Via Electronic Submission (Section934Rulemaking@Hq.Doe.gov)

April 15, 2015

Ms. Sophia Angelini
U.S. Department of Energy
Office of General Counsel
Mailstop GC-72
1000 Independence Avenue, SW
Washington, DC 20585

Ref: Convention on Supplementary Compensation for Nuclear Damage Contingent Cost Allocation; Notice of Proposed Rulemaking

Dear Ms. Angelini:

URENCO USA Inc. ("UUSA, Inc.") appreciates the opportunity to comment on the Department of Energy's ("DOE" or the "Department") Notice of Proposed Rulemaking ("NOPR") on the Nuclear Damage Contingent Cost Allocation for the Convention on Supplementary Compensation. These comments are submitted in response to the NOPR published in the December 17, 2014 Federal Register, and are timely filed in response to the extension of the comment period as published in the March 9, 2015 Federal Register.

UUSA, Inc. is the corporate parent of Louisiana Energy Services, LLC, the licensee and operator of the only working commercial facility producing low enriched uranium in the United States. The UUSA enrichment facility in Lea County, New Mexico, received a combined construction and operating license from the U.S. Nuclear Regulatory Commission in 2006 and began enrichment operations in 2010. UUSA's enrichment capacity current stands in excess of 4.0 million Separative Work Units (SWU) per year, equivalent to more than twenty five percent of annual demand for uranium enrichment services by U.S. utilities. This capacity reflects an investment of roughly $4 billion in U.S. manufacturing.

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

Uranium enrichment is an intermediate step in the nuclear fuel cycle in which natural uranium is first mined then converted to uranium hexafluoride, then enriched to increase the concentration of the fissionable U235 isotope, and finally converted into uranium dioxide and fabricated into fuel assemblies for use in nuclear power plants. As the nation's only enricher and as a member of the domestic nuclear energy industry, we are closely following the Department's efforts to develop a nuclear damage contingent cost allocation program.

We commend DOE for providing multiple opportunities to comment on this process and for holding public workshops on the December 17, 2014 NOPR. We would also like to recognize the deliberate and thoughtful work conducted by the General Counsel's office in this highly complicated proceeding and for its efforts to balance the requirements of Section 934 of the Energy Independence and Security Act of 2007 ("EISA") against the needs and concerns of the nuclear energy industry. The fact that additional work is required in order to develop an appropriate and successful contingent cost allocation system should in no way diminish the Department's significant work to-date.

Following a review of the December 17, 2014 NOPR and the proceedings of the related 2015 workshops, we offer the following information to assist the Department in its on-going evaluation.

The Proposed Definition of a "Covered Nuclear Supplier"

The definition of a "nuclear supplier" is straight-forward and raises no concerns as applied to facilities, equipment, fuel services, or technology (see further comments below on the transport of nuclear materials), however there exists more ambiguity in the proposed definition of a "covered nuclear supplier" as it applies to a fuel cycle facility like UUSA's New Mexico enrichment plant.

To determine if a supplier is included in the risk pooling program, the NOPR would use the concept of a "covered nuclear supplier." The NOPR defines as "covered nuclear supplier" as "a nuclear supplier whose goods or services, if supplied in the United States, would be subject to the requirements of 10 CFR Part 21."

DOE has proposed to use the Nuclear Regulatory Commission's ("NRC") Part 21 requirements in order to provide an objective benchmark for determining which suppliers and which goods or services would be covered for the purposes of the risk pooling system. AS DOE explains (79 Fed. Reg. at 75080 citations omitted):

> "this approach provides an objective benchmark for nuclear suppliers. Nuclear suppliers whose goods and services, if supplied in the United States, would be subject to the NRC's part 21 requirements can be certain what goods or services they supply abroad are subject to reporting requirements of the proposed rule..."

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA **T:** +1 703 682 5208 **F:** +1 703 465 2784
E: melissa.mann@urenco.com **W:** www.urenco.com

DOE requests comments on whether Part 21 or another standard should be the appropriate criterion for determining when a supplier is a "covered nuclear supplier" and which of its transactions must be reported to DOE (79 Fed. Reg. at 75080):

> "The Department seeks comment on whether NRC's part 21 regulations, or some other regulatory requirement or concept such as the quality assurance requirements in 10 CFR part 50, appendix B, are appropriate criteria to determine which nuclear suppliers should be defined as a covered nuclear supplier."

UUSA generally agrees that the use of 10 CFR Part 21 as a threshold criterion would establish an objective benchmark, since it is usually clear when a particular transaction is subject to Part 21 requirements. As is the case for other suppliers, however, some goods and services supplied by UUSA are subject to Part 21 reporting requirements and some are not.

