IRAN AND USA NUCLEAR RELATIONS BEFORE AND AFTER REVOLUTION

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Abstract
Energy is regarded, in the present world, as a strategic factor. Fossil fuels such as coal are harmful for human health. On the other hand, considering power usage increase and depletable fossil fuels sources it seems that utilizing nuclear energy is the best option. Nuclear energy is used in different areas including medical application, museums, identifying the little gap or impurity of materials, aircraft and automobile engines, preventing premature spoilage of agricultural products as well as plant growing. Energy issue plays as the economy deriving engine and domestic production determining countries position among the global system; moreover, it guarantees the interests of national security. In our country, how to organize energy policies also plays a critical role in politic, socioeconomic development processes. Therefore, it essentially requires planning and well-thought strategy for energy specially oil and gas followed by nuclear energy appropriate to actual local and global existed conditions. The major concern of a world accustomed to energy consumptions, in the next two decades, is producing energy and constructing nuclear power plant as the mere exit way of prospective energy crisis in future decades. In this regard, Iran and US nuclear relations are considered here as the sudden turn of the United State nuclear policy towards Iran followed by Islamic revolution significantly influenced on Iran nuclear lack of progress.

Key terms: Nuclear energy, nuclear détente, economic sanction, Clinton doctrine

Introduction
Nuclear cooperation between Iran and the United States and primary Iranian efforts in acquiring nuclear technology dates back to the 1950s. The United States of America was the first nation giving this technology, encouraging Iran in obtaining nuclear technology; in this regard, gave controlling equipment of nuclear reactor, atomic fuel, … ,too. Though, followed by Iranian

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revolution it was no more a proponent of atomic Iran, rather turned into the main opponent of this project. This study tries to find out the reason of west (US) turning attitude. Hence, this question is raised that what are the causes of US nuclear policies turning position towards Iran? And research hypothesis states that the United States of America has changed its nuclear policies toward Iran in 1979 followed by the revolution of Islamic republic of Iran.

**Iran and US nuclear cooperation before revolution**

The first attempts of Iran in achieving nuclear technology stem back in to 1950s. The first major step in using nuclear science and technology, in Iran, was taken in 1956. [1] Cooperation agreement between the United States of America and Iran states was signed in 1957 in terms of civil usages of atomic energy. [2] This agreement signed by the head of atomic energy commission on the behalf of US government consisted of one introduction and 11 articles. [3] The agreement was approved by the National assembly in 1985. [4] According to article (3) of this agreement, the parties exchange the following information:

1. Plan, construction, operating research reactors and applying them as development and engineering research means as well as in radiotherapy treatments. [5];
2. Health and protection issues related to operation and usage of research reactors.

Based on this agreement, US atomic energy commission is required to assign the uranium containing high amount of U isotope 235 (U-235) to Iran government as much as needed as the primary and alternative fuel in launching research reactor. Commission also sells or transfers by lease the materials required to construct and operate research reactors, if available and inaccessible in the market, to Iran state or whomever under legal authority.

Parties’ expectation according to article 10 stated that this preliminary agreement would lead to more cooperation in developing designing and construction as well as operating power generating reactors. [7] The parties occasionally consult in terms of the option of signing another agreement in order to cooperate in power production from atom energy in Iran. This agreement was firs amended in 1964 in Washington by both parties; then, approved in 1966 by national assembly, too. [8]

Nuclear sciences institute under central organization of SENTO contract, concurrently with nuclear cooperation agreement between Iran and US moved to Tehran from Bagdad; and Tehran University founded a center named Tehran University atomic center for nuclear research and training. Later, in 1985, government adopted the agenda of constructing an atomic reactor. Eisenhower, in this regard, sent an atomic reactor to promote his scheme (Atom for peace) to Iran. Tehran University constructing operation started in 1961 and exploited in 1967. The reactor capacity was 5 MW operated with 5.584000 kg highly-enriched uranium 93% provided by US up to 1978. Establishing Tehran University atomic reactor is considered a critical starting point in Iran nuclear activities; there emerges positive development in establishing nuclear industries in the country during reactor construction with some Iranian experts’ participation. Besides, US government provided equipment of hot cells for plutonium isolation. [9]

In 1974, Iran and the United States of America agreed upon creating a joint commission focused on enhancing nuclear sciences cooperation, in particular nuclear energy. At this time, a preliminary contract was signed based on which US state was promised to provide enriched fuel of power nuclear reactors which were supposed to be built on the behalf of the United States. [10] Moreover, based on the agreement, it was proposed that Iran and US nuclear cooperation were under supervision of the US Energy Research and Development department as part of the joint commission program. In 1975, Iran Economy and Finance minister, Hooshang Ansari, and
US foreign minister signed a largely economic contract including selling 8 reactors of 6.4 $ to Iran. US atomic energy commission agreed upon selling a light 1200 MW water reactor to Iran; furthermore, an early contract was also sealed in order to meet the other reactors’ fuel. Henry Kissinger, US foreign minister, in a meeting with the members of Iran and US joint commission, pronounced that Iran is interested in building at least 4 power reactors along with desalination plants by US. Meanwhile, Iran authorities tried to achieve US satisfaction in founding reprocessing Institutes in Iran. Iran proclaimed its desire to invest 2.75 billion dollars on a private enrichment factory in the United States of America. Followed by Carter being elected as the US president, his negotiations with Iran king caused resolving unsolved remaining issues in attaining new agreement of nuclear cooperation.

