



## URANIUM PRODUCERS OF AMERICA

141 EAST PALACE AVENUE, POST OFFICE BOX 669, SANTA FE, NEW MEXICO 87504-0669  
TELEPHONE (505) 982-4611; FAX (505) 988-2987; WWW.URANIUMPRODUCERSAMERICA.COM

April 10, 2017

Cheryl Moss Herman  
U.S. Department of Energy  
Office of Nuclear Energy  
Mailstop NE- 32,  
19901 Germantown Rd.  
Germantown, MD 20874-1290

Submitted via email: RFI-UraniumTransfers@hq.doe.gov

Re: Excess Uranium Management: Effects of Potential DOE Transfers of Excess Uranium on Domestic Uranium Mining, Conversion, and Enrichment Industries; Notice of Issues for Public Comment, Federal Register / Vol. 82, No. 45 / Thursday, March 9, 2017/ Notices

Dear Ms. Herman:

On behalf of the Uranium Producers of America (UPA), a national trade association representing the domestic uranium and conversion industry, we appreciate the opportunity to provide input regarding the Department of Energy's (DOE) management of the federal excess uranium inventory.<sup>1</sup> UPA urges DOE to halt further transfers until the uranium market recovers. Any additional transfers in the short-term will continue to have adverse material impacts on the domestic uranium mining, conversion, and enrichment industries.

### **UPA RECOMMENDATIONS**

The uranium and conversion industries are struggling to survive. While we see growth in the long-term, the uranium market is oversupplied in the short-term, and the DOE material continues to overwhelm the market with large quantities of price insensitive supply.

UPA recognizes DOE is not the only reason for the current market conditions, but the DOE transfers since 2011 have clearly had an adverse material impact, forcing many of UPA's members to cancel projects, halt or minimize production, and make significant workforce reductions.

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<sup>1</sup> Please note Ur-Energy's views on the Department's management of the excess uranium inventory are reflected in their own submission to this DOE notice.

Despite the fact that nuclear energy supplies nearly 20 percent of our nation's electricity, we are now importing 94 percent of the uranium needed to fuel those nuclear reactors.<sup>2</sup> As DOE considers its upcoming Secretarial Determination, UPA recommends:

- DOE stop all transfers when the uranium spot market price is below the EIA's reported production cost (currently \$35.45<sup>3</sup> per pound).
- Under no circumstance should DOE transfer more uranium than the U.S. uranium industry is producing.
- DOE should work together with Congress to pass legislation that establishes statutory limits on excess uranium transfers and enhances transparency and predictability associated with transfers.
- DOE should seek to maximize taxpayer value for this asset, including working with industry stakeholders to place the excess material into the long-term market where the uncommitted demand is better able to absorb a reasonable quantity of DOE's excess inventory.
- DOE-NNSA should be downblending HEU to levels between 5-20 percent U-235 LEU for research and advanced reactor fuel.
- The USEC Privatization Act prohibits uranium transfers, if the transfers will have an "adverse material impact" on the domestic uranium industries. UPA believes that current transfers are having an adverse material impact. Nonetheless, DOE should work with stakeholders to develop a quantitative measure to define an adverse material impact consistent with the intent of the USEC Privatization Act.
- DOE should withdraw its December 2016 Secretarial Determination that was signed without public notice, comment, or review. While UPA recognizes down-blending into LEU for national security reasons carries high purpose, it should not be done at the expense of the domestic industry. The LEU should not be bartered, exchanged or otherwise sold into the commercial market.

UPA's recommendations are consistent with an Executive Order recently signed by President Trump related to our nation's energy policy. In the March 28, 2017 Executive Order, Section 1(b) states "It is further in the national interest that the Nation's electricity is affordable, reliable, safe, secure, and clean and that it can be produced from coal, natural gas, nuclear material, ...". Furthermore, Section 2 orders the "heads of agencies...to review all existing regulations, orders,

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<sup>2</sup> U.S. Energy Information Administration (EIA), 2015 Uranium Marketing Annual Report.

<sup>3</sup> U.S. Energy Information Administration 2015 Domestic Uranium Production Report published May 2016 (\$118.5 M Production Expenditures in Table 8 / Total Uranium Concentrate Production @ 3.343 M pounds in Table 3).

guidance documents, policies, and any other similar agency actions...that potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources.” We are confident our industry can provide a stable, domestic supply of uranium to power our nuclear reactors, but the market needs time to recover and we need room in the market to compete. The DOE material is crowding out the market and accounting for nearly all the near-term uncommitted U.S. utility demand.

Before addressing the specific factors DOE plans to consider for its upcoming Secretarial Determination, we would like to address three fundamental issues: (1) DOE’s refusal to define adverse material impact under the USEC Privatization Act; (2) DOE’s response to UPA’s previous comments on the *ConverDyn* litigation; and (3) the quality of the Energy Resources International (ERI) analysis of the potential effects of additional transfers on the domestic industry during calendar years 2017-2026.

