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April 17, 2015

Ms. Sophia Angelini
U.S. Department of Energy
Office of the General Counsel
Mailstop GC–72
Section 934, Rulemaking
1000 Independence Avenue SW
Washington, DC 20585

Subject: Comments on Proposed Regulations Concerning the Convention on Supplementary Compensation for Nuclear Damage ("CSC") Contingent Cost Allocation

Dear Ms. Angelini:

On behalf of Centrus Energy Corp. ("Centrus"),[1] I am submitting the following comments on the proposed regulations under Section 934 of the Energy Independence and Security Act of 2007 ("EISA") included in a notice of proposed rulemaking ("NOPR") published in the Federal Register on December 2014 by the Department of Energy ("DOE"). 79 Fed. Reg. 75076.[2]

Centrus' subsidiary, United States Enrichment Corporation ("USEC"), currently supplies low enriched uranium hexafluoride ("LEU") for use in the fabrication of nuclear fuel. Centrus is also working to deploy the American Centrifuge enrichment technology to produce LEU in the United States for commercial purposes and to support U.S. energy and national security. Among the countries to which LEU from Centrus is exported is Japan, which recently ratified the CSC. Accordingly, as the supplier of goods exported to a CSC country, Centrus has a significant stake in the outcome of the DOE's efforts to develop a final rule to provide for the collection of retrospective premium payments from nuclear suppliers in the event of a covered incident (as defined in the NOPR) and to require record-keeping and reporting on transactions that might be used in order calculate such premium payments.

[1] Centrus Energy Corp. was formerly known as USEC Inc.

[2] Pursuant to a notice published by the DOE on March 9, 2015, the deadline for comments is midnight on April 17, 2015. 80 Fed. Reg. 12352.

Benefits of the CSC

Centrus welcomes the many benefits afforded by the CSC to the nuclear industry as a whole, particularly as the industry seeks to expand sales into new markets while continuing to be responsible suppliers in our existing markets. Centrus' mission is to supply LEU to customers in a safe, profitable and environmentally responsible manner. We believe the CSC fits well with that mission as it underlines that the United States and its nuclear industry take nuclear liability risk seriously and want to ensure that mechanisms are in place in the unlikely event of a nuclear incident to deal with liability and to assure the payment of claims.

As Centrus noted in our comment on the 2010 Notice of Inquiry ("2010 NOI"),[3] Centrus' interest in the CSC arises from our desire to clarify the legal rules applicable to nuclear liability risk in the countries to which our products are exported. We believe that the exposure of industry to potential claims arising from a nuclear incident in a CSC country will be more certain and manageable now that the CSC has come into force, although the true benefits of the CSC for exporters will not be achieved until more countries ratify the CSC. Further, as we noted in our comment to the 2010 NOI, we believe that by encouraging countries to adopt laws that meet the minimum standards set forth in the CSC, the CSC will ensure victims are adequately compensated in the event of an incident without the need for recourse to unpredictable and burdensome litigation in multiple fora.

The language of the EISA appropriately requires that any formula seeking to allocate the U.S. share of the contingent cost in the event of a future covered incident in a CSC country must be "risk-informed." Thus, as noted in the NOPR and in the 2010 NOI,[4] "only nuclear suppliers of goods or services most likely to be exposed to significant potential liability in the event of a covered incident ... would be included in the retrospective risk pooling program." 79 Fed. Reg. at 75080. This recognizes the fact that, while the CSC will have positive effects for the industry as a whole, its greatest benefit will be for those who might face a claim in the event of a covered incident.

The risks of facing such a claim vary by supplier, depending on the facility or facilities to which the goods or services of such supplier are exported and the potential that an incident at such facility or facilities will have off-site effects that lead to significant injury, property damage or a precautionary evacuation. In the case of the fabrication plants to which Centrus' product, LEU, is exported, the risk of such offsite effects is very limited, even if a nuclear incident were to occur at such plants.[5] Indeed, the NRC has noted that "chemical, radiological, and criticality hazards at fuel fabrication facilities are similar to hazards at enrichment plants. Most at risk

[3] Letter from John C. Barpoulis, Senior Vice President and Chief Financial Officer, USEC Inc., to Sophia Angelini, Attorney-Advisor, Office of the General Counsel for Civilian Nuclear Programs U.S. Department of Energy, Nov. 30, 2010, subject: Notice of inquiry and request for comment on Section 934 of the Energy Independence and Security Act of 2007.

