



**Former Senator Sam Nunn
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Thank you, Chairman Jeff Gasser. Welcome to Georgia. It's an honor to meet with scientists, engineers, industry experts and business leaders, like David Ratcliffe, who work every day to ensure that nuclear science can be advanced for the benefit of the world.

As the world's need for energy rises, as the concern about our climate increases, and as the benefits of nuclear science expand, nuclear energy and the nuclear industry are in a long-overdue revival.

This is good news. I believe that the peaceful applications of nuclear energy will play an indispensable role in our efforts to meet human needs in the 21st century. If the world is going to double its energy use by mid-century, as predicted, and if we are to limit our carbon emissions to a level consistent with a healthy climate, then nuclear energy must play not only a continuing role, but an *expanding* role in the world's energy mix. I have been with President Obama on three occasions when he said that nuclear energy had to be part of the energy mix.

The world today faces both growing needs and rising threats.

The growth of the nuclear industry depends on the weakest link in the chain, and this chain must include security as well as safety. This safety and security imperative must take place in the broader, global context.

Dean Acheson was once asked to define foreign policy. He thought for a moment and replied: "Foreign policy is one damn thing after another." Today we are witnessing the intersection of energy, environment, security and foreign policy. So Acheson would probably say today that we are confronted with every damn thing all at once.

On the nuclear threat side, we are facing a gathering storm.

- Terrorists are seeking nuclear weapons. If they get them, they will use them.
- The nuclear material they need to make weapons is in approximately 40 countries, in military and civilian facilities.

- The know-how terrorists need to build a weapon from this material is widely available – not a piece of cake but doable.
- The number of states possessing nuclear weapons has nearly doubled since the Nuclear Nonproliferation Treaty, or NPT, came into force in 1970.
- The number of nations that are seeking the capacity to enrich uranium and separate plutonium is also rising. This technology will allow them to make nuclear fuel; it will also – if they misuse it – allow them to make nuclear weapons, as has happened in North Korea, with Iran looming on the horizon.
- Every nation with nuclear weapons or the capacity to make nuclear materials increases the chance of a nuclear catastrophe – either by design, or by accident.
- Add to all of this command and control challenges in a cyber world and the proliferation of submarines with nuclear weapons and you have the potential for a perfect storm.

Forty years ago, when the world also faced significant nuclear dangers, we answered with the Nuclear Non-Proliferation Treaty's composing three basic understandings:

1. Nuclear weapons states agreed to work toward nuclear disarmament.
2. Non-nuclear weapons states agreed to forego nuclear weapons.
3. All countries agreed that NPT member states have a right to access nuclear technology for peaceful purposes.

Today, many key countries embrace one or two of these fundamental principles while ignoring, or de-emphasizing, at least one of the others. The result is that rather than reinforcing each other, all “three legs” of the NPT stool are wobbling.

The Wall Street Journal article

In January of 2007, two former Secretaries of State – George Shultz and Henry Kissinger; a former Defense Secretary – Bill Perry; and I published an opinion piece in the *Wall Street Journal* that said: The world is now on a precipice of a new and dangerous nuclear era and nuclear deterrence is becoming increasingly hazardous and decreasingly effective.

We wrote that we must build consensus on reversing reliance on nuclear weapons globally as a vital contribution to preventing their proliferation into potentially dangerous hands, and ultimately ending them as a threat to the world.

We endorsed not just setting the goal of a world free of nuclear weapons but working energetically on the actions required to achieve that goal. These actions include:

- Providing the highest possible standards of security for weapons and weapons usable material everywhere in the world;
- Managing the uranium enrichment process, so that all enrichment and reprocessing will be under safeguards and the supply of nuclear fuel will be assured for peaceful power purposes;
- Reducing substantially the size of nuclear forces in all nations that possess them;
- Eliminating short-range battlefield nuclear weapons – a terrorist’s dream;
- Halting the production of fissile materials for weapons globally;
- Increasing warning time and decision time for all nuclear states to reduce the chances of false warning or an accidental launch of a nuclear weapon beginning with the U.S. and Russia;
- Redoubling our efforts to resolve regional confrontations and conflicts that give rise to new nuclear powers -- our most difficult but essential job;
- Working diligently with other nations to use our technology to improve verification procedures and;
- Most importantly, building the political will to globally enforce nuclear agreements.

We believe that without the bold vision of a nuclear weapons-free world as called for in the Nonproliferation Treaty, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible.

We clearly recognize that America must have nuclear weapons as long as any other nation or group possesses them. The path to a world free of nuclear weapons will be long and arduous, but we must get other nations to join us on this journey, and the U.S. and Russia must lead.

I don’t believe that our leadership in pursuing the vision and the steps is likely to inspire Iran, North Korea or al-Qaeda to drop their weapons ambitions, but I do believe that if we take this path many more nations are likely to join us in a tough approach to prevent the proliferation of nuclear weapons and materials and prevent catastrophic terrorism.

