakistan</td>
<td>1</td>
<td>Chagai-II</td>
</tr>
</tbody>
</table>

Pakistan (2 tests)
Not a CTBT signatory.

Nuclear force

<table>
<thead>
<tr>
<th>Country</th>
<th>Deployed strategic</th>
<th>Non-strategic</th>
<th>Non-deployed warheads</th>
<th>Total inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>--</td>
<td>--</td>
<td>90-110</td>
<td>90-110</td>
</tr>
</tbody>
</table>

Weapons delivery system

<table>
<thead>
<tr>
<th>Pakistan’s nuclear weapon delivery systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery system</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Aircraft</td>
</tr>
<tr>
<td>Aircraft F-16A/B</td>
</tr>
<tr>
<td>Mirage V</td>
</tr>
<tr>
<td>Ballistic missiles</td>
</tr>
<tr>
<td>Abdali (Hatf-2)</td>
</tr>
<tr>
<td>Ghaznavi (Hatf-3)</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Ballistic missiles</th>
<th>Range (km)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaheen-1 (Hatf-4)</td>
<td>&gt;450</td>
<td>2003</td>
</tr>
<tr>
<td>Ghauri (Hatf-5)</td>
<td>1,200</td>
<td>2003</td>
</tr>
<tr>
<td>Shaheen-2 (Hatf-6)</td>
<td>2,000</td>
<td>2011</td>
</tr>
<tr>
<td>Nasr (Hatf-9)</td>
<td>60</td>
<td>2014</td>
</tr>
</tbody>
</table>

**Cruise missiles**

<table>
<thead>
<tr>
<th>Rocket</th>
<th>Range (km)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babur (Hatf-7)</td>
<td>600</td>
<td>2011</td>
</tr>
<tr>
<td>Ra’ad (Hatf-8)</td>
<td>350</td>
<td>2013</td>
</tr>
</tbody>
</table>

**Nuclear doctrine/policy**

Though Pakistan has not formally announced a nuclear doctrine, the two statements by Abdul Sattar clearly highlight the salient aspects of Pakistan’s nuclear policy and can be summarized as follows:

- Pakistan’s policy will be based on a minimum credible deterrence.
- It will eschew a strategic arms race with India.
- It will continue to support international arms control regimes, which are non-discriminatory in nature.
- It will participate in the FMCT negotiations.
- It will refrain from further nuclear testing.
- Pakistan will strengthen existing controls on the export of nuclear technology through administrative and legal mechanisms.

On other occasions, responsible officials and those at the highest levels of leadership have also alluded to some key points of Pakistan’s nuclear policy. Former President Musharraf also used the term ‘minimum defensive deterrence’, which apparently is meant to convey the same meaning as ‘minimum credible deterrence’, but with an emphasis on the defensive nature of Pakistan’s nuclear deterrence.

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Nuclear command and control:

Pakistan’s nuclear command and control comprises a three-tiered structure:

- National Command Authority (NCA).
- Strategic Plans Division (SPD).
- Services Strategic Force Command.

The first tier is the NCA, which is chaired by the president of Pakistan. The NCA has two committees, i.e., the Employment Control Committee, and the Development Control Committee. The Development Control Committee translates the decisions of the employment control committee into developmental goals and oversees their implementation. The second tier of command is the SPD, which acts as the permanent secretariat of the NCA. The SPD formulates policy options for approval by the NCA and, once the decisions have been taken, oversees their implementation. The SPD is organized in a manner so that it can take care of all aspects related to the management of the nuclear capability, and takes care of the administrative, budgetary, safety and security aspects of the nuclear entities. The third tier is the services strategic force commands, which are the custodians of the delivery systems and are responsible for training, maintenance and administration of these systems. The operational control, however, is retained by the NCA. The organizational structures of the NCA and the SPD are as follow:  

National Command Authority

Prime Minister (Chairman)

- **Employment Control Committee**
  - *Deputy Chair:* Foreign Minister
  - Minister for Defence
  - Minister for Interior
  - Minister for Finance
  - Chairman JCSC
  - COAS/VCOAS
  - CNS
  - CAS
  - *Secretary:* DG SPD
  - *Others:* as required