[4] 75 Fed. Reg. 43945 (July 27, 2010).

[5] The LEU supplied by Centrus is not delivered to power reactors. Instead, at the fabrication plant, the LEU is transformed by the fuel fabricator from uranium hexafluoride (UF6) into uranium dioxide (UO2) and formed into small ceramic pellets by fabricator. The pellets then are loaded into metal tubes that form fuel assemblies, which are shipped to nuclear power plants.

from these hazards are the plant workers. These facilities generally pose a low risk to the public."[6] Further, the IAEA has offered these observations about nuclear risks associated with fuel fabrication plants:

- "In uranium fuel fabrication facilities, only low enriched uranium (LEU) is processed. The radiotoxicity of LEU is low, and thus any potential off-site radiological consequences following an accident would be expected to be limited."[7]

- "Uranium fuel fabrication facilities do not pose a potential radiation hazard with the capacity to cause an accident with a significant off-site release of radioactive material (in amounts equivalent to a release to the atmosphere of with an activity of the order of thousands of terabecquerels). However, deviations in processes may develop rapidly into dangerous situations involving hazardous chemicals."[8]

LEU is only delivered to fabrication plants, not reactors. Given that it is substantially transformed into another product in the process of fabrication,[9] LEU is not considered to be an item supplied to reactors. Therefore, for Centrus, the risk of nuclear liability arising from incidents in non-U.S. facilities is limited to the foreign fabrication plants to which LEU from Centrus is delivered, where, as noted above, there is little risk that a nuclear incident would produce off-site effects that would result in a covered incident. Accordingly, while Centrus fully supports the CSC and the benefits it will have for providing greater certainty for U.S. nuclear suppliers that export goods and services directly to nuclear power reactors, it does not believe that any rule should allocate more than a small amount of the contingent share to those whose goods or services are supplied to facilities, such as fuel fabrication plants, where the risk of a covered incident is low or negligible.

Given this context, Centrus offers the following comments on the draft rule.

First, Centrus shares all the concerns expressed by CIGNL and NEI in their comments regarding the two alternatives included in the NOPR (and specifically incorporates herein all those concerns, particularly insofar as they establish that the DOE has not established a sufficient

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[6] Nuclear Regulatory Commission, *Fuel Fabrication*, http://www.nrc.gov/materials/fuel-cycle-fac/fuel-fab.html (last visited April 16, 2015).

[7] INTERNATIONAL ATOMIC ENERGY AGENCY, SAFETY OF URANIUM FUEL FABRICATION FACILITIES (Specific Safety Guide No. SSG-6) 4 (2010).

[8] *Id.* Thus, the primary risk at a fabrication plant is not from LEU but from the management of the fabrication process by the fabricator.

[9] Centrus is not involved in the fabrication process and indeed LEU supplied by Centrus is fungible with LEU from other suppliers, both domestic and foreign, and is substantially transformed in the fabrication process. Therefore, it is not possible to ascribe the LEU supplied by Centrus to any particular bundle of fuel. We note that in the NOPR, suppliers of depleted and natural uranium were categorically excluded on similar grounds. 79 Fed. Reg. 75082. While we agree that transformation of these forms of uranium does occur if they are processed prior to export (just as LEU is transformed when it is fabricated prior to export) and therefore the delivery of depleted or natural uranium to U.S. facilities for use in producing nuclear material or fuel should not itself be treated as an export, we do not agree that depleted or natural uranium should be excluded when it is exported directly to a covered installation, without first being transformed, unless DOE decides to categorically exclude from the rule all forms of uranium (including LEU) short of fabricated nuclear fuel for reactors.