I believe that we cannot defend America without taking these essential steps. We cannot take these steps without the cooperation of other nations. We cannot get the cooperation of many nations without the vision and hope that the world will someday end these weapons as a threat to mankind.

Our initiative, launched with the opinion piece in the *Wall Street Journal*, has now grown into what we call the Nuclear Security Project, coordinated by the foundation that I co-chair -- the Nuclear Threat Initiative -- with the support of the Hoover Institution. George Shultz, Bill Perry, Henry Kissinger and I have traveled around the world to explain what we call “the vision and the steps.”

The reaction of many people to the vision and steps to eliminate nuclear weapons comes in two parts. On the one hand they say “That would be great.” And often their second thought is: “We can never get there from here.”

To me, the goal of a world free of nuclear weapons is like the top of a very high mountain. It is tempting and easy to say: “We can’t get there from here.” It is true that today in our troubled world we can’t see the top of the mountain. But we can see today that we are heading down the mountain, and the world is getting more dangerous. We can see that we must find paths leading to higher ground, and that we must get others to climb with us.

The vision of a world free of nuclear weapons and many of the steps we have called for have been embraced by President Obama. Support has also come from many influential individuals.

Two-thirds of the living former U.S. Secretaries of State and Defense, and National Security Advisors have specifically endorsed the vision and the steps, including familiar names like Colin Powell, Jim Baker, Madeleine Albright and Bill Cohen. Senator John McCain has expressed his support both during the Presidential campaign and again on the Senate floor in early June.

Last April, President Obama and Russian President Medvedev met in London said: “We committed our two countries to achieving a nuclear [weapons] free world.”

Let me emphasize that there are very important policy and technology challenges to meet before it is possible to significantly reduce the nuclear threat enough to get to “base-camp” let alone the top of the mountain.

These are challenges that the people in this room – as a community of nuclear scientists, engineers, academics and industry experts – must help meet.

Challenges: Verification and Enforcement, Materials Security, Fuel Cycle

To use the mountain climbing analogy, I see three rockslides that have the potential to become avalanches and block our progress as we seek higher ground. These challenges could also have a profound effect on the nuclear industry. The three security challenges relevant to the experts in this room are verification and enforcement, materials security, and fuel cycle. Our job today is to stop these rockslides and build confidence in a firm path up the mountain.

First, Verification and Enforcement

We must create a system of verification that is trusted by the countries of the world. Today, there are gaps in the conceptual framework and technical details. We must develop new practices for verifying and monitoring warhead dismantlement, fissile material production and inventories and illicit trade. We must look to both the policy and

the technical communities to help develop answers. Progress on the difficult task of developing verification approaches is a key to the ongoing nonproliferation and disarmament agenda.

Even perfect verification cannot protect us unless we have strong enforcement. We have to depend on governments to summon the political will – *globally* – to build an effective system of enforcement to respond urgently to any countries that breach their commitments.

As President Obama recently said, “We need more resources and authority to strengthen international inspections. We need real and immediate consequences for countries caught breaking the rules.” Iran and North Korea are testing global political will every day. Thus far the collective response of the international community has not been robust.

Second, Materials security

To keep *terrorists* from developing nuclear weapons, we need a system for ensuring that nuclear materials around the world are secured to the highest standards. This has been the primary focus of the Nuclear Threat Initiative.

Since our founding, NTI has worked to catalyze greater action by governments to secure and remove HEU and help reduce the use of HEU in commerce. Several years ago, NTI worked with the U.S., Russian and Yugoslavian governments to remove two and a half nuclear bombs worth of material from Belgrade, helping to spur the creation of a \$450 million U.S. Global Threat Reduction Initiative at the Department of Energy’s National Nuclear Security Administration. Additionally, NTI helped the government of Kazakhstan eliminate more than a dozen bombs’ worth of HEU, and we are now working with Kazakhstan to convert a reactor that used highly enriched uranium to one that uses low enriched uranium. Removing HEU and blending it down to LEU is now a joint venture between the U.S. and Russia. This effort, which made progress under the Bush Administration, must be accelerated around the world. I am encouraged by the Obama Administration’s pledge to undertake an international effort to secure all vulnerable nuclear material around the world within four years. Russia —and other nations – must be vital partners in this accelerated and urgent effort.

This goal cannot be accomplished without the expertise and cooperation of people who know this business. I have long been an admirer of Admiral James Ellis, who we will be privileged to hear from shortly, and I am a longtime supporter of the organization he now heads. INPO and its international counterpart – WANO – have done an extraordinary job of ensuring the safety of nuclear power reactors and re-building public confidence in the nuclear industry in the U.S. and around the globe.

We must also repair and strengthen the weak links in the security chain.

In Vienna last September, I announced the establishment of the World Institute for Nuclear Security – WINS – a new non-governmental organization – inspired by the success of INPO and WANO – made of up nuclear security professionals whose goal is to strengthen the physical protection and security of nuclear and radiological materials worldwide. Corey Hinderstein, who is attending this conference, has been our leader in creating WINS, and Roger Howsley – formerly head of security for British Nuclear Fuels, is directing this effort full-time from its headquarters in Vienna.