The NRC has recognized that the terminology of Part 21 – particularly the definition of a "basic component" – is specific to power reactors (e.g., the definition of a basic component in Part 21 references maintaining the integrity of the reactor coolant pressure boundary). As a result, the NRC has observed that "The definition of a basic component as it applies to Part 70 [fuel cycle] licenses is difficult to interpret."[1] For this reason, the NRC is planning to undertake a rulemaking to clarify Part 21 as it applies to fuel cycle facilities – for example, by adding a definition to Part 21 for "basic component" that is specific to fuel cycle facilities licensed under 10 CFR Part 70.[2] The NRC has indicated that such a change may modify the definition of basic component for fuel facilities to cover items relied on for safety ("IROFS") whose failure could cause a loss of a safety function resulting in the performance requirements of 10 CFR 70.61 being exceeded.[3]

The practice in the fuel cycle industry has been to treat key components of the facility that are IROFS as safety-related and subject to Part 21. As described below, however, low enriched uranium (LEU) in the form of uranium hexafluoride, which is produced at UUSA and supplied to fuel fabricators for the manufacture of fuel assemblies, is subject to rigorous ASTM specifications, but generally the LEU material is not procured as subject to 10 CFR Part 21. As such, under the current Part 21 requirements, should UUSA export a uranium enrichment facility or key safety-related components of a uranium enrichment facility, such transactions might be subject to the proposed risk pooling program whereas exports of low enriched uranium in the form of uranium hexafluoride generally would not.

---

[1] Draft Regulatory Basis to Clarify 10 CFR Part 21, "Reporting of Defects and Noncompliance," Rev. 1, dated March 2015, at 16-17.

[2] *Id.* at 16.

[3] *Id.* at 21.

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

The Proposed Definitions of a "Covered Transaction" and of a "Final Nuclear Supplier"

For entities meeting the proposed definition of a "covered nuclear supplier," the next test imposed is whether that entity participates in a "covered transaction" and also meets the definition of a "final nuclear supplier." The NOPR (79 Fed. Reg. at 75080) defines a "covered transaction" as "a reportable transaction where a nuclear supplier is the final nuclear supplier to a covered installation." The NOPR further defines a "final nuclear supplier" as "the nuclear supplier that obtains, where required, an NRC general or specific license under 10 CFR part 110, Department of Commerce export license under 15 CFR part 734, or DOE authorization under 10 CFR part 810 for the export of the item(s) involved in a reportable transaction."

UUSA believes that both definitions are straight-forward and appropriate for determining whether a nuclear supplier is considered for inclusion in a risk pooling program.

We also recognize that some nuclear suppliers may rely on agents for the purpose of obtaining the above-referenced export license approvals. It may be appropriate to distinguish between agents that play a role in simply facilitating licensing paperwork and/or the export approval process and those entities that are involved in the act of exporting an item from the United States to a foreign destination.

It may not be appropriate to include in a risk pooling system those entities involved only in expediting activities. While an export license provides authorization for delineated export transactions, it does not mandate that such exports take place. As such, an expeditor might be unaware of whether an export proceeds in fact and/or might not be involved in actually effecting the export transaction. (It's also possible that such an entity could fall within other definitions associated with a de minimis level of activity).

This type of differentiation is consistent with the Department's own proposal that (79 Fed. Reg. at 75081)

> "Only the final nuclear supplier can report with certainty on the timing, destination, value and quantity of exported goods or services. This information is essential in developing and implementing any risk-informed assessment formula."

Entities that both obtain export authorizations and are involved in completing the export do fall within the scope of the DOE's proposed definition of "final nuclear supplier."

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA **T:** +1 703 682 5208 **F:** +1 703 465 2784
E: melissa.mann@urenco.com **w:** www.urenco.com

Transports of Nuclear Material

DOE's proposed definition of a "nuclear supplier" includes a covered person that "transports nuclear materials that could result in a covered incident." It is not clear from this definition how the term "nuclear material" is being applied.

Separately, DOE notes that it is interpreting the Convention on Supplementary Compensation on Nuclear Damage definition of "nuclear material" to include (79 Fed. Reg. at 75082)

> "nuclear materials such as enriched uranium, nuclear fuel, irradiated (spent) nuclear fuel, and radioactive wastes, and to exclude as nuclear materials natural uranium, depleted uranium, and radioisotopes in usable form."

We assume it is DOE's intention to apply this interpretation directly to the transport-related aspects of the proposed definition of a "nuclear supplier," so that only foreign (i.e., outside the U.S.) transportation of covered goods would be included. For example, it would be incongruous that UUSA may not qualify as a "covered nuclear supplier" for the export of low enriched uranium but could be deemed a "covered nuclear supplier" for the physical transport of low enriched uranium.