### **DEFINITION OF ADVERSE MATERIAL IMPACT**

Before making any uranium transfers, under the USEC Privatization Act (P.L. 104-134), DOE must certify the proposed transfers will not have an “adverse material impact on the domestic uranium mining, conversion, or enrichment industry.” In our September 2016 response to DOE’s request for information, UPA asked DOE to define “adverse material impact,” and UPA suggested several quantitative approaches. For example, DOE could define adverse material impact as any proposed uranium transfer where the value of the uranium at the time of the transfer (as measured by the spot price) is below the average cost of producing uranium in the U.S.

We are disappointed DOE rejected UPA’s suggestion and refuses to adopt a clear and quantitative standard to determine if transfers will have an adverse material impact or are in compliance with the law. We are surprised DOE believes “production costs alone” as compared to market price should not be used to determine an adverse material impact. To be clear, if you cannot cover your production costs, you are going out of business. There is no better metric to determine whether DOE material is having, or will have, an adverse material impact on the domestic industry. Without a clear standard, it is difficult for stakeholders to have confidence in this process, particularly given the history of DOE’s management of this inventory.

More than 37 million pounds<sup>4</sup> of DOE uranium has impacted the commercial market over the past five years, and the spot price has dropped more than 70 percent since the Fukushima event in 2011. Currently, the domestic industry situation is tenuous:

- The domestic uranium industry has lost half of its work force since 2012 according to EIA’s 2015 Domestic Uranium Production Report, and our members report significant additional workforce reductions in 2016 and 2017;

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<sup>4</sup> ERI 2017 report page 27 (2014-2016) + Ux Consulting Uranium Market Outlook - 2014 and 2016 data

- Production continues to decline, dropping 32 percent in 2015 and another 13 percent this past year to below 3 million pounds – the lowest level seen since 2005<sup>5</sup>;
- Uranium spot prices have declined 50 percent<sup>6</sup> since the last ERI analysis in 2015, and the industry continues to suffer major economic loss (Trade Tech reported \$105 M in 2015)<sup>7</sup>;
- The nation’s largest uranium producer is winding down its production, and several other U.S. producers have either shut in their operations or are ramping down existing production operations;
- DOE transfers have increased significantly since 2011 and remained at elevated levels as the industry continues to cut back production.

In the March 9, 2017 *Federal Register* (FR) notice, DOE proclaims that an “adverse material impact is determined when a reasonable forecast predicts that an industry will experience ‘material’ harm that is reasonably attributable to the transfers.” In the September 2016 TradeTech analysis, DOE transfers are estimated as having caused a drop in uranium prices over the 2012-2015 time frame of \$16.95/lb. Most reasonable experts we know in the uranium industry would consider this “material” harm and recognize TradeTech as a source of high caliber analysis that would certainly meet the standards required of a “reasonable forecast.” In their concluding remarks the TradeTech analysis stated;

*“TradeTech’s models indicate that DOE material transfers entering the spot uranium market will **continue to have a measurable adverse material impact** on uranium market prices and, by extension, uranium producers. If DOE were to completely cease material transfers, then producers would see improvement in the market.”*

DOE’s continued dumping of price insensitive supply into an oversupplied market has caused “harm of great consequence”, with the total 2012-2015 cumulative impact estimated by TradeTech at \$16.95/lb. Adding the 2016 impact of \$4.90/lb. listed in the January 2017 ERI Report<sup>8</sup>, the total cumulative impact from DOE material over the past five years is close to \$22/lb. Clearly, this has made the market significantly weaker and is certainly “beyond the scale of normal market fluctuations” noted in the DOE’s self-defined criteria for determining what is an adverse material impact.

The fact is both the UPA-TradeTech and the DOE-ERI analyses point to the market price being driven well below production cost as a result of DOE material. This has had, and will continue

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<sup>5</sup> EIA Domestic Uranium Production Report 4th Quarter 2016

<sup>6</sup> ERI 2017 Report page 20 and 21

<sup>7</sup> TradeTech Report prepared for the UPA - DOE Request for Information Response – 2016 (page 8).

<sup>8</sup> Table 4.4, page 53

to have, a serious adverse material impact on the domestic industry until market prices recover. While DOE did reduce transfers somewhat in 2016, DOE material impacting the market still almost doubles total domestic production. UPA has consistently warned DOE that additional transfers would create an adverse material impact on the domestic industry, and the current state of the industry now reflects that impact.

### **CONVERDYN LITIGATION**

The DOE's response to comments from UPA and Energy Fuels Resources regarding DOE's methodology with respect to the *ConverDyn* litigation is specious at best. While it is true the case ended in settlement without reaching the merits of the legality of the 2015 Determination, DOE conveniently ignores certain ramifications of the litigation.

DOE reacted to the Court's opinion on ConverDyn's motion for summary judgment by somewhat reducing the amount of material it bartered in the 2015 Determination. Judge Walton stated that the methodology followed by DOE in its 2014 Determination was arbitrary and capricious and violated the requirements of 2997h-10(d). Judge Walton extensively addressed DOE's methodology in the 2014 Determination in his September 12, 2014 opinion by taking the Department to task on its "driver" approach, which he specifically stated failed as the correct inquiry regarding its transfers' "adverse material impact." Should the Department continue its course to say that it must only answer whether its transfers *alone* cause the domestic uranium industry harm, the Department is acting in contravention of 2297h-10(d).