Through WINS, the industry’s top security professionals can discuss the world’s best security practices for nuclear materials and facilities and share that information with their peers. Everyone responsible for the security of nuclear material has something to share and something to learn, so I urge your support for this mission and work in progress.

WANO and INPO were enormously helpful in the development of the WINS concept, and I would like to especially thank my good friend Zack Pate for his inspiration and guidance. WINS was created with the active assistance from Director General ElBaradei and his team at the IAEA, as well as the U.S. Department of Energy under the Bush Administration. This cooperation is continuing and must be strengthened if WINS is to succeed in creating a worldwide nuclear security best practices network. We must not wait for a “security Chernobyl” to motivate us.

Third, Fuel Cycle

The third challenge I will mention this morning, and one that affects this industry most directly, is managing the threats that arise from the nuclear fuel cycle. In 2006, the report of the UN High Level Panel on Threats said that, “... the proliferation risks from the enrichment of uranium and the reprocessing of spent fuel are great and increasing.”

The bottom line is – any country that has the ability to produce highly enriched uranium or plutonium can become a virtual nuclear weapons state.

There are important things we can do today to limit the spread of enrichment and separation facilities. I proposed in Vienna in 2006 that the IAEA create a “last resort” reserve of low-enriched uranium – to be owned and operated by the IAEA – to promote reliance on the international nuclear fuel market as an alternative to new national enrichment facilities. Warren Buffett committed \$50 million to launch the fuel bank – provided that \$100 million could be raised from other sources. In March 2009, we passed the \$100 million mark with contributions from the United States, the European Union, Norway, the United Arab Emirates and Kuwait. We hope that the IAEA Board of Governors will approve the terms of the fuel bank’s operation this year. Laura Holgate, who many of you may know, has spearheaded this effort for NTI, and Joan Rohlfing and Charlie Curtis have helped guide both WINS and the NTI-Buffett fuel bank.

The momentum behind this fuel bank has also catalyzed other fuel assurance plans, which may ultimately provide diverse and layered assurances to meet the varied

needs of the growing nuclear energy community. The IAEA is considering Russia's proposal to provide a reserve of nuclear fuel that would be made available to the IAEA upon the request of a country experiencing a fuel supply interruption. Another proposal by Russia for an IAEA-safeguarded international uranium enrichment center at Angarsk provides a way for nations to participate in the economic benefits of enrichment without spreading the technology to new states.

The bottom line -- we must develop safeguards to expand nuclear power without expanding the capacity to make bombs. Can we create a system where everyone plays by the same rules on enrichment and reprocessing?

This question is neither new nor easy. And to overcome inevitable obstacles, we must keep coming back to two fundamental principles. First, governments have an interest in the commercial success of the nuclear industry, because the world will not have the energy it needs without nuclear power as part of the global energy mix. Second, the nuclear industry has an interest in the security concerns of governments, because a breach of nuclear safety or security anywhere could cost the industry the public support needed to expand.

We do not know all the answers. We must develop solutions that are sustainable – scientifically, politically, and commercially – through a broad discussion that involves industry, governments, international organizations, security experts, technical experts, and the public.

Charles Darwin observed -- “It is not the strongest that survive, nor the most intelligent, but the ones most responsive to change.”

We have demonstrated that we are capable of change, and we do have some important successes, including the Nunn-Lugar Cooperative Threat Reduction program – which has helped remove all nuclear weapons from Ukraine, Belarus and Kazakhstan and deactivated thousands of nuclear weapons in Russia. Other advances include the Proliferation Security Initiative, the Global Initiative to Combat Nuclear Terrorism, and the Global Threat Reduction Initiative. Since the creation of GTRI in May 2004, the U.S. – working with Russia and others – has removed more than 40 nuclear bombs worth of highly enriched uranium, converted 18 research reactors to operate with low enriched uranium instead of HEU, and secured more than 750 radiological sites around the world containing enough material for thousands of dirty bombs.

These all mark progress and encourage us to light a candle rather than curse the darkness.

In conclusion, uranium can be used to produce the energy required to dramatically reduce poverty, disease, environmental degradation and despair, or we can use it to blow up God's creation. Using it for humanity's sake requires change and cooperation.

On the security front, we are in a race between cooperation and catastrophe.

Nearly 20 years ago, President Reagan asked an audience to imagine that “all of us discovered that we were threatened by a power from outer space—from another planet.” The President then asked: “Wouldn't we come together to fight that particular threat?”

After letting that image sink in for a moment, President Reagan came to his point: “We now have a weapon that can destroy the world -- why don't we recognize that threat more clearly and then come together with one aim in mind: how safely, sanely, and quickly can we rid the world of this threat to our civilization and our existence.”

Our generation must begin to answer this question.

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