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Committee on Foreign Affairs
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Nuclear Power and Nuclear Non-Proliferation

Mr. Chairman, members of the Committee, thank you for the opportunity to address the committee. It is a pleasure to be here again. The principal question before the committee today is whether the “standard model” of civil nuclear cooperation with the U.S., absent further new nonproliferation conditions on supply, undermines U.S. nonproliferation and national security objectives. I will address this issue in my statement.

President John F. Kennedy truly believed that there was a serious risk that nuclear weapons were destined to sweep all over the world. In March of 1963 in response to a reporter’s question at a news conference, he said, “Personally, I am haunted by the feeling that by 1970 . . . there may be 10 nuclear powers instead of 4 and by 1975, 15 or 20. . . . I would regard that as the greatest possible danger and hazard.” He spent much of his presidency pursuing the cause of nonproliferation. President Kennedy had been told by the outgoing Secretary of State, Christian Herter, in December of 1960 that nuclear weapons would spread to additional countries and that the most likely next nuclear weapon states were India and Israel. He took this very seriously.

If such anticipated proliferation had in fact happened, there could be significantly more than two dozen nuclear weapon states in the world today, with nuclear weapons integrated into their national arsenals. Dr. Mohamed El Baradei, the distinguished former Director General of the International Atomic Energy Agency, was quoted in 2004 in a speech in Washington DC, as follows, “The danger is so imminent...not only with regard to countries acquiring nuclear weapons but also terrorists getting their hands on some of these nuclear materials- uranium or plutonium.” Director General El Baradei was also quoted in another speech more or less around

the same time to the effect that more than 40 countries perhaps have the capability to build nuclear weapons. Thus, if such proliferation to which President Kennedy referred had in fact taken place, under the circumstances with that many nuclear weapon states in existence, potentially every significant conflict could have brought with it the risk of going nuclear, and it might have become extremely difficult to keep nuclear weapons out of the hands of terrorist organizations, they would have become so widespread. Illustrating this danger of nuclear weapon proliferation and the threat of terrorist acquisition, former U.S. Defense Secretary William Perry, a scientist not given to exaggeration, has often said that in his judgment nuclear terrorism, which could involve a nuclear detonation in a major city, is today's gravest security threat.

When President Kennedy became so concerned about nuclear weapon proliferation, the United States had approximately 22,000 nuclear weapons in its arsenal, the Soviet Union nearly 2,500 and the United Kingdom 50. This total is a smaller number of nuclear weapons than exist in the world today. But, from the earliest of days in the nuclear era it had been clear that it was necessary to prevent the spread of nuclear weapons, although early attempts to prevent proliferation of nuclear weapons did not succeed.

However, in 1965 the UN General Assembly took up the subject. A resolution was passed which over the next few years proved to be the blueprint of the Nuclear Nonproliferation Treaty, The NPT. Among other things this resolution called for "balanced obligations" between nuclear weapon and non nuclear weapon states in the treaty to be negotiated. The NPT was signed in 1968 and entered into force in 1970, and came to be recognized as the principal reason- along with the parallel extended deterrence policies of the United States and the Soviet Union- that President Kennedy's darkest fears have thus far not been realized.

But the success of the NPT was no accident. It was based on a carefully crafted central bargain which incorporated the "balanced obligations" concept. In exchange for a commitment from the non nuclear weapon states (today more than 180 nations, most of the world) not to

acquire nuclear weapons and to submit to international safeguards to verify compliance with this commitment, the NPT nuclear weapon states pledged unfettered access to peaceful nuclear technologies and undertook to engage in nuclear disarmament negotiations aimed at the ultimate elimination of their nuclear arsenals. It is this central bargain that for the last four decades has formed the central underpinnings of the NPT and the international nonproliferation regime. The entry into force of the NPT thus established the most important bulwark of international security.

However, one of the principal problems with all this has been that the NPT nuclear weapon states have never fully delivered on the disarmament part of this bargain. In the short term this meant interim steps, most importantly agree to a treaty prohibiting all nuclear weapon tests, that is a comprehensive nuclear test ban; and also negotiating an agreement prohibiting the further production of nuclear bomb explosive material; undertaking obligations to drastically reduce nuclear arsenals; and giving legally binding commitments that the NPT nuclear weapon states would never use nuclear weapons against NPT non-nuclear weapon states. Much of these disarmament elements of the NPT basic bargain have not been actually accomplished forty years later. Access to peaceful nuclear technologies is also important as well. It received much attention during the negotiation of the NPT and there would have been no NPT without it. It is essential that this part of the bargain at least remain sound.

The NPT is essentially a strategic international political bargain which should be observed, it is not a gift from the non-nuclear weapon states. The question is how long can the NPT remain viable as an unbalanced treaty with an important part of its basic bargain unrealized and a significant part unraveling as North Korea and Iran pursue the bomb. There also has been concern expressed by non-nuclear weapon states with respect to peaceful nuclear technologies as well, but it has eased in recent years. It is true that the norm of nonproliferation runs deep after forty years. It may be that the NPT can limp along for some years with only limited further proliferation or maybe not. Nuclear commerce open to all NPT parties in good standing will help.

No statesman has spoken out more eloquently and in such a comprehensive way on the subject of strengthening the NPT as did President Obama in Prague a year ago April. He declared his strong support for a replacement START Treaty (the New START Treaty) to be followed by deeper cuts in nuclear weapons leading to a multilateral nuclear weapon reduction negotiation involving all of the nuclear weapon states. He reiterated his support for U.S. ratification and entry into force of the Comprehensive Nuclear Test Ban Treaty, as Vice President Biden reaffirmed in his speech February 18 in Washington, and confirmed his support for a process leading to a nuclear weapon free world. He underscored his commitment to the strengthening of the NPT, along with measures to do more to safeguard fissile material around the world. And he urged the prompt negotiation of a treaty prohibiting the further production of fissile material. And the President supported cooperation in peaceful nuclear technologies, specifically nuclear power. There was a successful nuclear materials summit in Washington this past spring and in September 2009, with President Obama in the chair, the United Nations Security Council endorsed the goal of the elimination of nuclear weapons.

