"Iran's Nuclear Energy Program"

Asia Forum

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In the Name of God, the Compassionate, the Merciful
Mr. Farib Sos, distinguished friends of the Asia Forum, Ladies and gentlemen,

It is a pleasure for me to be here again. Tonight I am going to talk about Iran's Nuclear Energy Program. First allow me to give a short background about this program.

History of Iran's nuclear program

Iran's activities into nuclear research and development began in the late 1960s under the auspices of the US within the framework of bilateral agreements between the two countries. Iran's quest for nuclear energy picked momentum following a keynote study, in 1974, sanctioned by Iranian Government and carried out by the prestigious American Stanford Research Institute, which predicted Iran's need for nuclear energy and recommended the building of nuclear plants capable of generating 20,000 megawatts electricity up to 1994.

According to declassified confidential US Government documents, posted on the Digital National Security Archive, in the mid-1970s, the US encouraged Iran to expand her non-oil energy base, and suggested to the Shah that Iran needed not one but SEVERAL nuclear reactors to acquire the electrical capacity that the Stanford Research Institute had proposed. US also expressed interest that her companies participate in Iran's nuclear energy projects.

According to the same declassified document mentioned above, in an address to the symposium, titled "The US and Iran, An Increasing Partnership," held in October 1977, Mr. Sydney Sober, a representative of the US State Department, declared that the Shah's government was going to purchase EIGHT nuclear reactors from the US for generating electricity. On July10, 1978, only seven months before the victory of the Islamic Revolution in Iran, the final draft of the US-Iran Nuclear Energy Agreement was signed. The agreement was supposed to facilitate cooperation in the field of nuclear energy and to govern the export and transfer of equipment and material to Iran's nuclear energy program.

The first significant nuclear facility was supplied to Iran by the US in 1967 the Tehran Nuclear Research Centre (TNRC), with a safeguarded 5-megawatt nuclear research reactor.

Later, Iranian government awarded a contract to Kraftwerk Union (a subsidiary of Siemens) of then (West) Germany to construct two Siemens 1,200-megawatt nuclear reactors at Bushehr. The work for doing so began in 1974.

Iran also signed, in 1974, a contract with the French company Framatome to build two 950 megawatt pressurized reactors in Darkhovin- Ahvaz. Framatome did survey the area and began site preparation.

In February 1979, when the Islamic Revolution toppled the Shah's government, the Bushehr-1 (that is, reactor 1) was 90% complete and 60% of its equipment had been installed, while Bushehr-2 was 50% complete.

But In 1979, the nuclear power plant construction program was suspended and construction activities halted.

However, the Islamic Republic of Iran resumed the nuclear power programme from late 80s and early 90s. She first approached Kraftwerk Union to complete the Bushehr project. However, under the US pressure, Kraftwerk Union refused. Iran then asked Germany to allow Kraftwerk to ship the reactor components and technical documentation that it had paid for, citing a 1982 International Commerce Commission (ICC) ruling under which Siemens was obligated to deliver all plant materials and components stored outside Iran, but the German government still refused to do so. In response, Iran filed a lawsuit in August 1996 with the ICC, asking for $5.4 billion in compensation for Germany's failure to comply with the 1982 ruling. The issue is still unsettled.

In the late 1980s, a consortium of companies from Argentina, Germany and Spain submitted a proposal to Iran to complete the Bushehr-1 reactor, but huge third country pressure stopped the deal. The same pressure also stopped in 1990 Spain's National Institute of Industry and Nuclear Equipment to complete the Bushehr project. Iran also tried, unsuccessfully, to procure components for the Bushehr reactors, but her attempts were blunted by the the same country. For example, in 1993, Iran tried to acquire eight steam condensers, built by the Italian firm Ansaldo under the Kraftwerk Union contract, but they were seized by the government. The Czech firm Skoda Plzen also discussed supplying reactor components to Iran, but, under pressure, negotiations were cancelled in 1994. Iran was also not successful in her attempt to buy nuclear power reactor components from an unfinished reactor of Poland.

At this point Iran turned to other suppliers. A bilateral agreement was signed with China for the supply of two 300 MW(e) PWR units of Chinese design. The agreement was confirmed in 1993 (but never realized).

In 1995 a contract was signed with Russia to complete the Bushehr power plant, due to become operational by 2006 and the work is in progress under enormous third party pressure.
So this short review reveals two important facts:
(1) Nuclear research, facilities and reactors and even the vision for Iran having nuclear energy were all conceived and initiated by the shah and his government, with direct assistance and encouragement by the US and some European countries. They were not conceived or initiated after the Islamic Revolution.

(2) It is also particularly important to recognize that since the late 1980s, when Iran restarted its nuclear program, the US and Europeans have been given every opportunity to participate in the development and construction of nuclear reactors in Iran, but that they have always refused to do so.