In his opinion on ConverDyn's motion for preliminary injunction, Judge Walton agreed with ConverDyn "that it is likely to prevail on its claim that the 2014 Secretarial Determination's finding that the planned transfers will have no adverse material impact is arbitrary and capricious in violation of the APA."<sup>9</sup> Judge Walton found that the 2014 Determination failed on multiple fronts. The Department failed to address the materials submitted by ConverDyn in its impact determination. The same can be said for submissions by the domestic uranium industry. "Unless an agency answers objections that on their face seem legitimate, its decision can hardly be classified as reasoned."<sup>10</sup>

Judge Walton also criticized DOE's failure to specifically address why the effects of the Department's transfers would not constitute an adverse material impact. As he noted, rather than address why the transfers would not constitute an adverse material impact, "the Department articulated the question as 'whether [the Department's] uranium sales *alone* cause the uranium industry to change from its position in the market without [Department] sales."<sup>11</sup> DOE went on to say that the quantity of its transfers "*would do little to improve the market condition or reduce other impacts* on the industry, and that although [the Department's] actions will necessarily have

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<sup>9</sup> *ConverDyn v. Moniz*, Mem. Op. at 19

<sup>10</sup> *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005)

<sup>11</sup> Mem. Op. at 21

some impact on the market ... *[the Department's] actions are not the driver of the current negative status on the domestic uranium production, conversion or enrichment industries.*"<sup>12</sup>

Judge Walton correctly asserts that the Department's analysis answers the wrong question:

*Rather than assessing the evidence to determine whether the planned transfers would have an adverse material impact on domestic uranium production, conversion or enrichment industries as directed by Section 2297h-10(d), the Department instead reviewed the evidence to determine whether the planned transfers are the primary cause of the current depressed state of the uranium market or whether altering the amount of the transfers would alleviate negative market conditions. And whether the Department's transfers are 'the driver' of market conditions is not the inquiry set forth in Section 2297h-10(d). The Department's transfers may have an adverse material impact on ConverDyn even if the transfers are not the primary cause of ConverDyn's total losses. For this reason, the defendants' emphasis on '[t]he relatively small size of [the Department's] proposed transfer compared to global uranium supply' as the basis of the Department's conclusion similarly misses the mark.*<sup>13</sup>

If DOE persists in basing its Determinations on factors Congress has not intended it to consider, future Determinations will be arbitrary and capricious in violation of the APA.<sup>14</sup>

### **ANALYSIS OF ERI REPORT**

As described in greater detail below, we continue to have concerns with the quality and rigor of ERI's analysis. That said, even with its limitations, the ERI analysis provides a clear warning about the impact of any additional transfers. ERI acknowledges the market is in a state of oversupply, and prices are currently below average production costs. In our view, the ERI analysis supports UPA's recommendation for DOE to halt further transfers until the market recovers. Any further transfers will continue to add to the adverse material impact already suffered by the industry and will further delay prospects for recovery.

In prior years, UPA has raised concerns with ERI's analysis and DOE's failure to ensure any findings are peer reviewed. Our concerns are shared by the Government Accountability Office (GAO). In testimony submitted to the Senate Committee on Environment and Public Works on March 8, 2017, Allison Bawden, Acting Director, Natural Resources and Environment noted:

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<sup>12</sup> *Id.* at 21

<sup>13</sup> *Id.* at 21-22.

<sup>14</sup> *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)

*“DOE did not take steps to assess the technical quality of market impact studies conducted in April 2012 and January 2013. In part to ensure that its uranium transfers would not have an adverse material impact on the domestic uranium industry, DOE contracted for studies on the potential market impact of most of its planned uranium transfers. These studies concluded that these transfers would not result in adverse market impacts. In its May 2014 report, GAO reviewed these studies and found issues with their analyses.”*

*“GAO found that DOE did not take steps outlined in its contracts or in departmental quality assurance guidance to assess the technical quality of these studies. GAO also found that the studies provided only limited detail about their methodology, data sources, and assumptions, although DOE’s quality assurance guidance states that DOE information disseminated to the public should contain such information. DOE officials stated that they did not examine the studies’ methodology or assess the studies’ technical quality.”*

DOE’s previous failure to examine the methodology and technical quality associated with ERI’s analyses underscores our concern with this process.

It is worth noting that ERI, in its 2017 report, has included the "stand-alone annual" market analysis presented in past reports, and a new methodology they have labeled as a "cumulative" analysis. In ERI’s previous “stand-alone annual” market clearing price analysis (page 49) – ERI presented DOE’s impact in 2014, 2015 and 2016 at \$1.7, \$1.7 and \$1.0 per pound, respectively. ERI then acknowledges “The annual basis assumes that the supply curve in a given year is independent of the DOE inventory releases in prior years.” Clearly, failing to account for the total cumulative impact of a given action that persists year after year would skew any objective analysis addressing a several year period.