President Obama said in his speech and the NPT itself makes clear an essential part of the NPT basic bargain which underlies the effort to eliminate nuclear weapons is international support for the peaceful use of nuclear energy. This is increasingly important as the world is threatened by climate change. But realizing the potential of nuclear power to meet the world's growing energy needs and the same time help to combat global warming is only possible if the nonproliferation norm is vigorously upheld.

The United Arab Emirates is about to begin the most notable nuclear power program in the last 20 years. To implement this program the UAE has selected the Korean nuclear power industry. The UAE program in addition to being large could also be a model for future programs. The UAE has renounced on a legally binding basis, in its White Paper on Peaceful Nuclear Energy Policy, in its basic law concerning the peaceful uses of nuclear energy, and in its agreement for nuclear cooperation with the United States, both domestic uranium enrichment as well as plutonium reprocessing. The inclusion of these commitments in its Agreement with

the U.S. makes them internationally legally binding. In addition in the White Paper the UAE expresses strong support for proliferation-resistant nuclear technologies stating “As the UAE seeks to explore technology options for any nuclear program, high importance will be placed on innovative reactors and fuel cycle technologies that exhibit enhanced proliferation resistance.” My Company, Lightbridge Corporation, has been strategic advisor to the UAE nuclear program since its inception. Lightbridge serves as advisors to countries that do not have nuclear power but are considering seeking it, if such country is completely committed to nuclear nonproliferation.

In assessing the UAE program, keep in mind that the UAE is in the business of selling its oil, not using it for power generation. The UAE faces an enormous electricity shortfall in less than a decade because of its rapid growth. Its choices: importing coal at great cost, burning oil, deepening dependence on foreign natural gas (of which it is a net importer)--or building nuclear power plants. On purely economic grounds the government of the UAE decided to build nuclear power plants as the best available technology to secure its long-term energy future on a carbon-free basis.

To make its nonproliferation intentions clear, the UAE has signed up to every international agreement that exists safeguarding nuclear power production and controlling nuclear weapon proliferation. As part of this as I said, it has gone well beyond its NPT obligations by formally forswearing uranium enrichment and plutonium reprocessing on a permanent, legally binding basis.

The “standard model” for an Agreement for Civil Cooperation on the peaceful use of nuclear energy under section 123 of the Atomic Energy Act- a so called 123 Agreement- has served the United States for a long time. It is based closely on NPT obligations and accordingly does not prohibit the acquisition of uranium enrichment or plutonium reprocessing technology as the NPT itself does not. But the threat of nuclear proliferation is growing and the NPT as I have indicated is not as strong as it should be. Nuclear power now is all the more important to

the world economy because of the growing threat of climate change to our planet. North Korea has conducted two nuclear tests, Iran is pressing ahead with its nuclear weapon program, and there are other states in the wings potentially interested in nuclear weapons depending on developments, for example, in North East Asia and the Middle East. Thus, perhaps the “standard model” is no longer good enough. If the United States were simply to make such a change much of the NPT community might regard such action as contrary to the central bargain. But with the UAE- on its way to a highly significant nuclear power program- having already adopted this change such a reaction is much less likely.

The United Arab Emirates made it clear that it hoped its program, including the nonproliferation commitments that they have made which are enshrined in the U.S-UAE 123 Agreement would be a model for others. Thus far it has not been, there are no indications that U.S. 123 Agreements with other countries will follow this model. But they should. It is not desirable that enrichment and reprocessing technology spread more widely. This is an issue on which both President Bush and President Obama agree. Other efforts, such as the Nuclear Fuel Bank at the International Atomic Energy Agency have been pursued to reduce the incentive for additional countries to acquire the full fuel cycle. Legislation requiring that the UAE model be followed in future 123 Agreements, absent a Presidential waiver, could help further to inhibit the spread of fuel cycle technology. And in today’s interdependent world, such a change would make sense. And new technology can work with the nonproliferation system to make nuclear power even more nonproliferative and more abundant

On the note of new technology Lightbridge Corporation is developing a new type of nuclear fuel based on a 60 percent /40 percent thorium/uranium mix which does in fact exhibit “enhanced proliferation resistance.” This fuel is designed so that no weapons usable material – plutonium, uranium 233, or anything else- will be present in its spent fuel in either an isotopic mix or in quantities that could ever permit it to ever be used in weapons. In addition, this fuel has much reduced waste: a 70 percent reduction in volume and a 90 percent reduction in radio toxicity. An offshoot of this original program has led to the development of a new general type

of metallic nuclear fuel design which will permit an uprate in power production from a given fuel bundle of up to 30 percent thereby permitting the savings of billions of dollars in construction costs by requiring fewer reactors to produce the same amount of electricity.

The nuclear renaissance is a reality. With global warming on the horizon, the potential for serious world-wide air pollution, the political problems surrounding fossil fuels and the enormous increase in energy demand throughout the world, nuclear power must be a growing part of the energy production mix. With effort and consistent world-wide cooperation, perhaps to include new non-proliferation conditions in the form of U.S. 123 Agreements, the peaceful atom can be made available everywhere as envisioned by the NPT and at the same time further nuclear weapon proliferation can be prevented, the NPT strengthened, and progress made toward the world-wide, verifiable and enforceable elimination of nuclear weapons.