NOW LET ME BREIFLY ELABORATE ON
Why Iran needs Nuclear Energy

1-Since the 1979 Revolution, Iran's population has more than doubled, from 32 to nearly 70 million and is projected to be more than 105 million in 2050. Iran's present (year 2005) installed electrical capacity is more than 20,000 megawatt. However, Iran's annual growth in demand for electricity is 5-8%, which needs generation of at least 2000 megawatt electricity each year. Hence, it is estimated that, by the year 2010, Iran will need another 7,000-megawatt of electricity, which even under the best possible circumstances, namely, immediate lifting of the US sanctions against Iran and flow of vast investment capital into Iran's oil and gas industry, cannot be produced by oil and gas alone.

As an example, the Iranian Government could provide electricity, in the period of the past 25 years, to 46,000 villages out of more than 60,000 existing Iranian villages scattered over a vast territory of 1.6 Million square km from the Caspian Sea to the Persian Gulf. Whereas at the beginning of the said period the number of the villages that had access to electricity did not exceed 4/400.
In the meantime, the growing Iranian economy, [with a growth rate of over 6% according to WB figures,] should be able to provide for a growing and rather young population, of which around 70% is under the age of 30 and as a developing nation must confront the challenge of her demographic explosion and rapidly-growing economy.

2- Today Iran’s oil production is only 70% of the pre-Revolution level (was over 6 million and now is around 4 million bpd). Since early 1990s, Iran's consumption of oil has been increasing at a rate of 8%

per year, and her total energy consumption has increased from 1.6 quadrillion Btu (quads) in 1980 to more than 5.5 quads at present - an increase of more than 280%. At the moment we annually import more than 4 billion dollars of petrol from neighboring countries due to increased domestic consumption and insufficient domestic production. If this trend continues, Iran could become a net oil importer by 2010, a gigantic catastrophe for a country which relies on oil for 80% of her foreign currency and 45% of her total annual budget.

3- Oil is a non-renewable national wealth of Iran [(and other oil exporters)]. Once it is produced and exported, it can never be regenerated. One cannot expect Iran (and other oil-exporting countries) to deplete their non-renewable national wealth recklessly, without receiving any lasting products or benefits in return, and this will happen if Iran's sources for energy are not diversified.

4- A major study carried out in 1998 has concluded that, out of the 60 Iranian oil fields, 57 of them need major technical studies, repairs, upgrading, and re-pressurizing which would require, over a 15 year period, and at least $40 billion Dollars investment.

From 1979 until 1995 due to Iraq’s invasion of my country, and after that due to extraterritorial sanctions imposed by US, no major investment could be made in Iran's oil industry. {**1995** President Clinton imposed oil and trade sanctions on Iran, **1996** Mr. Clinton stiffened sanctions with penalties against any firm that invests $40m or more a year in oil and gas projects in Iran.**2000** March - President Clinton extended ban on US oil contracts with Iran, since **2002** US President George W Bush, has continued with sanctions against Iran.

5- Iran has uranium deposits that can be used for generating electricity. It is estimated that Iran's known uranium ore reserves can produce as much electricity as 45 BILLION barrels of oil. This is a huge amount by any criterion, but particularly so if we only recall that Iran's known oil reserves according to OPEC figures, are currently estimated to be about 96 billion barrels. In other words, if we can extract all of Iran's known oil reserves (a remote possibility!) and use about half of them just for producing electricity, we will generate as much electricity as what Iran's presently-known uranium deposits can produce!

6- Pollution is another major problem. Since 1980, carbon emissions in Iran have risen by 240%, from 33.1 million metric tons emitted in 1980, to more than 85 million metric tons at present. Note that, whether we use oil (which causes severe pollution problems) or gas

(which, compared with oil and coal, is considered as a relatively clean source of energy), carbon emission cannot be avoided. This emission is one of the main culprits behind air pollution in Tehran and all other major cities of Iran. Long term effects of the polluted air are blamed for causing 17,000 deaths every year in Tehran alone, as well as causing severe problems for people with asthma, heart, and skin conditions.

7- Today there are 438 nuclear reactors used for generating electricity world wide, of which 104 are in the US, 59 in France, 53 in Japan, 29 in Russia, and 19 are in Germany. Between 1970s, when Iran signed her first agreement for building nuclear reactors, and the year 2000, use of nuclear reactors for generating electricity has increased by a factor of 12 and today many developing countries primarily in Asia are benefiting from nuclear energy to satisfy their growing energy needs.

Furthermore, according to the IAEA report dated June 2004, "22 of the last 31 nuclear power plants completed, have been built in Asia, and of the new plants being built, 18 out of 27 are also located in Asia, all driven by the pressures of economic growth, natural resource scarcity and increasing populations, which Iran also faces.