In their new methodology, they have labeled as a “cumulative” analysis, the ERI approach shows annual impacts of \$4.9, \$5.6, and \$4.9 (Table 4.4 page 53) per pound in those same years. ERI presents the impact in their prior “annual” analysis with the following statement (page 49):

*“During the last three years (2014-2016), the change in average clearing price attributed to DOE inventories is estimated to be \$1.50/lb. for the uranium market”*

In their new analysis labeled as “cumulative” (page 52) ERI states:

*“during the last three years (2014-2016) the change in average clearing price attributed to the DOE inventories using the cumulative methodology is \$5.10/lb.”*

The language presenting the results can be easily misinterpreted or is confusing at best. If the average impact over three years is \$5.10/lb., then the total cumulative impact is \$15.30/lb. over the three-year period. Unfortunately, ERI’s methodology labeled as a “cumulative” analysis

does not address the total cumulative impact of DOE material that has occurred over the years. In fact, this was one of the previous GAO criticisms that noted:

*“We also identified shortcomings in the studies that raise questions about their conclusions, which DOE used to inform the Secretary of Energy’s statutory determinations that its uranium transfers would not have an adverse material impact on the domestic uranium market. For example, we identified concerns about ERI’s assumption that DOE’s planned uranium transfers would not have a cumulative effect on the term market.”*

The September 2016 TradeTech study, commissioned by UPA (for the September DOE RFI), concluded the cumulative impact of DOE totaled \$16.95/lb. over the 2012-2015 period. In ERI’s most recent analysis, they fail to mention the total cumulative price impact over any multi-year period and limit their comments and presentation to an “average” price impact. This is not consistent with the TradeTech analysis.

Taking a closer look at this issue, ERI references (page 63) the September 2016 TradeTech study. ERI noted, “Trade Tech estimated the effect on spot prices of DOE inventory releases to average \$4.2/lb. in 2012-2015.” ERI then noted their “*econometric* model estimates \$5.7/lb. over the same period.”

ERI is now introducing another model, its third used to evaluate the price effect of DOE inventory releases in the report given to DOE. We have a number of questions about this approach:

- Why was the ERI “*econometric*” model not used in the overall analysis?
- What were the annual impacts to arrive at ERI’s \$5.70/lb. “average” over the same period as the TradeTech Analysis?
- Are there other models that ERI has presented to DOE?
- Why would ERI present the “annual stand-alone” model after the GAO criticism and looking at the TradeTech model showing cumulative results?

ERI verbiage is also short on detail, and omits a key description in presenting the TradeTech and ERI \$/lb. values. ERI omits reference to the impact of a \$/lb. *average* being calculated with:

- 1) an “*annual*” \$/lb. impact, that
- 2) is added together with the other years for a “*total cumulative*” impact over the time-period, and
- 3) then divided by the “*number of years*” in the time period, to
- 4) yield an average “*per year*” impact.

ERI only uses a \$/lb. nomenclature that could be easily misconstrued as the “total cumulative impact” when referencing the impact over a referenced timeframe. ERI states its “*econometric* model estimates \$5.7/lb. over the same period as the TradeTech model that yielded a \$4.2/lb.



“average.” What ERI did not say was the TradeTech analysis yielded a *total cumulative impact* of \$16.95/lb. over the same period.

Unfortunately, ERI never presents the *total cumulative impact* and does not reference it when assessing the impacts of various scenarios of uranium transfers. On every one of the tables ERI presents relating to this issue (i.e. Table 4.1-4.9), an average is inserted at the end of a column covering annual values. There is no cumulative total.

Using the ERI “cumulative analysis” numbers, the total cumulative impact over the 2014-2016 period in their analysis would be calculated at \$15.40/lb. (\$4.9+\$5.6+\$4.9, page 63). Adding the TradeTech numbers (see page 7 of the TradeTech Report) for 2012 and 2013 (\$2.79+\$3.81) to the above referenced ERI numbers, the total cumulative impact over the 2012-2016 period would be \$22 per pound. Translated into current market price terms, with the end of March 2016 spot price around \$23/lb., adding the \$22 cumulative impact to the spot price calculates to about \$45 per pound. At that level, market prices would be above production costs and the U.S. uranium industry would not have suffered the adverse material impact that has been associated with the persistent dumping of DOE material over the past five years.

The total cumulative amount of DOE uranium affecting the commercial markets in 2012-2016 is more than 37 million pounds (page 27 Table 3.2, 2014-2016 ERI data +2012-2013 UxC UMO<sup>15</sup> data). This is a significant amount of material to place into a thin, illiquid market with very limited uncommitted demand, and the resulting damage it has caused should not be surprising to anyone in the uranium market.

Another one of the more obvious shortcomings in the ERI analysis is their disregard or avoidance of the DOE transfers in relation to the actual levels of uncommitted demand then in the market. We maintain this is one of the most important aspects of the market to evaluate when considering the impact of DOE’s price insensitive supply. UPA and a variety of other organizations have continually brought this key feature of the market to the attention of DOE and ERI. In the *Federal Register* notice dated March 9, 2017 concerning Excess Uranium Management, DOE acknowledges comments by various entities on that subject, including Energy Fuels, New Mexico Mining Association and URENCO. Yet, there is no mention in the ERI analysis of how uranium processes are being affected by large amounts of DOE supply being sold into a market with limited uncommitted demand – a result exacerbated by the fact that the DOE sells the material at any price in order to accomplish agency objectives.

