

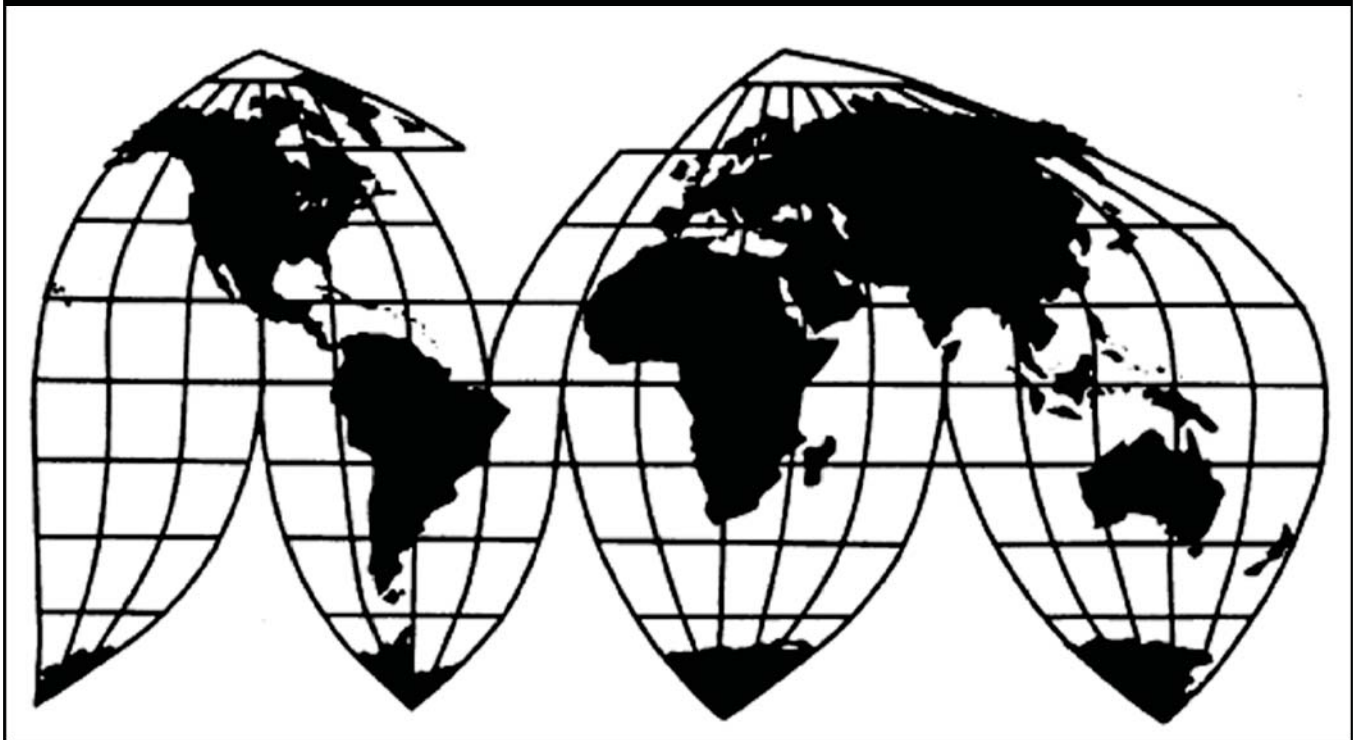
Low Enriched Uranium From France

Investigation No. 731-TA-909 (Second Review)

Publication 4436

December 2013

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Note.—Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted. Such deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 731-TA-909 (Second Review)

LOW ENRICHED URANIUM FROM FRANCE

DETERMINATION

On the basis of the record¹ developed in the subject five-year review, the United States International Trade Commission (Commission) determines, pursuant to section 751(c) of the Tariff Act of 1930 (19 U.S.C. § 1675(c)), that revocation of the antidumping duty order on low enriched uranium from France would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.²

BACKGROUND

The Commission instituted this review on December 3, 2012 (77 F.R. 71626) and determined on March 8, 2013 that it would conduct a full review (78 F.R. 19311, March 29, 2013). Notice of the scheduling of the Commission's review and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* on April 10, 2013 (78 F.R. 21416). The hearing was held in Washington, DC, on September 10, 2013, and all persons who requested the opportunity were permitted to appear in person or by counsel.

¹ The record is defined in sec. 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(f)).

² Commissioner Kieff did not participate in this review. Commissioner Aranoff did not participate in the determination concerning this review. Commissioner Broadbent dissenting.