8- One of the main arguments presented against Iran having nuclear energy is that, it is not economical for Iran to generate electricity using nuclear reactors, because she has vast gas reserves which can be used for producing electricity. To support their arguments, these experts usually cite studies that estimate that the cost to finish the Bushehr nuclear reactors will be $1,000 per installed kilowatt, while the electricity from natural gas-fired power plants costs $600-800 per kilowatt. However, such arguments are not valid. Because:

(1) Gas can be used to produce petrochemical products with much added values Iran has embarked on a 20 phase, multibillion dollars petrochemical project in southern port of Assaluyeh called “South Pars Project” since 6 years ago which will turn Iran to a major producer and exporter of LPG, LNG and other petrochemical products. Countries cooperating with Iran in this regard are France, Italy, Norway, Japan, Korea, Malaysia and recently China and India.

(2) Iran plans to preserve as much as possible, its gas reserves for her future generations and to position the country in 40-50 years, as one of the main supplier of energy to Europe and Asia, and

(3) IAEA in its report released on the occasion of 50th anniversary of the construction of first nuclear power station in Russia, in June 2004, has reiterated

once again that the safest way to combat global warming and carbon emission is the expansion of the share of nuclear energy globally.

I would also like to add that countries like Britain and Russia (exporters of oil & gas), rely on nuclear power for a significant portion of their energy needs.

Now let me touch upon Iran's rights under international treaties;
Iran's legitimate rights under international law

1- Iran is a member of NPT. It was signed in 1968 and ratified in 1970. Article IV of the NPT, recognizes the inalienable right of Member States to have access to nuclear technology and develop and use nuclear energy. Ensuring two indisputable facts:

A) As recognized by the NPT, peaceful use of nuclear technology, and in particular nuclear energy, is Iran's fundamental right, so long as her nuclear program is under the IAEA supervision,

B) The NPT does allow ***all*** member states including Iran, to legally build any nuclear facility, including one for uranium enrichment, so long as it is declared to, and safeguarded by, the IAEA, and is intended for peaceful purposes.

Confidence Building on the Peaceful nature of the Iranian nuclear program
Nonetheless, Iran is fully aware of concerns over its nuclear program and takes questions about it seriously. It, therefore, does its best in clarifying and declaring to the IAEA the full aspects of its peaceful nuclear program in accordance with the relevant safeguard agreements. In so doing following steps have been taken:

1- Iran has signed the Additional Protocol to the NPT on the 18 December 2003 and immediately implemented it, even before its ratification by the Iranian parliament.

2- The IAEA's inspectors have had unlimited, unhindered and quick access to whatever and wherever on Iranian territory they requested, under the strict terms of the Additional Protocol.

3- Iran also decided on 14 November 2004, to suspend all tests and production of Uranium Conversion Facility, as well as suspending the manufacture of

components and assembly and testing of centrifuge, based on an agreement with the EU3/EU.

4- Iran has also signed an agreement in 2004 with Russia to return the Bushehr nuclear reactor's spent fuel.

As a result of all these measures, and expanded cooperation from Iran, IAEA in its official report on Iran's program (distributed on the 15 November 2004/ GOV/2004/83,), which came on the heel of 2 years and one thousand hours/person intrusive inspections, confirmed that the inspectors had uncovered no evidence of concealed nuclear activities or an atomic weapons program in Iran. The report specifies that: "All the declared material in Iran has been accounted for and therefore such material is not diverted to prohibited activities".

A cursory review of the Safeguard Implementation Reports published by the IAEA clearly shows that hardly any member State can claim to be flawless. These publications easily reveal that essential negligence and failure on the part of NPT signatories are a matter of routine. Based on IAEA 2002 annual report, of remaining 357 facilities, 34 facilities (10%) in 15 States, failed to fully attain the quantity component of the inspection goal, and 32 facilities (9%) in 15 States, failed to fully attain the timeliness component.

Furthermore, one can refer to the following points as well:
1- Iran is the largest and the most populous country in the region, with huge reconstruction needs and a young population requiring allocation of a large proportion of Iran's limited resources, a costly arms race is counterproductive and contrary to Iran's security interests. As a matter of fact, for many years now, Iran along with Egypt have been the sponsors of the motion at the UN to establish "Middle East Nuclear Free Zone" to rid the region from dangers of all nuclear dangers, including Israel's vast and dangerous nuclear weapons stockpile.

2- The Iranian authorities at the highest level have repeatedly given assurance to the international community that the Iranian nuclear program is exclusively energy-oriented and have committed themselves to keep it under relevant international instruments.

3- It has been reiterated by the Iranian leadership that Iran has no nuclear weapons program, and the Iranian military doctrine is not drawn up in a way to incorporate nuclear weapons.