- **Development Control Committee**
  - *Deputy Chair:* CJCSC
  - COAS/VCOAS
  - CNS
  - CAS
  - Heads of concerned strategic orgs.
  - *Secretary:* DG SPD

- **Services Strategic Forces (Operational Control - NCA)**
- Army
- Navy
- PAF

(Technical, Training & Administrative Control)
The organization of the SPD, as originally conceived, has withstood the test of time over the years. However, some changes have been made to enable it to effectively perform its assigned responsibilities, and some of its components have seen substantial growth. A case in point is the security division of the NCA, which is not only responsible for the physical security of assets and installations, but also personnel security. It now has more than 10,000 personnel, is headed by two-star general and a dedicated Personnel Reliability Programme (PRP) Directorate.\(^7\)

**Nuclear power production:**

\(^7\) Brig (R) NaeemSalik, *The Genesis of South Asian Nuclear Deterrence, Pakistan’s Perspective*, P-237
Pakistan, at the moment, has an installed electricity generation capacity of 22,797 Megawatt. The average demand is almost 17,000 Megawatt, whereas the shortfall slides back and forth between 4,000 to 5,000 Megawatt. The overall energy mix consists of oil (35.2 per cent), hydel (29.9 per cent), and gas (29 per cent), nuclear energy and imported (almost 5.8 percent).\(^8\)

Pakistan has a small nuclear power programme, with 725 MWe capacity, but is moving to increase this substantially. In November last year, Prime Minister Nawaz Sharif had announced that his administration has envisioned that nuclear energy will add 40,000 MW to the national grid by the year 2050 at an affordable cost.\(^9\)

### Operating reactors in Pakistan\(^10\)

<table>
<thead>
<tr>
<th>Reactor</th>
<th>Province</th>
<th>Type</th>
<th>MWe net</th>
<th>Construction start</th>
<th>Commercial operation</th>
<th>Planned close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karachi 1</td>
<td>Sindh</td>
<td>PHWR</td>
<td>125</td>
<td>1966</td>
<td>1972</td>
<td>2019</td>
</tr>
<tr>
<td>Chashma 1</td>
<td>Punjab</td>
<td>PWR</td>
<td>300</td>
<td>June 2000</td>
<td>May 2011</td>
<td>2040</td>
</tr>
<tr>
<td>Chashma 2</td>
<td>Punjab</td>
<td>PWR</td>
<td>300</td>
<td>2005</td>
<td>2051</td>
<td></td>
</tr>
<tr>
<td>Total (3)</td>
<td></td>
<td></td>
<td>725 operating</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Karachi is also known as KANUPP, Chasma as CHASNUPP.*

In June 2008, the Pakistan People’s Party government announced its plan to build two more nuclear power plants, Chasma-3 and Chasma-4, each with a 320 MW gross capacity and largely financed by China. The 300 Megawatt Chasma-2 in fact was officially inaugurated by the then Prime Minister Yusuf Raza Gilani on

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May 10, 2011. He also approved the construction work for Chashma-3 and Chashma-4 nuclear power plants during the same year.\(^\text{11}\)

### Nuclear power reactors under construction and planned\(^\text{12}\)

<table>
<thead>
<tr>
<th>Reactor</th>
<th>Province</th>
<th>Type</th>
<th>MWe gross</th>
<th>Construction Start</th>
<th>Planned Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chashma 3</td>
<td>Punjab</td>
<td>CNP-300</td>
<td>340</td>
<td>May 2011</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>Chashma 4</td>
<td>Punjab</td>
<td>CNP-300</td>
<td>340</td>
<td>Dec 2011</td>
<td>October 2017</td>
</tr>
<tr>
<td>Karachi Coastal 1</td>
<td>Sindh</td>
<td>ACP1000</td>
<td>1100</td>
<td>Late 2014</td>
<td></td>
</tr>
<tr>
<td>Karachi Coastal 2</td>
<td>Sindh</td>
<td>ACP1000</td>
<td>1100</td>
<td>Late 2015?</td>
<td></td>
</tr>
<tr>
<td><strong>Total (4)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>2880</strong></td>
</tr>
</tbody>
</table>

*Karachi Coastal is also known as KANU"PP 2&3*

According to the Pakistan Atomic Energy Commission (PEAC), Kanupp-2 (K-2) and Kanupp-3 (K-3) will alleviate the agonizing energy shortages experienced by the citizens of Pakistan, and particularly the people of Karachi city. The establishment of these two nuclear power reactors could significantly reduce the overall energy shortfall and would constitute a significant part of the national energy mix.\(^\text{13}\)

**Peaceful uses of nuclear energy:**\(^\text{14}\)

In 1955, the Government of Pakistan established a 12-member committee of scientists for promotion of peaceful uses of nuclear science and technology. One year later, the Pakistan Atomic Energy Council was constitutionally established.