legal or factual foundation for either alternative given the requirements of the EISA and other applicable law.) However, if DOE must select one of the two alternatives proposed in the NOPR, Centrus would prefer alternative 2 because it recognizes that companies in the "Nuclear Material and Nuclear Material Transportation Sector" are far less likely to provide products that could result in a nuclear incident, and therefore allocates a smaller percentage of the contingent cost to that sector.[10]

However, if DOE were to adopt alternative 2, DOE should also make the following modifications to it:

- Include a $5 million cap on the contribution that each covered nuclear supplier must pay per incident;
- Include a $100,000 minimum contribution that each covered nuclear supplier must pay per incident;
- Limit "reportable transactions" to transactions involving the exports by a covered nuclear supplier to covered nuclear installations in CSC countries as of the date that the report is required (*i.e.*, not require nuclear suppliers to report on transactions with countries that are not CSC countries at the time of reporting);
- Where a country joins the CSC after 2015, limit "reportable transactions" with that country to transactions occurring no more than seven (7) years prior to the date of the country's ratification; and
- Either modify the "lead nuclear supplier" concept so that it does not require reporting as far back as 1960, which Centrus agrees with others in the industry is too burdensome, or eliminate the "lead nuclear supplier" concept altogether and simply combine the Facility Sector and the Equipment and Technology Sector into one sector, with the allocated risk of each combined into a single 75% share.

Second, as a third alternative to the DOE's two alternatives, Centrus supports the proposals of CIGNL and NEI to develop a formula that categorizes covered nuclear suppliers by the covered installations to which their goods or services are exported, and to allocate risk to each category based on the likelihood that a covered incident could occur in a facility in that category. Thus, all suppliers to reactors could be placed in one category, all suppliers to fuel cycle and related facilities could be placed in another category, and all suppliers to other facilities could be placed in yet another category.[11] The allocated risk percentage assigned to each category would be based on a comparison of the likelihood that a covered incident would occur in the facilities served by one category, to the likelihood of such a covered incident

[10] We also believe the allocation of a higher factor within the "Nuclear Material and Nuclear Material Transportation Sector" to suppliers to reactor facilities or plants or facilities for reprocessing is appropriate.

[11] Transportation equipment and services could be allocated to each category based on the facilities to which transportation involving such equipment and services occurs. For example, equipment and transportation services to facilities in the fuel cycle and related facilities category would fall in the fuel cycle and related facilities category.

occurring in the facilities in the other categories.[12] (The risk percentage assigned to each category would be based on expert advice obtained by DOE regarding the probability of an incident occurring in the facilities served by suppliers in that category that could result in a call for funds, compared to the probability of such an incident occurring in a facility in the other categories.) If there is a covered incident resulting in a call for funds, the contribution of each category would be determined by multiplying the allocated risk percentage of that category by the contingent cost that the United States must pay.

In order to calculate the portion of the contribution of a category that individual suppliers in that category must pay (*i.e.*, the retrospective premium payment of each supplier), the DOE could use the approach taken in the NOPR, and assign a risk factor to specific types of goods or services supplied to the type of covered installations in the category, with certain goods or services having a higher factor than others.[13] The retrospective premium payment of each nuclear supplier in a category would be based on the ratio of (A) the adjusted value of that supplier's goods and services (as multiplied by the factor applicable to those goods and services), to (B) the total adjusted value of the goods and services of all suppliers in the category. Multiplying this ratio by the portion of the contingent cost allocated to a category would result in the retrospective payment premium for the supplier.[14]

Recognizing, however, that adjusted value does not bear directly on risk (since value realized by a supplier from exports may vary from year to year for a number of reasons, even where the amount of goods or services supplied by a company remains unchanged), an additional refinement to the foregoing approach would be to create adjusted value bands within each category in order to arrange nuclear suppliers by those who are larger, medium-sized, or smaller, and then to assign a portion of the allocated cost for that category to each band based on fixed percentages (e.g., 50% for the large size nuclear suppliers sub-category, 30% for the medium size suppliers sub-category, and 20% for the smaller size suppliers sub-category). Under this approach, the portion of the allocated cost assigned to a sub-category would be divided among the suppliers in the subcategory on a per capita basis. For example, if there were five suppliers in the large size sub-category, each supplier in that sub-category would bear 1/5 of the portion of the allocated cost assigned to the large size sub-category (*e.g.*, in the example in the prior sentence, this would be 1/5 x 50% of the allocated cost). The bands would need to be tested and refined (including with escalation of each band as reportable transactions accumulate over time)