Acting followed by Iran and US agreement in relation to technical cooperation contracted in 1975, Iran atomic energy organization and US energy department contracted upon training Iranian personnel in nuclear engineering and sciences. Based on this agreement both parties decided to cooperate in training Esfahan Nuclear Technology Energy Center (ENTEC) personnel in some selected subjects of engineering and nuclear sciences. Subject domains of training program including technology and science were determined in terms of these requirements: reactor designing and engineering, reactor control, data processing, experimental neutron physics, bioenvironmental sciences, reactor material, electronics and applying instruments, handling heated (hot) cells, radioactive dumps and consumption, nuclear desedimentation, sodium technology, running general laboratory. [11] 5 interconnected contracts were signed with American general atomic company in 1976: 1. According to contract 1, aforementioned company was committed to deliver required tools and components for converting Tehran research reactor including tools, reactor accessories as well as nuclear fuel. 2. The subject of contract 2 was designing services in order to convert Tehran research reactor and to provide information and associated reports in addition to training Atomic Energy Organization personnel. 3. Contract 3 considered monitoring and control of Triga reactor initializing and necessary experiments to launch reactor. 4. Contract 4 was about controlling devices of nuclear reactor. 5. Installation and testing reactor fuel devices were stated in contract 5.

Iran nuclear attempts have been reflected around the world. For instance, Financial Times in an article, named “Shah (Iran king) attempts in buying nuclear reactors”, stated that “Iran’s decision in following a wide, major nuclear program was welcomed by public. And this is for the first time that an oil producing country has pursued such strategy considering oil dependence, as an energy source, dangerous”.

**Iran and US nuclear actions after revolution**

In 1979, Iran nuclear program was stopped simultaneously with Islamic revolution; new government showed no inclining to pursue Pahlavi regime’s predetermined goals. Construction operation of reactor number one in Bushehr till upon Islamic revolution in February 1979 was physically progressed 80% and technical operations proceeded 65%, too; whereas, once upon revolution not only Bushehr power plant operations were stopped, but also most of other nuclear programs were shut down. [12] Furthermore, Iran and Iraq war has initially declined Iran nuclear activities in spite of its previous decade particularly interested ascending trend; then, most nuclear programs were stopped and concurrently with factors like military invasions, economic and industrial sanctions as well as nonprofessional decisions, descending trend of Iran nuclear activities was intensified. But issues including requiring advanced nuclear technology and the
applied restrictions of western countries upon developing countries to prevent entering this technology, in 1982, caused that Iranian authority to reconsider aforementioned technology. [13] Iran atomic energy organization was assigned to do its legal obligations independently based on organization rules under supervision of prime minister (once revision of constitution it was directly observed by president and head of organization who was president deputy simultaneously); therefore, in practice, most executive and research related activities were again began since 1982; the negative inside atmosphere on nuclear activities was gradually vanished and attitude toward nuclear industry was partly framed realistically. Coherent programs to transfer technology and to develop nuclear applications in the country were provided and approved for the first time. However, Iran nuclear activities, mainly related to two power plants under construction of Germans and French, were suspended until 1975. [14] Islamic Republic of Iran has largely attempted, during this period, to exit dead-end achieve the technology of nuclear fuel cycle and Uranium enrichment through asking the help of various countries. [15] Russia, China, Argentina, Canada, Austria, Moldavia, France, Germany, Ukraine, North Korea, Spain, Czech Republic, South Africa, Pakistan and Poland were some countries that Iran negotiated to import nuclear technology and required equipment. [16]

**Conclusion**

The vast majority of atomic club members like Japan typically own Uranium enrichment facilities; while, in terms of theory and politic backgrounds of such countries as well as the type of definition of these countries based on the international current literature, by no way are regarded as countries threatening world or regional security or peace. The reason must be sought in the emergent feeling of insecurity and distrust to Islamic Republic of Iran objects and purposes as well as its adherence to global engagements and power structure. Today, most countries around the world concern about Iran nuclear purposes which led to creating a global concerns and consensus against Iran’s nuclear sites. Détente policy in external (foreign) relations with Europe Union and other countries is regarded as a prerequisite of continuing nuclear programs.

**References**