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established by a Parliamentary Act as part of the prime minister’s nuclear policy. The administrative structure of the Council underwent a fundamental change when the Pakistan Atomic Energy Ordinance was promulgated by the president of Pakistan on May 27, 1965. Under this Ordinance, the Pakistan Atomic Energy Commission (PAEC) was established as a statutory body with powers subject to the provisions of the Ordinance.

According to the Ordinance, “the function of the Commission shall be to do all acts and things, including research work, necessary for the promotion of the peaceful uses of atomic energy in the fields of agriculture, medicine and industry and for the execution of development projects involving nuclear power stations and the generation of electric power.” The PAEC is pursuing numerous programmes and is conducting research and development in many diverse scientific areas, including, inter-alia, the following:

- Basic and applied sciences.
- Food, agriculture and biotechnology.
- Human health.
- Energy.
- Industry (engineering).

**Research and development in PAEC:**

The PAEC is operating following research institutes in the country:

- Pakistan Institute of Nuclear Science and Technology (PINSTECH), Islamabad.
- Nuclear Institute of Agriculture (NIA), Tandojam.
- Nuclear Institute of Agriculture and Biology (NIAB), Faisalabad.
- Nuclear Institute for Food and Agriculture (NIFA), Peshawar.
- National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad.
- National Institute of Lasers and Optronics (NILOP), Islamabad.

**Human health:**
The Pakistan Atomic Energy Commission (PAEC), since its inception, has been playing a vital role in the health sector of Pakistan. The Commission is the pioneer in using the nuclear and other advanced techniques for diagnosis and treatment of cancerous and allied diseases and is actively involved in the national cancer awareness, prevention, and diagnosis and treatment programme. The PAEC is putting a lot of emphasis on peaceful applications of nuclear energy in the medical sector and has so far established 15 nuclear medicine and oncology (cancer) hospitals throughout the country, whereas five new cancer hospitals are in different phases of construction in different cities.

**Health programmes:**

- Cancer awareness and prevention campaign.
- Cancer control programme.
- National Cancer Research Centre (NCRC), Islamabad.
- Cancer registry programme.
- Programme of action for cancer therapy (PACT).

**Education and training centres:**

- Pakistan Institute of Engineering and Applied Sciences (PIEAS).
- Karachi Institute of Nuclear Power Engineering (KINPOE).
- CHASNUPP Centre of Nuclear Training (CHASCENT).
- National Centre for Non-Destructive Testing (NCNDT).
- Pakistan Welding Institute (PWI).

**Nuclear regulatory infrastructure:**

The establishment of the Pakistan Nuclear Regulatory Authority (PNRA) has gone through an evolutionary process. The PNRA regulates a wide range of nuclear and radiation facilities such as research and power reactors, diagnostic radiology, radiation oncology, radiotherapy and the use of radioisotopes in industrial, agriculture and research domains through a well-established regulatory process. The process includes granting authorization/issuing license for the use of nuclear materials and radioactive sources; assessing the safety; performing inspection to ensure that regulations concerning safety and security measures are
properly followed; and taking necessary enforcement actions if violations of regulatory requirements are observed. Since its inception, the PNRA has strived hard to achieve its objects.

**Nuclear fuel cycle:**

The PAEC has made significant progress by establishing the indigenous front-end nuclear fuel cycle programme and has been fulfilling the requirements of KANUPP-1 (PHWR) since 1974. The capabilities in nuclear fuel cycle include uranium prospecting and exploration, uranium mining and milling, refining and conversion and radioactive waste management.