Table 1  
DOE Transfers In Excess of BOY Uncommitted Demand  
(Million Pounds U3O8)

UxC BOY Global	DOE Material in Excess of	Percentage above
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<sup>15</sup> Ux Consulting Company (UxC), Uranium Market Outlook Reports (UMO) - 2016-Q4, 2014-Q3 data from table B-15 “U.S. Gov’t Stocks” and other UxC input

Calendar <u>Year</u>	Uncommitted <u>Demand</u>	DOE <u>Transfers</u>	Uncommitted <u>Demand</u>	Uncommitted <u>Demand</u>
2016	3.4	5.4	2.0	59%
2015	3.2	6.6	3.4	106%
2014	2.4	7.1	4.7	196%
2013	2.9	7.5	4.6	159%
2012	<u>0.7</u>	<u>4.7</u>	<u>4.0</u>	571%
<b>Totals</b>	<b>12.6</b>	<b>31.3</b>	<b>18.7</b>	148%
Avg/yr	2.5	6.3	3.7	148%

The above table shows the amount of global uncommitted demand that has been evident at the beginning of each calendar year (BOY) from 2012-2016 as compared to the amount of DOE material that has been transferred over that calendar year.<sup>16</sup>

The main takeaway is the DOE material overwhelms the available utility demand at the beginning of every calendar year. Over the past five years, on average, the amount of end user demand in the beginning of a calendar year is less than half of the DOE supply that is going to be transferred in the calendar year. There is simply not enough uncommitted demand to absorb the amount of material DOE transfers in a given year. As we noted in our September RFI response: “In essence, DOE price insensitive material effectively consumes any available market for domestic producers. As long as the uncommitted demand in the uranium market is unable to absorb DOE price insensitive supply along with other material for sale, prices will continue to be severely impacted.”

The ERI analysis makes comparisons that can mistakenly be construed to minimize the true impact of the transfers. ERI presents statistics on DOE inventory transfers as a share of world requirements, which is a misleading metric to measure the impact of the Department's transfers. DOE material versus aggregate demand will show a completely different picture than will DOE material versus actual unfilled demand in the market. We do not believe it is representative of the true available market to compare global aggregate requirements against DOE supply. How much of that aggregate demand is committed and when? What are the open utility requirements, and what is the actual market that is available to the US producer and its timing? In the *ConverDyn* opinion, Judge Walton also addressed the use of a global quantity versus DOE quantities noting:

*...the defendants’ emphasis on ‘[t]he relatively small size of [the Department’s] proposed transfer compared to global uranium supply’ as the basis of the Department’s conclusion similarly misses the mark.”*

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<sup>16</sup> Note the DOE Transfer data does not include the other DOE material impacting the market such as TVA BLEU and Energy Northwest transactions. The global uncommitted demand data was obtained from the corresponding first quarter Ux Consulting Company (UxC) Uranium Market Outlook (UMO) Reports (Table B-10) in the related calendar year. The DOE transfer data has been obtained from the ERI/DOE data in 2014-2016 and historical UxC UMO’s and other UxC data for 2012-2013.

Using broad macro numbers can appear to minimize the significance of DOE material, but it is not representative of the true available market and the effects of large price insensitive quantities of uranium being pushed into the commercial market by DOE.

We recognize DOE plans for future uranium disposition, outlined as a Base Scenario, Scenario 1, 2 and 3, present varying levels of additional uranium transfers that will impact the uranium market if implemented. Considering the fragile state of the domestic uranium, conversion and enrichment industries, it appears obvious that any transfers will continue to contribute to further oversupply in a market with prices that are already severely depressed. We note even if transfers are halted, the consequences of transactions already completed will continue to impact the uranium market for years to come.<sup>17</sup>

While Scenario 1 in DOE's new plan carries the least impact of its various Scenarios, it shows large quantities of material that will continue to affect the domestic industry. The least obtrusive DOE Scenario still pushes another 8 million pounds of DOE material into the market over the next 4 years.<sup>18</sup> The current status of the domestic industry is extremely tenuous after years of persistent DOE material impacting the domestic producer. At this point, it will likely take several years for the industry to recover from the damage, and every pound that comes into the market from DOE will delay that recovery.

If this current Determination process results in additional transfers over the next two years at TradeTech's 2012-2015 average annual impact of \$4.2 per pound, or at ERI's 2014-2016 "average" impact of \$5.1/lb., the cumulative impact on uranium producers is another \$8.40-\$10.20 per pound. Add this on top of the adverse material impact that exists from the past 5 years, and the total impact is easily in excess of \$30 per pound. Any objective reasoned analysis will conclude this is an adverse material impact and supports the position that uranium transfers should be halted until the uranium market and the production industry can recover. The industry will continue to suffer serious adverse material impacts for some time as a result of accumulated damage from past DOE transfers, and this harm will be further exacerbated by any additional transfers.