4- It is also important to notice that the Iranian commitment to its NPT obligations originates not only from its contractual obligation, but also from its religious beliefs and ethical considerations. Iran's supreme leader, Ayatollah Khamenei, has reiterated on several occasions his religious verdict on the prohibition of producing, stockpiling and using nuclear weapons. He once again reiterated this significant verdict of great consequence on 5th Nov. 2004.

5- Iran has been the only victim of WMDs in recent history (in the hands of Saddam Hussein regim), and the Iranian people are determined to ensure that we keep that distinction.

Conclusion:

1- Before my concluding remarks, we must recognize that the development of adequate energy resources is a highly important part of the national interests of every nation which, by their very definition, transcend the political system that governs a nation. Both Democratic and Republican administrations in the US, and their allies, such as Britain, It is no secret that powerful countries have waged wars, invaded and occupied oil-producing countries, and engineered coups to overthrow the legal, often democratically-elected, governments of oil-producing countries in order to control the world's oil reserves. They have always justified their deed solely based on protecting their national interests and national security. We only need to recall what happened in Iran in 1953, after Dr. Mohammad Mosaddegh (first ever democratically elected Prime Minister of Iran) nationalized Iran's oil industry, and the recent invasion and occupation of Iraq by the US and Britain, to understand this. The same principles are also applicable to Iran, and my country has a fundamental right for securing adequate energy resources - the engine for her development and advancement.

2- There is also a question: Why is it that it was believed and recommended in the 1970s, that Iran needed nuclear reactors and nuclear energy, when Iran's population was less than half of the present and her oil production was much more than now, but they now argue that Iran does not need nuclear energy?[How do the US and others suggest Iran should feed, house and educate her population, create jobs for her educated people, and develop the country, all with oil and gas alone, while she has very significant uranium deposits and technological and scientific base for benefiting from nuclear energy.

That is why we come to believe that:

A) The particular attention paid to Iran's nuclear energy program is unwarranted, disproportionate to the nature and the goals of the program and, in some cases, in the pursuit of some political agenda. Sometimes there is no way of avoiding the conclusion that the real goal of the United States is dismantling Iran's nuclear infrastructure, regardless of its orientation, and to despatch Iran to the era of nuclear, scientific and technological illiteracy, which is in violation of the letter and spirit of the NPT.

b) Efforts to decouple Iran's need for nuclear energy which, as argued in this presentation, is completely legitimate on economical, social, and environmental grounds, is biased, unfair and unrealistic.

c) US is once again using an important international organization to advance her agenda, damaging in the process the credibility and effectiveness of the organization, only shortly after doing the same to the United Nations during the debate over invasion of Iraq.

Final remarks:

- The above considerations lie at the origin of the Iranian nuclear energy program and nuclear activities in the Islamic Republic of Iran are solely and exclusively oriented towards meeting the civilian needs, as depicted above. In terms of energy self-sufficiency, we believe Iran has no choice, indeed, but to seek access to more diversified and secure source of energy, including nuclear.

In other words, my country, in search for a pattern of energy compatible with its sustainable development and the livelihood of its present and future generations had to opt inescapably for diversification of its energy sources, and has done so in the course of past 10 or more so. For example Iran and NZ companies have been working for the last 7 years to build Iran's first Geo-thermal Energy power plant in western Iran which aims at a final total capacity of 100 mega watt, or Iran and NZ Companies have been working for the past 3 years to manufacture CNG equipment for installation in Tehran, so that motor vehicles could be switched to CNG instead of petrol, helping pollution and also diversifying peoples energy sources. Also we have been working for the past 10 years with some European countries to create first Iranian Wind Farm or Mill in Manjil northwest of Iran which is now in production and extension of the wind mills in other parts of the region and country is being carried out. Solar energy is another

area which Iran is heavily investing and has a good prospect specially, for central Iran which enjoys a lot of sunshine. Nuclear energy is another option and thus, Iran has decided to develop nuclear energy as well.

- Contrary to some claims, our program is neither ambitious nor economically unjustifiable, nor was it initiated after the Islamic revolution. It should be noted that, now, about 35 years after this program was initiated, instead of 20000 MG advised by Stanford Institute, we aim at getting off the ground a modest 7000 megawatt-nuclear energy program and operationalize it by 2020, which may save us an equivalent amount of 190 million barrels of crude oil, which is worth about $5 billion per year.

- At the same time, it is our right as well as our obligation to the future generations to acquire peaceful nuclear, chemical, biological and other modern technology under the relevant rule-based multilateral transparency regimes.

The bottom line is that the Islamic Republic of Iran, intends to be self-reliant in the modest nuclear program it has planned. At the same time, we intend to be responsive and allay any possible concern about the nature of our program on the basis of the routine safeguard implementation matters, just like other States with similar nuclear programs.

Thank You.