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[12] By assigning a risk percentage to each category on the basis of the risk of a covered incident occurring in facilities served by nuclear suppliers in that category, the resulting formula would be "risk informed" as required by the EISA.

[13] Alternatively, if one type of facilities in a category is at greater risk of having a covered incident than others in that category, the adjusted value of exports to facilities of the more risky type could be multiplied by a factor, as is done in the DOE's alternative 2 in the NOPR. *See, e.g.*, draft § 951.12(a) of alternative 2 on page 75099 of the NOPR.

[14] In the DOE's alternative 2, DOE suggested using metric tonnage to measure the risk exposure of a covered nuclear supplier in the Nuclear Materials and Nuclear Materials Transportation Sector. 79 Fed. Reg. 75099. There is not sufficient information to judge whether this approach is fairer than an adjusted value approach. Therefore, without rejecting this approach, Centrus requests further information be provided by DOE concerning why metric tonnage is believed to be a better metric, and how the DOE will deal with small quantities, the added weight of transportation equipment, weight discrepancies, comparability of material types, whether certain nuclear materials (e.g., fabricated fuel) may have a different risk profile than others and the potential that suppliers reporting using metric tons may be reporting on the same quantity of nuclear materials as other suppliers.

in order to ensure that they are, in fact, fair and populated by more than one company. However, the advantage of this band approach would be that determining a nuclear supplier's retrospective premium payment would not require an exacting and potentially contentious calculation of the adjusted value of one company's exports versus the adjusted value of others' exports. Instead, the only question would be the band in which a nuclear supplier belongs, which presumably will be easier to determine than making exact calculations of adjusted value.

While supportive of an alternative approach of categorizing nuclear suppliers according to the facilities they supply, Centrus opposes finalization of the percentages assigned to each category until further research has been done on relative risk between each category to ensure there is a logical basis for the percentages. Thus, while the NEI proposal may include in its comment some notional percentages, these are not based on any scientific analysis or study. Instead, the DOE needs to independently study the percentages and allocations in greater depth, or engage experts to do so, in order to ensure the percentages assigned to each of the categories (and within categories, if the band approach is used) reflect actual comparative risk. While the NEI approach is generally weighted in the right direction, with the bulk of the allocated cost to be borne by the power reactor category, the percentages used by NEI, like the percentages used in the NOPR, could be held by a court to be arbitrary if not backed up with adequate support and expert analysis.

Third, Centrus fully supports both the CIGNL and NEI proposals for a cap on the retrospective premium payment that any nuclear supplier would be required to make per covered incident. Such a cap is absolutely necessary in order for nuclear suppliers to plan for any potential exposure to such a premium payment. The cap should not be greater than $5 million, payable over five (5) years.

Fourth, Centrus agrees that the scope of nuclear suppliers could be expanded to include all those who export to a covered installation, and not just those who obtain an export authorization. This could include subsuppliers who provide distinct (e.g., non-fungible) goods or services to another nuclear supplier to export, but only if, at the time of export, the subsupplier's goods or services are a separately identifiable component of the good or service exported and have not been substantially transformed prior to export.