Views of the Commission

Based on the record in this five-year review, we determine under section 751(c) of the Tariff Act of 1930, as amended (“the Tariff Act”), that revocation of the antidumping duty order on low enriched uranium (“LEU”) from France would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.^{1 2}

I. Background

On February 4, 2002 the Commission determined that an industry in the United States was materially injured by reason of less than fair value (“LTFV”) imports of LEU from France and subsidized imports of LEU from France, Germany, the Netherlands, and the United Kingdom.³ On February 6, 2002, the U.S. Department of Commerce (“Commerce”) imposed an antidumping duty order with respect to imports from France, and countervailing duty orders with respect to imports from France, Germany, the Netherlands, and the United Kingdom.⁴ Commerce revoked the countervailing duty orders on LEU from Germany, the Netherlands, and the United Kingdom on July 7, 2006, and the countervailing duty order on LEU from France on May 29, 2007.⁵

The Commission instituted the first five-year review of the antidumping duty order on LEU from France pursuant to section 751(c) of the Tariff Act on January 3, 2007,⁶ and subsequently determined to conduct a full review.⁷ In December 2007, the Commission determined that revocation of the order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.⁸ Accordingly, Commerce continued the antidumping duty order on LEU from France.⁹

¹ Commissioner Aranoff did not participate in the determination concerning this review, and Commissioner Kieff did not participate in the review.

² Commissioner Broadbent determines that revocation of the antidumping duty order on LEU from France would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time. *See* Dissenting Views. She joins sections I, II, and III.A and B of the opinion, except as otherwise noted in her dissenting views.

³ *See Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom*, Inv. Nos. 701-TA-409-412 and 731-TA-909 (Final), USITC Pub. 3486 (February 2002) (“Original Determinations”).

⁴ *See* Confidential Report (“CR”) at I-3; Public Report (“PR”) at I-2.

⁵ *See Low Enriched Uranium from Germany, the Netherlands, and the United Kingdom: Final Results of Countervailing Duty Administrative Reviews and Revocation of Countervailing Duty Orders*, 71 Fed. Reg. 38626 (July 7, 2006); *Low Enriched Uranium from France: Notice of Amended Final Negative Determination Pursuant to Final Court Decision, Rescission of Administrative Review, and Revocation of the Countervailing Duty Order*, 72 Fed. Reg. 29301 (May 25, 2007).

⁶ 72 Fed. Reg. 144.

⁷ *See LEU from France*, 72 Fed. Reg. 27151 (May 14, 2007).

⁸ *LEU from France*, Inv. No. 731-TA-909 (Review), USITC Pub. 3967 (Dec. 2007) (“First Review (Continued...)”).

The Commission instituted this second review of the antidumping duty order on LEU from France on December 3, 2012.¹⁰ The Commission found the domestic interested party group response to the notice of institution to be adequate and the respondent interested party group response to be inadequate.¹¹ The Commission nevertheless determined that other circumstances warranted the conduct of a full review.¹²

USEC, Inc. (“USEC”), the original petitioner, participated in the review by filing briefs and testifying at the hearing.¹³ Also participating in the review was the only foreign producer of LEU in France, Eurodif, and the only importer of LEU from France, Areva NC (“Areva”), a wholly owned subsidiary of Areva Group S.A., which controls Eurodif (collectively, the “respondent interested parties”).¹⁴ The respondent interested parties also filed briefs and testified at the hearing. Louisiana Energy Services (“LES”), a domestic producer of LEU that ***, limited its participation in the review to the filing of Final Comments.¹⁵

II. Domestic Like Product and Industry

A. Domestic Like Product

1. Nature of the Product

In making its determination under section 751(c) of the Tariff Act, the Commission defines the “domestic like product” and the “industry.”¹⁶ The Tariff Act defines “domestic like product” as “a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation under this subtitle.”¹⁷ The Commission’s

(...Continued)

Determination”) at 1.

⁹ 73 Fed. Reg. 449 (Jan. 3, 2008).

¹⁰ 77 Fed. Reg. 71626 (Dec. 3, 2012).

¹¹ See *LEU from France*, 78 Fed. Reg. 19311 (Mar. 29, 2013).

¹² See *LEU from France*, 78 Fed. Reg. 19311 (Mar. 29, 2013).