### **COMMENTS ON SIX FACTORS UNDER CONSIDERATION**

As stated in the March 2017 FR notice, DOE proposes to evaluate the following factors set forth in the 2015 Secretarial Determination and Analysis:

1. Changes in prices;
2. Changes in production levels at existing facilities;
3. Changes to employment;
4. Changes in capital improvement plans and development of future facilities;
5. The long-term viability and health of the industry; and,

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<sup>17</sup> ERI report page 31

<sup>18</sup> Table 3.7, page 35 in ERI's report

6. As required by statute, sales under certain agreements permitting the import of Russian-origin uranium.

In general, UPA agrees that these are important factors for the DOE to consider, but DOE should also be looking at the accumulated damage from past transfers. Actual uncommitted utility demand is another area that DOE should carefully scrutinize. Finally, as discussed above, UPA believes the DOE should clearly define what constitutes an “adverse material impact” before conducting this evaluation. In our previous comments, UPA suggested one metric DOE should consider is the relationship between current market prices and average U.S. production costs, plus a modest margin. At times when average production costs, as reported by the Energy Information Administration (EIA), exceed market prices, DOE should halt all transfers.

## **1. Prices**

The DOE relies on the analysis of ERI to assess the impacts to the uranium market price, and they rely on a market clearing model to support their conclusions. UPA has commented that their analysis falls short and does not provide an adequate tool for evaluating the impacts on the industry.

UPA believes the total cumulative market price impacts of the DOE’s transfers should be considered in the analysis of adverse material impacts. The earlier mentioned \$22/lb. cumulative impact assessed by combining the ERI and TradeTech analysis for the period 2012-2016 is significant. Absent this \$22 impact, a conclusion can be drawn that market prices would still be above the average production (cash) costs reported by EIA of \$35.44/lb., although still well below the average total production costs of \$66.86/lb. Given the impact, one can only conclude that it is material and adverse. In fact, if the analysis were performed all the way back to 2009, when the uranium barter program began in earnest, the cumulative impacts are even more significant.

During 2014-2016, not all the participants in the domestic uranium mining industry were insulated by a robust portfolio of term contracts with sales prices significantly above spot prices. Those companies have either continued to idle production capacity, limited production to levels that meet term contract obligations, or disappeared through consolidation.

Using the market clearing price model does not effectively capture the full impacts to the domestic mining industry. It relies on spot market impacts and does not fully capture impacts to the term market, nor does it recognize uncommitted demand. The long-term price has suffered a similar decline to the spot market, but the other market to consider is the midterm market price (more than a year, but less than 5 years for delivery). This segment of the market is dominated by carry trade transactions. In the September 2016 DOE RFI response, UPA noted these transactions delayed the prospects for a price recovery by displacing future uncommitted demand that would otherwise be available in upcoming years.

Material transferred by the DOE enters the market, whether the spot or midterm market, as if it has a zero-cost basis. As a result, primary suppliers, such as the domestic uranium mining industry, are unable to compete in these markets on an equal basis. For the producer, there is a cost inherent to bringing production to the market. ERI estimates the share of U.S. “unhedged” production has declined from 25% in 2012 to just 3% in 2015. This is a result of that production having been “shut-in”, either by reducing production to fill term commitments only, or complete shutdown. That has been directly reflected in the significant loss of high paying jobs located in some of the poorest counties in the United States, such as Brooks, Duval and Jim Hogg counties in South Texas, which have seen 90% reductions in workforces related to uranium mining since 2012.

The same observation will be made in other areas, as term contracts executed prior to 2011 begin to expire in 2017 and 2018. Those uranium mining companies will become more “unhedged” and exposed to a spot market heavily influenced by DOE’s price insensitive supply. Similarly, as term sales agreements have become more weighted by spot market factors, even partially hedged uranium mining companies, such as Cameco, have announced significant cutbacks in production and employment in the United States.

Even considering other market factors, such as enricher underfeeding, commercial inventory reductions, and production from Kazakhstan, the DOE’s continual transfers have had an adverse material impact on the domestic mining industry. As noted in the 2016 TradeTech analysis, the cumulative impact amount attributable to DOE amounts to \$16.95/lb. over the 2012-2015 time frame. And, even the price clearing models performed by ERI demonstrate that impact has been adverse to the industry with a \$15.40/lb. total cumulative impact that can be calculated over the 2014-2016 period.<sup>19</sup>

## **2. Production at Existing Facilities**

As summarized in the FR notice, ERI reports what has been known by the domestic uranium mining industry and the communities where they operate - primary domestic production has been on a steady decline since 2014. Production declined from 4.9 million pounds in 2014 to 2.9 million pounds in 2016. Also, as observed by ERI, the majority of the existing facilities reduced production to meet only the demand from existing term sales agreements in direct response to the decline in spot prices. All the production from 2014 to 2016 was derived from Nebraska, Utah and Wyoming. In prior years, Texas was also a significant contributor of primary production, but because of the low prices, production in Texas has gone to zero.