**Industry (engineering):**

The Heavy Mechanical Complex-3 (HMC-3) at Taxila is one of the leading organizations in the engineering sector of Pakistan with the ultimate goal of self-reliance, indigenization, and import substitution and to provide technical support to the industrial sector in the country. HMC-3 has state of the art facilities for fabrication, forging, welding, machining, testing and heat treatment. It is the first engineering establishment that has been certified by the Pakistan Nuclear Regulatory Authority (PNRA) to produce Nuclear Safety Class 1, 2 and 3 equipment and components in Pakistan.

**Safety measures:**

Pakistan’s civilian nuclear programme is largely regulated under the IAEA safeguards and mechanisms. The civilian elements of Pakistan’s nuclear programme are overseen largely by the Pakistan Atomic Energy Commission (PAEC) and the Pakistan Nuclear Regulatory Authority (PNRA) which was established in January 2001 in order to have an autonomous oversight mechanism to ensure the safety and security of Pakistan’s nuclear installations.

The PNRA ensures the safety and security of radiological material from the moment it is imported into the country till its safe disposal after it has outlived its useful life.
The PNRA maintains an updated database of all radiological sources in the country and carries out periodic inspections to ensure that all material is safely stored, does not pose any hazard to and is not vulnerable to theft or sabotage.

The PNRA has also developed a five-year National Nuclear Safety Action Plan (NNSAP). Its aim is to protect the public from hazards of radiation in case of an untoward incident. It has already established its emergency response centre, which works around the clock, and has started training courses with the assistance of the IAEA, at an academy in Islamabad for the first responders, as well as border control agencies such as Pakistan Customs.

The PNRA is also responsible to locate and secure orphan radioactive sources. Orphan sources are defined as “sources not under regulatory control, either because they have never been under regulatory control or because they have been abandoned, lost, misplaced, stolen or transferred without proper authorization.”

National nuclear security regime:

Pakistan’s nuclear security regimen has five pillars:

**One**, a well-defined, robust command and control system. The National Command Authority (NCA), the apex decision-making body, works under the chairmanship of the Prime Minister. It is supported by its secretariat, the Strategic Plans Division (SPD), and the Strategic Forces Commands. The NCA exercises control over all aspects including policy, procurement, employment, and nuclear security. The SPD develops technical solutions, Personnel Reliability Programme (PRP), and intelligence capabilities to deal with issues related to nuclear security, non-proliferation, accidents and weapons of mass destruction terrorism.

**Two**, Pakistan's nuclear security regime is anchored in the principle of multi-layered defense for the entire spectrum of any nuclear threat - insider, outsider or cyber threat - and is guided by the concept of five Ds - deter, detect, delay, defend, and destroy. A specially trained Special Response Force ensures the

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security of Pakistan’s nuclear assets. Besides, an integrated intelligence system exercises constant vigil to provide depth in defense. Force validation exercises are carried out regularly to revisit and upgrade the safety and security regime.

Three, a rigorous regulatory regime encompasses all matters related to nuclear safety and security, including physical protection of materials and facilities, material control and accounting, transport security, prevention of illicit trafficking, border controls, and plans to deal with possible radiological emergencies. The Pakistan Nuclear Regulatory Authority (PNRA), an autonomous oversight body, has developed a sustainable nuclear security regulatory system with established response and recovery capabilities. It works closely with the IAEA.

Four, a comprehensive export control regime. The legislative, regulatory, administrative and enforcement measures of Pakistan’s export control regime are on a par with the standards followed by the Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR) and the Australia Group.

Five, international cooperation, consistent with our national policies and interests as well as international obligations.

**Nuclear security action plan (NSAP):**

A robust Nuclear Security Action Plan (NSAP) is being implemented in collaboration with the IAEA to manage radioactive sources, secure orphan sources, detect radiation and prepare for emergencies. Collaboration with IAEA is ongoing for upgrading physical protection of a nuclear power plant at Karachi.

**Nuclear emergency management system:**

A nuclear Emergency Management System has been established at the national level to handle nuclear and radiological emergencies. A Nuclear and Radiological Emergency Support Centre (NURESC) and a National Radiation Emergency Coordination Centre (NRECC) are available round the clock as part of the emergency response mechanism. The mechanism covers the entire range of

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17 Ibid.
18 Ibid.
activities and is endowed with state-of-the-art equipment, mobile labs and technical guidance. Several training courses and exercises for the first responders, emergency response personnel and frontline officers have been conducted for emergency preparedness.