¹³ CR at I-30; PR at I-21. USEC ceased production of LEU at its enrichment plants in Piketon, Ohio, in 2001, and Paducah, Kentucky, in 2013. *Id.* As further discussed below, USEC is in the process of testing LEU production based on centrifuge technology and plans to recommence production of LEU at its American Centrifuge Project (“ACP”) in Piketon, Ohio, as early as 2016. *Id.*

¹⁴ CR at IV-6; PR at IV-4. Areva’s late notice of appearance, filed 45 days after the deadline for filing such notices, was accepted under 19 C.F.R. § 201.14(b)(2). In addition, non-party written statements were filed by Duke Energy, Exelon Generation, and Dominion Resources Services, Inc., which are utilities that purchase LEU, and by the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union (“USW”), which is a union that represents certain USEC employees.

¹⁵ We have disregarded new factual information in the Final Comments filed by Areva and LES, respectively, pursuant to the statute and our regulations. 19 U.S.C. § 1677m(g); 19 C.F.R. § 207.68(b). See Respondent Interested Parties’ Final Comments at 4, Attachment; LES’s Final Comments at 2, 5-6.

¹⁶ 19 U.S.C. § 1677(4)(A).

¹⁷ 19 U.S.C. § 1677(10); see, e.g., *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); (Continued...)

practice in five-year reviews is to examine the domestic like product definition from the original investigation and consider whether the record indicates any reason to revisit the prior findings.¹⁸

In this five-year review, Commerce has defined the subject merchandise as follows:

[A]ll low enriched uranium (“LEU”). LEU is enriched uranium hexafluoride (UF₆) with a U²³⁵ product assay of less than 20 percent that has not been converted into another chemical form, such as UO₂, or fabricated into nuclear fuel assemblies, regardless of the means by which the LEU is produced (including LEU produced through the down-blending of highly enriched uranium).¹⁹

LEU is an intermediate product consumed in the production of fuel rods, which are used

(...Continued)

NEC Corp. v. Department of Commerce, 36 F. Supp. 2d 380, 383 (Ct. Int’l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996); *Torrington Co. v. United States*, 747 F. Supp. 744, 748-49 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991); *see also* S. Rep. No. 249, 96th Cong., 1st Sess. 90-91 (1979).

¹⁸ *See, e.g., Internal Combustion Industrial Forklift Trucks from Japan*, Inv. No. 731-TA-377 (Second Review), USITC Pub. 3831 at 8-9 (Dec. 2005); *Crawfish Tail Meat from China*, Inv. No. 731-TA-752 (Review), USITC Pub. 3614 at 4 (July 2003); *Steel Concrete Reinforcing Bar from Turkey*, Inv. No. 731-TA-745 (Review), USITC Pub. 3577 at 4 (Feb. 2003).

¹⁹ *LEU from France: Final Results of Expedited Sunset Review of the Antidumping Duty Order*, 78 Fed. Reg. 21100, 21101 (Apr. 9, 2013). Commerce specifically excluded the following products from the scope of the antidumping duty order under review:

[T]he order does not cover enriched uranium hexafluoride with a U²³⁵ assay of 20 percent or greater, also known as highly enriched uranium. In addition, fabricated LEU is not covered by the scope of this order. For purposes of this order, fabricated uranium is defined as enriched uranium dioxide (UO₂), whether or not contained in nuclear fuel rods or assemblies. Natural uranium concentrates (U₃O₈) with a U²³⁵ concentration of no greater than 0.711 percent and natural uranium concentrates converted into uranium hexafluoride with a U²³⁵ concentration of no greater than 0.711 percent are not covered by the scope of this order.

Also excluded from this order is LEU owned by a foreign utility end-user and imported into the United States by or for such end-user solely for purposes of conversion by a U.S. fabricator into uranium dioxide (UO₂) and/or fabrication into fuel assemblies so long as the uranium dioxide and/or fuel assemblies deemed to incorporate such imported LEU (i) remain in the possession and control of the U.S. fabricator, the foreign end-user, or their designed transporter(s) while in U.S. customs territory, and (ii) are re-exported within eighteen (18) months of entry of the LEU for consumption by the end-user in a nuclear reactor outside the United States. Such entries must be accompanied by the certifications of the importer and end-user.

Id.

to generate electric power in nuclear reactors.²⁰ The four-step process used to produce fuel rods is known as the “fuel cycle.” In the first step, raw uranium is mined and concentrated into the chemical form U_3O_8 .²¹ In the second step, U_3O_8 is converted into natural uranium, UF_6 .²² In the third step, natural uranium is enriched by increasing the concentration of U^{235} present in the uranium to the 3-5 percent level required by most nuclear reactors, at which point the uranium becomes LEU.²³ The fourth step entails fabricating LEU into fuel rods.²⁴ The scope of the antidumping duty order subject to this review is limited to LEU, the uranium product resulting from the third step of the fuel cycle.

