# Taking the Long View in a Time of Great Uncertainty

## Going Back to Our Roots — DOE's Nuclear Security Role

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Several of my columns in the past couple of years have focused on the growing international activities and collaborations of the INMM, as the world has become a more complex environment with respect to "things nuclear." These efforts by the membership represent an evolutionary change that is occuring in the work of the Institute as technology shrinks the world, and "things nuclear" dominate national security strategies, hopes of future prosperity, and a more globally-consicous focus on the tenets of the Treaty on the Nonproliferation of Nuclear Weapons (NPT) established forty-five years ago.[1]

The Institute itself, however, had its origins, dating back more than fifty-five years, in the U.S. Atomic Energy Commission (AEC) and what subsequenlty became known as the Nuclear Weapons Complex, and now is known as the Nuclear Security Enterprise or NSE.[2] The NSE, comprised of the National Security Laboratories, supported by the "production" sites and the Nevada National Security Site (NNSS, formerly known as the Nevada Test Site) continue to perform "great science" not only in sustaining a safe, secure and reliable nuclear deterrent, but also in efforts to secure nuclear materials worldwide, promote peaceful uses of nuclear energy, and myriad other activities, both domestically and internationally. Over those five decades, many changes have occured, including the organizational structure of the Enterprise as well as the processes for overseeing their activities.

In the *Journal of Nuclear Materials Management* (*JNMM*), Volume II, No. 1, Spring 1973,[3] the editor, Curtis Chezem, stated the following:

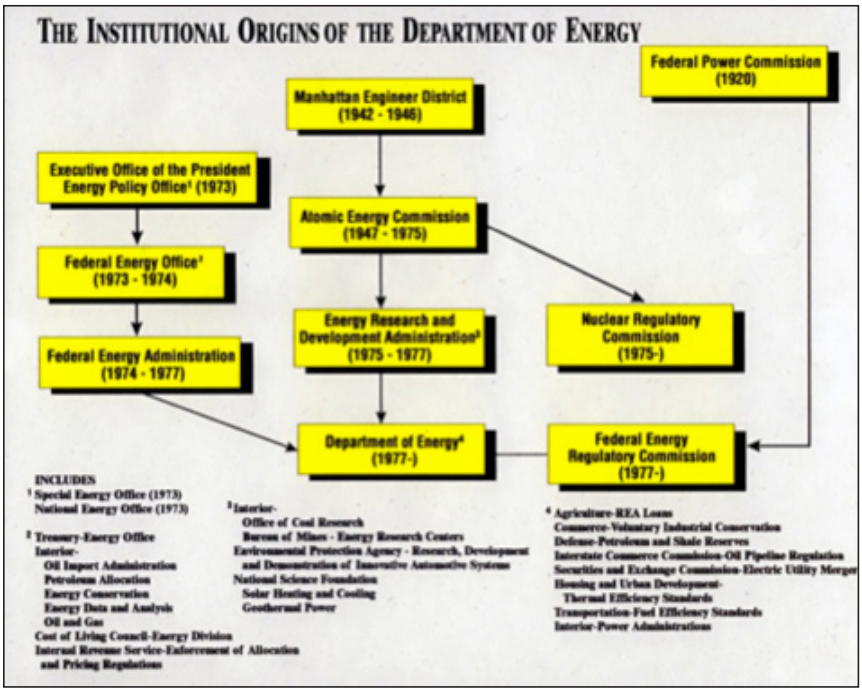
> "The most significant development during the last year has to be the upheaval in the Atomic Energy Commission."

Fast forwarding forty-two years, we can take a look around and make a similar statement concerning the state of the current Enterprise, as several major advisory panels, including some that have been congressionally commissioned, continue to examine issues, historical perspectives, and future needs, making significant recommendations for change. These issues are being driven by "externalities"[4] that surround us all of the time, not the least of which are societal changes, socio-political upheavals, economic changes, and science and technology breakthroughs.

*This column is intended to serve as a forum to present and discuss current strategic issues impacting the Institute of Nuclear Materials Management in the furtherance of its mission. The views expressed by the author are not necessarily endorsed by the Institute, but are intended to stimulate and encourage* JNMM *readers to actively participate in strategic discussions. Please provide your thoughts and ideas to the Institute's leadership on these and other issues of importance. With your feedback we hope to create an environment of open dialogue, addressing the critical uncertainties that lie ahead for the world, and identify the possible paths to the future based on those uncertainties that can be influenced by the Institute. Jack Jekowski can be contacted at jpjekowski@aol.com.*

### History Repeating Itself?

Several timelines and histories have been published about the evolution of the NSE,[5] some of which were identified in the Taking the Long View column in the April 2012 issue.[6] Although the history of the Nuclear Enterprise has been a roller-coaster ride over the decades, with the formation of the Energy Research and Development Administration (ERDA) in 1975 out of the Atomic Energy Commission, and then the subsequent formation of the U.S. Department of Energy in 1977, and ultimately, the creation of the National Nuclear Security Administration (NNSA) in 2000 (see figure for an early historical perspective, not including the creation of NNSA in 2000), it seems as though the pace of significant change has increased in the new millennium. In recent reports, including one released in November 2014 by the Congressional Advisory Panel on the governance of the Nuclear Security Enterprise titled, "A New Foundation for the Nuclear Enterprise," it has been noted that in the last two decades more than fifty reviews and studies have examined the issues and organizational




structure of the Enterprise, as well as the challenges that have continued after the formation of the NNSA in March 2000. Each of these reports have had accompanying recommendations, with the most recent Advisory Panel providing nineteen primary recommendations and sixty-three sub-recommendations to improve performance, efficiency, and accountability.[7] Such appears to be the "nature of the beast," as the U.S., amid global changes, struggles to sustain a viable nuclear deterrent while leveraging the phenomenal talents and infrastructure of the Enterprise in difficult fiscal times.