Fifth, Centrus opposes any exclusion of nuclear suppliers on the grounds that their retrospective premium payment will be *de minimis*. As noted above, adjusted value does not accurately measure risk and thus just because a supplier's adjusted value is small does not mean that the goods or services it exports are less risky than goods or services exported by others with higher adjusted values, nor does the fact that the adjusted value of a supplier's exports are higher than the adjusted value of others' exports mean that its goods or services are more risky than the goods or services of other suppliers.[15] While an element of the formula used to determine a

[15] Indeed, the legislative history of the language that ultimately became Section 934 of the EISA specifically notes:

> Given the variability of prices of nuclear goods and services in the market and the lack of any necessary connection between the price of a good or service and the risk or hazard it poses, the share of the contribution assessed on a nuclear supplier should be determined principally by the risks and hazards associated with such nuclear supplier's goods and services, as indicated by the factors listed in the Act.

nuclear supplier's retrospective premium payment may include a comparison of the adjusted value of one supplier's exports to the adjusted value of the exports of other suppliers, this comparison cannot be the sole basis for a determination of the retrospective premium payment. Indeed, none of the risk factors listed in Section 934 of the EISA for consideration in fashioning a "risk informed assessment formula"[16] refer to value, revenue or similar economic factors. Thus, a nuclear supplier should not presumptively escape from paying a premium due to the fact that, under the formula used, the supplier's payment would be small. Rather, given the difficulty of assessing whether a supplier's goods or services represent a small risk, all suppliers should be obligated to make a minimum contribution of $100,000 per incident, payable over five years. Such a minimum contribution will ensure that all who potentially benefit from the CSC have to contribute something to cover the contingent cost. A minimum contribution also will ensure that the DOE does not have to pursue small claims in order to cover the contingent cost.

Finally, Centrus is deeply concerned about the record-keeping burden that could be imposed under any rule. We fully support the comments of CIGNL and NEI that would limit the scope of reportable transactions only to transactions with covered installations in countries that are members of the CSC at the time the report is required. Thus, for any report that might be required in 2015, reportable transactions would be limited only to transactions involving the supply of goods and services to covered installations in the handful of countries that are CSC countries as of 2015. If Canada ratifies in 2017, then, beginning 2017, reports of reportable transactions would include transactions involving the supply of goods and services to covered installations in Canada, but not before.

In addition, we also agree with CIGNL and NEI that the "look back" period for reportable transactions should be limited. We propose that the look back be limited to seven (7) years prior to the date of ratification of the CSC. Companies cannot be expected to maintain records of transactions indefinitely in order to be able to include them in their reports if and when a country joins the CSC. For example, for purposes of the report, and also for purposes of calculating the aggregate risk, the reporting period for reportable transactions for a company that ratified the CSC in 2030 would begin in 2023.

Our comments on the reporting requirements reflect our concern that whatever rule is adopted may impose difficult record-keeping requirements on suppliers. These requirements will be a recurring cost of the rule even if a call for funds never materializes. Therefore, reporting and record-keeping should be tailored to the information that will be needed to calculate retrospective premium payments in the year in which a report is required. Goods and services provided in transactions from many years before a country joins the CSC should not be required, as these transactions are less likely to be the source of a covered incident than those provided in more recent periods, particularly in the case of nuclear materials that typically are consumed in nuclear installations within a certain period after export. Further, requiring record-

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S. REP. NO. 109-346, at 5 (2006) (Committee Report on S. 3879)(emphasis added).

[16] See Section 934(e)(C)(i) of the EISA.

keeping for transactions with non-CSC countries is an unnecessary and potentially open-ended burden given the uncertain timing of ratifications.

Centrus recognizes the significant challenge faced by the DOE in promulgating a rule to implement the 2007 Act. However, a rule that does not limit a company's potential liability to a predictable and manageable level, or that imposes burdensome and unnecessary record-keeping and reporting requirements regarding transactions with non-CSC countries could prove to be a disincentive to exports and thereby undermine the benefits of the CSC for the United States.

As with our comments on the 2010 NOI, the comments offered here should not be construed as a criticism of the CSC, which Centrus fully supports. Our comments instead only relate to the implementation of the 2007 Act and our desire to ensure that the rule finally adopted by the DOE fulfills the promise of the CSC to strengthen the U.S. economy while meeting the needs of our foreign partners for U.S. goods and services that can enhance safety and expand the generation of carbon-free electricity.

If you have any questions or need further information about Centrus' comment, please contact me at (301)564-3325.

Sincerely,

James A. Schoettler, Jr.
Assistant General Counsel