It would be extremely helpful to the review of the proposed risk pooling system if DOE could provide more explicit discussion regarding transport-specific activities for additional public review and comment, and in particular clarify that only foreign transportation of covered goods to or from a covered installation would subject the transporter to potential liability for retrospective premium payments under the rule.

The NOPR's Proposed Assessment Formulas May Not Be Supported By An Adequate Technical Basis and May Not Be Risk-Informed

DOE's NOPR presents two alternatives for the "risk-informed assessment formula" required under Section 934 of the EISA. Alternative 1 would assess risk based on the type of goods and services supplied. For example, it would assign a higher risk – using a risk weighting factor of 2 – to "primary" nuclear items and services listed in Appendix A to the rule, such as reactor Nuclear Steam Supply System components. A risk weighting factor of 1 would apply to "secondary" items and services listed in Appendix B, which includes uranium enrichment facility equipment and nuclear fuel materials such as enriched uranium.

Alternative 2 would assess risk based on the industry sector in which a supplier participates. For this purpose, Alternative 2 defines four sectors and would allocate a percentage of the CSC contingent cost to each sector as follows:

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

- Facility sector: 50 percent
- Equipment and Technology sector: 25 percent
- Nuclear Materials and Nuclear Material Transportation sector: 15 percent
- Services sector: 10 percent

Under Alternative 2, for a supplier like UUSA in the Nuclear Materials and Nuclear Material Transportation sector, the risk exposure for purposes of calculating the retrospective premium payment would be the sum of: (a) the quantity in metric tons of all covered transactions with nuclear reactor facilities or reprocessing facilities multiplied by 2, and (b) the quantity in metric tons of all covered transactions with facilities for the processing of nuclear material (and other facilities) multiplied by 1. See proposed 10 CFR 951.12 (Alternative 2) and 951.7 (Alternative 1).

Under both alternatives, a supplier's retrospective premium payment would be calculated based on the supplier's "risk share." A supplier's risk share reflects its portion of the aggregate value of covered transactions of all nuclear suppliers (the "total risk exposure of all suppliers") or of all suppliers in the relevant sector (Alternative 2).

In our view, the NOPR fails to present a true risk-informed assessment formula as required under Section 934 of EISA for two main reasons:

1) The NOPR does not provide an adequate technical basis for the risk weighting factors used in the formulas for calculating the retrospective premium payment. The NOPR states that the risk weighting of 2 for Appendix A items under Alternative 1 and the risk allocation values among sectors in proposed Alternative 2 are based on DOE's "experience" and "knowledge" of the industry.[4] However, the NOPR does not discuss any technical information, such as studies of accident sequence precursors or probabilistic risk assessments that would support the proposed risk weighting factors. While we recognize the challenges of developing a risk-informed assessment formula, it appears that the risk weighting factors are largely subjective and not based on technical studies or analysis. As a result, Alternatives 1 and 2 are essentially deterministic approaches and not risk-informed as required by EISA's statutory mandate.[5]

[4] *E.g.*, 79 Fed. Reg. at 75084, 75086-87.

[5] The NOPR does not attempt to provide any estimate of the total risk exposure of all suppliers – the denominator in the formula under each alternative. As a result, a supplier such as UUSA cannot determine its potential risk share with any certainty under either alternative or even meaningfully evaluate which of the two alternatives might be preferable. DOE should undertake additional data gathering to develop a reasonable estimate of the total risk exposure of all suppliers, at least to the extent necessary to allowed affected suppliers to estimate the potential impact of each of the alternatives presented.

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

2) The NOPR does not accurately reflect the risk of uranium enrichment and other front-end nuclear fuel cycle activities. Under Section 934 of EISA, the risk-informed assessment formula is intended to differentiate between items based on their relative contribution to the risk of a nuclear incident resulting in a request for funds under the Convention. For Alternative 2, proposed 10 CFR 951.12 (Alternative 2) would assign a risk weighting factor of 2 to nuclear fuel material supplied to reactor facilities. This is the same risk weighting factor that would apply to the supply of nuclear reactors and major nuclear island components under proposed 10 CFR 951.10 (Alternative 2). The use of the same weighting factor for the supply of low enriched uranium as is applied for nuclear reactors would greatly exaggerate the risk contribution of the enrichment function and thus penalize domestic uranium enrichment companies. In fact, DOE appears to recognize the limited risk associated with uranium enrichment for purposes of Alternative 1, where nuclear materials would only be assigned a weight factor of 1 as an Appendix B item. This inconsistency in the NOPR illustrates the need to develop a sound technical basis to support a truly risk-informed rule.

UUSA urges DOE to work with the nuclear supplier industry to gather the data and perform the technical analyses necessary to develop a revised proposed rule that is risk-informed. As DOE undertakes such additional data gathering and analytical work, UUSA reiterates its strong view that front-end suppliers do not contribute significantly to the risk liability for nuclear damage resulting in a nuclear incident at a covered installation outside of the United States.