One of the reasons domestic production increased from 2011 to 2014, after uranium prices began to decline following the Fukushima Daiichi nuclear incident, is that those operators in Wyoming, Utah, and Nebraska had uranium delivery obligations from term sales agreements executed prior to 2011. In essence, production was ramping up in those years to meet those contracts. Based on these agreements, ERI made an incorrect conclusion that the domestic industry was healthy in

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<sup>19</sup> see table 4.4 - page 63 in the 2017 ERI analysis

2014 to support the 2014 Secretarial Determination. The reality is, those agreements did spur some new production, but production was in excess of the contracted quantities, leaving the additional production exposed to the spot market and vulnerable to DOE material pressuring the market. As a result, one can observe a noticeable decline in production in 2015 and 2016 as uranium mining companies adjusted production to minimize exposure to the spot market.

In its report, ERI addresses the cost of production, and, as summarized in the FR notice, noted the average production (cash) cost remained “fairly constant from 2009-2012 at about \$40 per pound.” As ERI also observed, by 2015 the average cost declined to \$35.66 per pound, with curtailed production at higher cost mines contributing to this decline. It should be noted that the cash cost of production does not include costs associated with exploration, development, permitting, capital, or corporate costs, which are needed to sustain a company.

Drilling is a key harbinger metric for the uranium industry maintenance and growth. The last EIA Domestic Uranium report showed a drop of over 70 percent in exploration drilling from 3.9 M feet in 2013 to 0.9 M feet in 2015<sup>20</sup>. The report shows drilling peaked in 2012 and has been in a severe decline ever since. Uranium mining companies have drastically cut back development expenditures to further manage costs in the market where costs continue to exceed the spot price for uranium. The lack of investment into new production feed, developed through exploration, can only lead to further cuts in uranium production.

The ERI report states the following: “ERI believes that the lack of supply from DOE would have prevented or delayed a portion of the cutbacks in mine production that actually took place, thereby increasing cumulative mine production by 9 million pounds in 2014-2016, and 23 million pounds by 2020.”<sup>21</sup> That statement affirms what UPA has regularly commented on in prior Secretarial Determinations – that the continued uranium transfers from the Department’s Excess Uranium Inventories have had, and will continue to have, an adverse material impact on the domestic uranium mining industry.

### **3. Employment Levels in the Industry**

When reviewing the 2015 Domestic Uranium Production Report published by EIA, there are two segments that can act as leading indicators in determining the state of the domestic uranium mining industry: drilling, as previously discussed, and employment levels. Within the extractive industries, the principal fixed cost component is labor. In the FR Notice, the DOE does consider employment in the domestic uranium mining industry, and using the information gathered by EIA provides an independent source of information.

The EIA data shows that employment peaked at 1,563 in 2008, coincident with the peak of the uranium spot price. However, it fell by nearly 30% (467 jobs) in 2009. This correlates with the start of the DOE’s uranium transfers and the resulting decline in the uranium spot price.

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<sup>20</sup> 2015 EIA Domestic Uranium Production Report, Table 1.

<sup>21</sup> Page 52 – 2017 ERI Report

Employment increased slightly in 2011 and 2012 in preparation for new production from newly licensed uranium mining operations whose production was linked to contracts executed prior to 2011. Employment served as a leading indicator of the industry in 2014<sup>22</sup>, as production peaked at 4.9 million pounds and employment fell by 31.9%. In 2015, production fell 24.5%, employment fell an additional 20.5%, and was followed by an additional production decrease of 12.7%. From 2014 – 2016, production fell by 40.5%, and from 2013-2015, employment fell by 45.9% (531 jobs). Since the DOE started significant transfers under the barter program in 2009, employment in the domestic uranium mining industry has fallen by 60% from its 2008 peak.

In 2016, several members of UPA announced they were anticipating further employment cuts, and we expect this will be confirmed as a continuing trend in the upcoming 2016 EIA Domestic Uranium Production Report. ERI estimates employment would be lowered by 40 person-years in 2017 through 2026 using the methodology they labeled as “cumulative” for the base scenario in 2017 through 2026<sup>23</sup>. And, “If DOE were to halt future releases (as Scenario 1), then employment would be lowered by an average of 31 person years.” From the data represented by the DOE in the FR Notice, one can conclude that the impacts are material and adverse to employment in the domestic uranium industry.

#### **4. Changes in capital improvement plans and development of future facilities**

The majority of UPA’s membership is derived from publicly traded uranium mining companies. As a result, they rely on the public markets to meet cash needs, until such time that these companies can earn profits to sustain themselves. In the 2017 ERI report, there is a good description of the relative market capitalization of several publicly traded domestic uranium producers. In the FR notice, the statement is made, “ERI observed that the market capitalization of the smaller mining companies is more sensitive to changes in the spot market price compared to the larger companies.”<sup>24</sup> The market caps of the various companies effectively track the spot price of uranium.

However, the ERI report does not capture one key detail. Market capitalization is one indicator, but it does not reflect the real access to capital. The only real test is to look at how companies use and allocate capital. Other than public announcements by the various public companies, the 2015 Domestic Uranium Production Report represents the only independent data point, and there is no output in the report that reflects capital expenditures other than drilling expenditures and footage. On Table 9 of the EIA report, development and exploration drilling are combined and reflect forward investment into production. This data shows a 57% drop over the 2012-2015 period, and provides a good proxy to measure corporate decisions on capital expenditures.

