PARTNERSHIP *for* GLOBAL SECURITY

LEADING THE WORLD TO A SAFER FUTURE

Remarks of Kenneth Luongo
President, Partnership for Global Security

The Future of Nuclear Power: Technology, Security, and Geopolitics

Sponsored By
The Global American Business Institute
Washington D.C.
9-26-17

- In my view the context for evaluating the contributions of nuclear power in the 21st Century have evolved significantly from the 20th Century. But the evaluation framework has not been adequately updated.

- We do not have the luxury of being single issue communities anymore. The issue set is evolving and they are inter-related.

- You cannot just care about nuclear nonproliferation, or nuclear waste, or security, or safety. We are facing a significant climate challenge to which nuclear power is one important response and an evolution in the geopolitical landscape that is threatening to undermine the rules and regimes that provide confidence in the peaceful employment of nuclear power.

- These issues are entwined and you need more than single issue silo communities to tackle them.

- To address this new environment, it will require: (1) new policies; (2) new partnerships; and (3) the recognition of new realities.

- The new challenges include –

    - climate and low carbon energy demands
    - cyber, artificial intelligence and non-state actor threats
    - aggressive, state-backed international competitors
    - newcomer nuclear nations in dangerous neighborhoods
    - clean air, public health, and sustainable economic development requirements in the developing world
    - new, advanced reactor technology development and the creation of an effective regulatory and security structure around it

  - elimination of electricity inequality as power and reliability demands grow around the globe

- These issues and others very much intersect with three key categories – Nuclear Security, Governance and Geopolitics

Security

- Nuclear security has outgrown the traditional definition of guards, guns and gates. Those physical protection issues are still important, but there are a number of new security challenges in this century.

- As a first order of concern, the international nuclear security system is not well integrated, is opaque, and does not mandate consistent implementation across nations. It is primarily based on the IAEA's useful recommendations but they can be voluntarily implemented or ignored.

- As a result, there are no universally implemented standards and the system is fractured. This is in contrast with safeguards and security which rely on international agreements like the CNS and NPT.

- In the past decade, there were four international nuclear security summits designed to strengthen the system. They made some improvements, particularly by eliminating fissile material stockpiles and promoting attention to the issue.

- But, that is not enough in our new environment. For example -

  - Cyber security is a growing and mutating challenge to all digital infrastructure and nuclear is one of the most consistently attacked.

  - Non-state actor and nuclear terrorist challenges continue to cast a shadow on the nuclear landscape. Much has been done since 9/11, but there is also much more to be done as terrorist tactics mutate rapidly.

  - Artificial intelligence is an emerging and uncharted field in the nuclear field. It is unlikely to be a purely benign technology or one limited only to states. Corporations are largely controlling this technology in the West.

  - A lurking issue is the potential for a geo-engineering response to a failure to limit greenhouse gasses. There is little in place in the international system to stop any

nation from acting on this if climate change poses a direct threat to their national security and stability. The implications can be globally profound and uncertain.

- The next phase of nuclear power will be in regions where the U.S. and western nations may not have as much influence on nuclear decision making and we must remain vigilant and be able to act quickly and effectively. While we have eliminated fissile material stockpiles in many nations, newcomer nuclear nations contracting with non-traditional nuclear suppliers, may decide that uranium enrichment and reprocessing are in their national interest.

Geopolitics

- It is clear that nuclear power is most rapidly growing in the developing world. But it is important to note that it is expanding most aggressively in tense regions of Asia, particularly in South and North East Asia, and it is slowly emerging in the stability-challenged Middle East. There also is interest in Africa. This poses special security and governance challenges.

- In many nations contemplating nuclear power, the educational, regulatory, and training systems are in need of significant strengthening. We need to collectively ensure that nuclear newcomers are very well prepared to safely and securely operate their nuclear infrastructure.

- But who is the "WE"?

- The question that is rising in importance is who is going to supply this next wave of nuclear power and how committed are they to ensuring the highest levels of governance?

- Traditional nuclear suppliers, including the U.S. and its allies, have primarily written the current rules. But, they are in the process of losing ground on nuclear commerce to Russia and soon China. Their nuclear ambitions are state backed and are integrated into the strategic and geopolitical objectives of these countries.

- These are very serious issues for the entire global community. Nuclear operation and supply are special responsibilities. Radiation does not respect borders. Standards must be strong. And suppliers and operators must be responsible.

- Nuclear safety, security, non-proliferation, and environmental protection are the essential components for the advancement of civil nuclear power. GNI has proposed a process of realistic continuous improvement in the governance system. All suppliers need to commit to that concept or a similar objective.

- This is especially true for Russia and China.

- Russia is aggressively marketing its nuclear technology abroad. Its Build, Own, Operate and Return of spent Fuel is very attractive to newcomer nations.