Uranium enrichers like UUSA provide a fungible commodity, low enriched uranium hexafluoride ("UF_6"), to fuel fabricators. Fuel fabricators consolidate low enriched UF_6 stocks from multiple suppliers which are then heated to gaseous form and chemically processed to form uranium dioxide powder. Fabricators blend the powder to different uranium enrichment levels to produce enrichment levels required by a specific customer. This powder is subsequently pressed into pellets and sintered into ceramic form before being loaded into tubes and constructed into fuel assemblies meeting the precise requirements of an individual nuclear power plant.

The low enriched UF_6 supplied by UUSA to fuel fabricators necessarily conforms to the latest version of the ASTM International's Standard Specification for Uranium Hexafluoride Enriched to Less than 5% ^{235}U, Designation C996, but is otherwise indistinguishable from the enriched UF_6 provided by UUSA's competitors, including foreign enrichers. While the enriched uranium pellet produced by fuel fabricators is a component related to safety under Part 21, the precursor raw enriched uranium as UF_6 is not. There is no means available to UUSA of identifying which portion – if any – of UUSA-supplied low enriched UF_6 is incorporated into fuel pellets by a fuel fabricator for any given reactor customer (domestic or foreign). Further, the low enriched UF_6 produced by UUSA is significantly transformed from the material provided by UUSA in processes outside of UUSA's control before it reaches the end-user.

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

Further, the low risk associated with front-end fuel cycle activities is supported by the fact that the NOPR would exclude uranium conversion – the step in the fuel cycle immediately preceding enrichment – from the scope of the risk pooling program. Both natural uranium resulting from the conversion process and low enriched uranium resulting from the enrichment process are in the form of uranium hexafluoride (and natural UF_6 resulting from the conversion process similarly meets an ASTM International Standard Specification and is similarly treated as fungible within the nuclear fuel cycle). The only difference is the fissile nature of low enriched UF_6, yet DOE provides no analyses demonstrating that the fissile quality of the material justifies significantly different treatment under the proposed risk pooling approach.

This is not to suggest that suppliers of natural UF_6 should be incorporated into the risk pooling program proposed under the NOPR, but rather that DOE must validate the rationale for what otherwise appears to be the imposition of an arbitrary line between certain front-end fuel cycle activities. It is not sufficient for DOE to rely on whether the Convention includes specific front-end fuel cycle facilities among the definition of "nuclear installations" (see 79 Fed. Reg. at 75082) for evaluating the contribution of risks suggested by exports from US fuel cycle plants. The onus is on DOE to demonstrate that there is a meaningful distinction between the relevant risks associated with different forms of fuel cycle materials prior to the fuel pelletization step.

Based on these types of factors, we believe that uranium enrichment and other front-end fuel cycle activities would be shown to have a very low contribution to the risk of a nuclear incident that would give rise to a call for funds under the Convention. As part of developing additional information to support the rulemaking, we urge DOE to perform a risk analysis of different categories of goods and services, and different stages of the fuel cycle, to determine if certain goods and services do not contribute significantly to the risk of a nuclear incident and could be excluded from the risk pooling program altogether or allocated a reduced share.

The risk contribution of various activities should be taken into account not only in the weighting factors and other aspects of a risk-informed assessment formula, but also for purposes of establishing a "cap" on a supplier's liability for retrospective premium payment. As DOE has recognized, it is essential that the rule establish a cap – i.e., a maximum dollar limitation on any single nuclear supplier's liability under the contingent cost allocation. To maintain a risk-informed approach, a range of caps should be established reflecting the relative risk contribution of suppliers. Suppliers on the front-end of the nuclear fuel cycle, for example, should not be subject to the same cap that would apply to suppliers of power reactors and major nuclear island components.

One approach could be to establish different caps for suppliers of Appendix A and Appendix B items (Alternative 1) or different caps for suppliers in each of the industry sectors if a sector-based approach like Alternative 2 is chosen. Within each grouping, the cap could vary according to ranges in the

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com

quantity of covered transactions. By varying the level of exposure in this manner, the approach may well help to make the risk more insurable.

UUSA would be pleased to discuss the above comments with the Department in greater detail. Please do not hesitate to contact me by email at melissa.mann@urenco.com or by phone at 703-682-5208.

Thank you for your consideration.

Best regards,

Melissa Mann
President

URENCO USA Inc.
1560 Wilson Boulevard Suite 300, Arlington, Virginia 22209 - 2463, USA T: +1 703 682 5208 F: +1 703 465 2784
E: melissa.mann@urenco.com w: www.urenco.com