Development and exploration drilling have dropped 65% from the 2008 peak (\$81.9 million spent and 5.1 million feet drilled), to 2015 (\$28.7 million and 0.9 million feet drilled). One could conclude from these statistics that capital for continued development and expansion is limited.

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<sup>22</sup> 2015 EIA Domestic Uranium Production Report, Table 6

<sup>23</sup> 2017 ERI report page 67

<sup>24</sup> Figure 4.20 (page 70) of the 2017 ERI Report

From the FR Notice, “However, ERI explains that two of the new operations (Willow Creek and Palangana) have ceased development of new wellfields and two companies, UR-Energy and Uranerz have announced they would limit production expansion at new ISL facilities.” Further, “[a]s a result of falling prices, in April 2016, Cameco announced that it was deferring well-field development at the company’s Wyoming and Nebraska operations and cutting 85 jobs at these sites.”

Based on the trends presented in the 2017 ERI Report, share prices for the publicly traded domestic uranium mining companies are being impacted by persistently low uranium prices, with significant impacts attributable to DOE material. Given the market sensitivity to DOE spot uranium price impact, as outlined in the TradeTech and ERI model results, it is quite clear the impacts have been adverse and material enough to seriously retard capital investments.

## **5. The long-term viability and health of the industry**

Currently, the U.S. domestic industry is suffering from persistent oversupply that has driven market prices below production costs. This is an unhealthy situation threatening the long-term viability of the domestic industry. The TradeTech and ERI studies show DOE transfers have imparted significant harm to the domestic production industry that has accrued over many years. These cumulative adverse impacts have been outlined in previous sections of this report and are not repeated here. The effects of the current market conditions and DOE transfers will be magnified as legacy contracts at higher prices continue to expire. As long as uranium prices remain below the cost to produce, the domestic uranium industry will continue to contract, resulting in additional job losses and reduced production.

DOE should recognize the persistent, long term dumping of price insensitive material has had an adverse material impact on the domestic industry that continues to accumulate. The adverse material impact of DOE’s past transfers will require time to repair. Any additional transfers in the current market will exacerbate the adverse conditions and delay the prospects for a recovery.

## **6. As required by statute, sales under certain agreements permitting the import of Russian-origin of uranium**

The agreement applicable to consideration for this Determination is noted as the “Agreement Suspending the Antidumping Investigation on Uranium from the Russian Federation (Suspension Agreement).” UPA provided comments to the Department of Commerce, International Trade Division on this subject in October and November of 2016. We encourage DOE to take into account the material entering the U.S. market under the Suspension Agreement in the coming years as it considers its next Secretarial Determination.

### **Fair Market Value**

The FR Notice does not adequately discuss a key requirement in the Act, U.S.C. § 2297h-10(d)(2)(C): “the price paid to the Secretary will not be less than the fair market value of the



material.” The 2017 ERI report does not directly address this either. However, there are places in the 2017 ERI report that create questions on how the DOE is addressing this requirement with the current DOE Environmental Management (EM) barter transactions. On page 62 of the 2017 ERI Report, the statement is made, “For the uranium that is transferred to EM’s contractor and ultimately sold by Traxys, it has not been possible to explicitly identify when and how much of this DOE origin material is introduced into the commercial markets by Traxys at any point in time.” In fact, in more than one place in the report, ERI identifies this crucial data gap.

This begs the question from a taxpayer point of view: How is DOE able to defend the certification that fair market value is received for the material? Based on the description in the ERI report, the value of the material is set by DOE, with the expectation that the monetary value would be returned in services. Without knowing the revenue to the contractor as a result of the ultimate uranium sales, how does DOE assure the service paid for is received in full? If the contractor realizes higher prices than the value assessed by DOE, does EM receive the additional value in more work?

### **SUMMARY OF COMMENTS AND CONCERNS**

The current state of the domestic industry is fragile. Large quantities of DOE price insensitive material over many years have taken a toll on the domestic industry, and market prices have been driven below production costs as a result. The DOE is now the largest uranium supplier in the U.S., with annual transfers that are nearly two times what the entire domestic industry produces. Production, employment, market capitalization, profitability, and overall industry health have suffered adverse material impacts as a result that will continue to worsen absent a halt of DOE transfers. Even the ERI analysis demonstrates that DOE transfers are having a devastating effect on the domestic industry.

UPA reiterates its call for DOE to halt transfers until the market recovers (*i.e.*, until the spot market price is greater than our average cash production costs). In the meantime, we encourage DOE to bring together the stakeholders to develop a long-term, consensus-based management plan for the future disposition of the inventory.

Cheryl Moss Herman  
U.S. Department of Energy  
April 10, 2017  
Page 18

Thank you again for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Harry L. Anthony". The signature is written in a cursive style with a small circle at the end of the last name.

Harry Anthony  
President  
Uranium Producers of America