## The Role of DOE and the Laboratories in the Recent Iranian Negotiations

Despite all of the studies, reviews, and recommendations to modernize and restructure the Enterprise, the real-world mission of the U.S. national security laboratories came to light once again as U.S. Secretary of Energy Ernest Moniz prominently worked with U.S. Secretary of State John Kerry in the recent "P5+1 nuclear negotiations"[8] during the past several months to strike a preliminary deal with Iran that would pave the way for a diplomatic solution to one of the most consequential issues of the new millennium. In a recent news release,[9] Moniz acknowledged the role that the NSE played in accomplishing this challenging feat (emphasis added):

> *"The key parameters established today lay the groundwork for achieving the P5+1's objective of blocking Iran's four pathways to nuclear weapons: the two uranium pathways through Iran's Natanz and Fordow enrichment facilities, the plutonium pathway at the Arak reactor, and the covert pathway.*
>
> ***"America's leading nuclear experts at the Department of Energy and its national labs and sites were involved throughout these negotiations, evaluating and developing technical proposals to help define negotiating positions in support of the U.S. delegation.*** *As a result, I'm pleased to say that we are very confident in the technical underpinnings of this arrangement."*

And, in a related news story in *The New York Times*[10] titled "*Atomic Labs Across the U.S. Race to Stop Iran,*" the role of the various labs during the negotiations was discussed; including a side article titled, "*A Simple Guide to the Nuclear Negotiations with Iran.*"[11]

## Hope for the Future

Despite the complexities of the various studies described here, and the impending changes facing the NSE in the coming years, members of the INMM Southwest Chapter were recently greatly encouraged for the future of the Institute, our laboratories, and the world, as more than thirty young students from the University of New Mexico and Texas A&M student chapters gave a day-long series of technical presentations on a wide range of topics germane to the issues the world is facing today (see photo taken outside the technical meeting venue in Taos, New Mexico, USA). The presentations ranged from new techniques to detect the surreptitious diversion of materials

from spent fuel, to forensic methods for detecting and analyzing signatures from nuclear events.

In end-of-day discussions, as everyone wound down from an intense, nonstop day of technical interactions, it was noted that the eight student presentations had given new hope to the more senior members in attendance that the "gauntlet" was being passed to a passionate and highly-educated new generation.[12]

## End Notes

1. See https://www.iaea.org/sites/default/files/publications/documents/infcircs/1970/infcirc140.pdf for the full Treaty language. Of note, two Articles in the Treaty have taken front stage in international discussions recently, Article IV, which speaks to the "*inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination…*" and Article VI which speaks to nuclear disarmament: "*Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.*"
2. See http://itpnm.com/whats-new-archives/whatsnew-archive-popup-may-2009a.htm for a link to a presentation by the author at the 2009 annual INMM SW Chapter Taos Technical Meeting titled "*Complex Transformation and the Future of the Nuclear Security Enterprise.*" Similar presentations are available on the transformation of the Weapons Complex since 2006 under the "What's New" link on the ITP website in the May time frame of each year.
3. See the JNMM Archive link, under the "Resources" tab, on the member's login at the INMM website – www.inmm.org
4. See Jekowski, J. 2014, "Taking the Long View in a Time of Great Uncertainty," *Journal of Nuclear Materials Management,* Volume 39, No. 1, pp. 39-41, the inaugural column describing the strategic planning effort led by Ken Sorenson, and how "externalities" played a role in developing a new organizational structure for the Institute. Also see related discussions of updated externalities in ibid, Volume 41, No. 3, pp. 20-22 ("Readjusting Priorities").
5. See, for example, http://energy.gov/management/office-management/operational-management/history/doe-history-timeline
6. Jekowski, J. 2012, "Taking the Long View in a Time of Great Uncertainty: Looking Back at a Decade of Tumult – and Looking Forward to an Uncertain Future," *Journal of Nuclear Materials Management,* Volume 40, No. 3, pp. 99-101.
7. See http://cdn.knoxblogs.com/atomiccity/wp-content/uploads/sites/11/2014/12/Governance.pdf?_ga=1.83182294.1320535883.1415285934 for the report, and http://energy.gov/seab/downloads/seab-memorandum-department-congressional-advisory-panel-governance-nuclear-security for a copy of the Secretary of Energy Advisory Board's review and comments.
8. In reference to the permanent five members of the UN Security Council plus Germany; also known as the E3+3 in recognition of the original negotiators with Iran in the early 2000s – France, Germany and the United Kingdom who met to try to diplomatically resolve the situation. See https://www.armscontrol.org/factsheets/Iran_Nuclear_Proposals for a lengthy history of the earlier negotiations.
9. See http://energy.gov/articles/statement-us-secretary-energy-ernest-moniz-p51-nuclear-negotiations for full text of news release.
10. See http://www.nytimes.com/2015/04/22/us/in-atomic-labs-across-us-a-race-to-stop-iran.html?mwrsm=Email&_r=1
11. See http://www.nytimes.com/interactive/2015/03/31/world/middleeast/simple-guide-nuclear-talks-iran-us.html
12. Jekowski, J. 2013, "Taking the Long View in a Time of Great Uncertainty: Throwing Down the Gauntlet to the Next Generation of Nuclear Stewards — the Enduring Nuclear Legacy," *Journal of Nuclear Materials Management,* Volume 42, No. 4, pp. 86-89.