**Preventing illicit trafficking:**

The National Detection Architecture includes the use of detection devices at several entry and exit points as well as other random check points to deter, detect and prevent illicit trafficking of nuclear and radioactive materials.

**Future commitments and aspirations:**

Pakistan has more than 40 years of experience in safe and secure operation of nuclear power plants under IAEA safeguards. The Pakistan Atomic Energy Commission (PAEC), a premier national institution, is leading the effort.

Safe and sustainable civil nuclear energy is essential for advancing Pakistan’s economic development agenda. The country’s Energy Security Plan includes a futuristic, self-sustaining Nuclear Power Programme 2050, to meet the existing energy shortfalls and to respond to the future requirements of a growing population and economy. In that context, Pakistan envisages generation of nuclear energy of 8,800 MWe by 2030 and 40,000 MWe by 2050. In this regard, Pakistan looks forward to the removal of barriers to equitable access to international civil nuclear cooperation. With the experience and expertise it has gained in the areas of nuclear power generation, non-power application of nuclear technology, nuclear security and nuclear safety, under the auspices of the IAEA, Pakistan is well placed to assist interested states.

As a country with advanced nuclear fuel cycle capability, Pakistan is in a position to provide nuclear fuel cycle services under IAEA safeguards, and to participate in any non-discriminatory nuclear fuel cycle assurance mechanism.

Over the years, Pakistan has streamlined and strengthened its export control regime and enhanced its engagement with multilateral export regimes.

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19 Ibid
20 Ibid
Pakistan qualifies to become a member of the Nuclear Suppliers Group and other export control regimes, on a non-discriminatory basis.

**Discrimination by NSG:**

Pakistan -- which has gone to great lengths to support the global nuclear nonproliferation regime -- has been denied membership to the Nuclear Suppliers Group, a decision that greatly hampers Islamabad's efforts to develop a commercial nuclear energy programme. Few outside of South Asia are familiar with the tribulations Pakistan has faced as it has attempted to support international nuclear security and grow a nuclear power industry. Despite media and political claims to the contrary, Pakistan has supported the Nuclear Security Summit initiative and encouraged international cooperation and voluntary actions to ensure nuclear security. Furthermore, Pakistan observes non-proliferation norms in their letter and spirit. Islamabad's nuclear security and safety structure rests on four pillars: a robust command and control system under the National Command Authority, a thorough safety and security regulatory regime, a comprehensive system of export control management, and an extensive programme of international cooperation.\(^{21}\)

Despite keeping an exemplary record, Pakistan's nuclear power industry has faced severe challenges in dealing with the Nuclear Suppliers Group, which, because of Pakistan's limited cooperation with China in nuclear matters, would not grant membership in the cartel. (In this realm, Pakistan started cooperating with China in 1986, before China participated in the NSG.) A refusal to let Pakistan participate in the export control cartels, and especially the NSG, would seriously limit the country's efforts to meet its growing energy needs through nuclear energy.\(^{22}\)

According to Pakistan's Energy Security Plan of 2050, its needs to build nuclear power plants that will produce 40,000 megawatts of electricity within the next two decades. Participation in the Nuclear Suppliers Group is essential if Pakistan is to acquire the equipment and expertise needed to build the nuclear plants that to fill this power gap. India -- which, like Pakistan, has not signed the


\(^{22}\) Ibid.
NPT -- was given an exemption by the NSG, and it has been able to advance its civilian nuclear power industry, relieving pressure on its challenged electric utility system and cementing strategic and economic partnerships with other countries. This differential treatment of India and Pakistan under the international non-proliferation regime is simply unfair.\textsuperscript{23}

Moreover, Pakistan is a party to the Convention on the Physical Protection of Nuclear Material. Pakistan regularly submits reports to the UN Security Council 1540 Committee on measure to exercise control over transfers of sensitive materials and technologies. In order to enable Pakistan to become a member of the NSG, its basic guidelines have to be changed, and Pakistan-specific alterations should be introduced. Pakistan's entry into the NSG would further strengthen the organization and provide more safety for nuclear weapons and atomic programmes across the world.\textsuperscript{24}

\textsuperscript{23} Ibid.

\textsuperscript{24} http://www.globaltimes.cn/content/852356.shtml#u0-getjmbx