- But, newcomers dealing with Russia have commented that they would prefer to deal with the U.S.

- China is poised to become the Amazon.com of nuclear commerce in this century.

- By 2026, China is projected to overtake the United States as the world's top nuclear power generating nation – making it the largest global nuclear operator and market. But initially, also a leading nuclear nation with the least cumulative number of years of experience compared to other major nations.

- Along with its domestic expansion—20 reactors under construction and 40 more planned – China is seeking to build nuclear plants in emerging economy nations and long-standing nuclear states.

- It also is working hard on advanced reactor concepts, including one that may lead the pack in the race for commercialization.

- One of our key allies – South Korea – is in a state of confusion about its future civil nuclear program and exports.

- Eliminating the role of South Korea - one of the U.S.' critical and responsible partners in the civil nuclear field - will have significant political, economic, climate and international security implications.

- It may be that the nuclear sabre rattling from North Korea helps to clarify the value and importance of current and future nuclear activities in South Korea.

Governance

- Effective governance is the fundamental foundation of public confidence in nuclear power.

- We have sub-optimal international nuclear governance for the current reactor fleet and one that is not adequately evolving to address future challenges.

- In the 21st Century, governance improvements must be proactive, aggressive, and deliberate because the system is facing a novel set of new challenges, including:

    - Non-state actors and terrorists seeking nuclear materials and expertise
    - New nations without deep experience or infrastructure pursuing nuclear programs
    - New nuclear suppliers that lack a history of strengthening norms and governance
    - A major technical evolution in the form of advanced reactors that are smaller, use different coolants, and don't fit neatly into the regulatory frameworks that we've created for large LWRs
    - Zero carbon energy requirements

- In the face of these new realities, the U.S. does not face the choice of whether to lead or follow. Its choice is to lead or cede – as in cede the international nuclear playing field to Russia and China.

- If the U.S. does not rapidly and actively reinvigorate its global civil nuclear strategy and become a stronger player in the export market, it will still be left with the responsibility and the bill for managing the consequences. Let me offer three example – Iraq, North Korea and Iran. All three of those nuclear programs have cost the U.S. a fortune to date.

- The problem for the U.S. is that it is not facing a level playing field. Russia and China are backing their industries with state capital. Internationally, sovereign models not utility models will dominate in new markets.

- There needs to be much better leadership and strategic thinking in the U.S. We cannot let the future nuclear strategy of the country be decided by state legislatures and governors on a case by case basis.

- Nuclear geopolitics are as important – if not more so – then kilowatt hour electricity prices for this country. But, the issue is not reflected in the state level debates.

- There needs to be a clear recognition of the significant implications for the country of continued technical superiority in this area and its corollary implications for the domestic economy, workforce and employment, environmental objectives, and global nuclear safety, security, and nonproliferation standards.

- It is essential that the U.S. continue to set the tone and scope for the nuclear governance system and to be able to influence Russian and Chinese actions in the international civil nuclear environment from a position of strength. We need a strategy of continuous improvement not lowest denominator.

Future of GNI

- GNI is an innovative and risky project because it has no precedent.

- It is predicated on the belief that innovative nuclear policy requires "break the mold" partnerships

- In order to develop and implement innovative nuclear policies, it requires the creation of a strong and diverse coalition including: governments; national laboratories; international institutions; the nuclear industry and its professional associations; regulators; the nuclear nonproliferation, security, and safety expert communities; and climate change and environmental specialists.

- No single entity has all the answers or controls all the levers that are necessary to advance progress.

- Together, they can assess the requirements for improvement and formulate balanced, realistic, and effective responses.

- Aligning these critical sectors – civil society, the nuclear industry, and committed governments and international institutions — will be an extremely potent force in driving policy change.

- A "break the mold" coalition – as a function of its diversity - can serve as a credible voice on complex issues, generate high-level attention to challenges, and provide a platform for creative and effective problem solving. This will increase public confidence in existing and next generation nuclear technology.

- The experience of the Global Nexus Initiative over the past two years has demonstrated that not only is it possible to assemble such a critical coalition, but that it can thrive and be cohesive enough to develop a common and important agenda for the future.

- We intend to further strengthen and institutionalize this unique collaboration as we continue to pursue the real results required to address the challenges posed by the nexus of climate change, nuclear power and global security.

- During the next two years under GNI we are going to focus on 4 key issues:

    - Ensure that advanced reactors are designed to be safe, secure, and proliferation resistant

- Focus on addressing the challenges posed by the nuclear supplier evolution and the needs of newcomer states
- Continue to underscore the contributions that nuclear power needs to make in this new era and institutionalize the partnerships that can ensure it is a technology that can effectively, and in a socially responsible manner, address the new challenges of this new century
- Expand the coalition of policymakers, organizations and individuals that can support these objectives.