There were two processes used to produce LEU from natural uranium during the period examined in this review -- the gaseous diffusion process and the gaseous centrifuge method. In both processes, the work expended by the enricher to separate U^{238} from the natural uranium feedstock, thereby increasing the concentration of U^{235} , is measured in separative work units, or “SWU.”²⁵ The greater the SWU, the higher the U^{235} concentration of the resulting LEU.

At the beginning of the review period, USEC and Eurodif enriched natural uranium using the gaseous diffusion process, whereby natural uranium in gaseous form is passed through a series of filters that capture heavier U^{238} but permit lighter U^{235} to pass through until the desired concentration of U^{235} is achieved.²⁶ In the gaseous centrifuge method, natural uranium in gaseous form is spun under high pressure in cylindrical centrifuges, sending heavier U^{238} towards the centrifuge wall and leaving lighter U^{235} in the center of the centrifuge, where it is collected.²⁷ Certain nonsubject foreign producers used the centrifuge method throughout the period of review, including Urenco, which produces LEU in Germany, the Netherlands, and the United Kingdom, and through its U.S. subsidiary LES, and OAO Technobexport (“TENEX”), a Russian producer and exporter.²⁸

The gaseous diffusion process is commercially inferior to the gaseous centrifuge method because it uses approximately 48 times more electricity per SWU produced.²⁹ Consequently, the global enrichment industry is in the process of transitioning from the gaseous diffusion process to the gaseous centrifuge process.³⁰ Eurodif ceased LEU production at its gaseous diffusion plant, Georges Besse I, in June 2012, after commencing production of LEU at its new

²⁰ CR at I-15; PR at I-13.

²¹ CR at I-16; PR at I-11.

²² CR at I-16; PR at I-11.

²³ CR at I-16, 18-19; PR at I-11, 13-14.

²⁴ CR at I-16; PR at I-11.

²⁵ CR at I-3 n.7; PR at I-2 n.7.

²⁶ CR at I-21-22; PR at I-15.

²⁷ CR at I-22; PR at I-22-23.

²⁸ CR at I-23; PR at I-16; CR/PR at IV-14. TENEX is the trading arm of Rosatom, a state-owned corporation that oversees the Russian civilian nuclear fuel industry. See *Uranium from Russia*, Inv. No. 731-TA-539-C (Third Review), USITC Pub. 4307 (Feb. 2012) at I-62.

²⁹ CR at I-24; PR at I-17.

³⁰ CR at I-20; PR at I-14.

centrifuge enrichment plant, Georges Besse II, in April 2011.³¹ USEC ceased LEU production at its gaseous diffusion plant in Paducah, Kentucky, in May 2013, and is in the process of testing centrifuge technology for deployment at the American Centrifuge Project (“ACP”) as early as 2016.³²

In the United States, utilities manage the fuel cycle themselves, paying specialized firms to perform each step of the process. Utilities procure LEU in one of two ways. In most cases, utilities contract with enrichers to produce LEU from UF₆ provided by the utilities, which pay only for the desired SWU.³³ These are known as SWU transactions. In other instances, utilities purchase LEU outright from enrichers, paying for both the SWU and the UF₆ used to produce the LEU.³⁴ These are known as enriched uranium product (“EUP”) transactions.

Another important source of LEU in the U.S. market has been through the down-blending of highly enriched uranium (“HEU”), generally salvaged from de-commissioned nuclear warheads, with other materials until the U²³⁵ concentration is reduced to LEU levels suitable for use in nuclear reactor fuel rods.³⁵ Most down-blended LEU sold in the U.S. market is imported from Russia under the Megatons to Megawatts program, a nonproliferation agreement between the United States and Russia signed on February 18, 1993 (the “Russian HEU Agreement”).³⁶ Under this agreement, USEC serves as the U.S. Executive Agent and has committed to annual purchases of 5.5 million SWU in blended-down LEU from TENEX through the end of 2013, when the agreement expires.³⁷ USEC’s purchases of LEU under the Russian HEU Agreement account for *** and supply about *** of U.S. LEU demand.³⁸

In March 2011, USEC entered a new contract with TENEX for the purchase of LEU that has been commercially produced, rather than down-blended from HEU, between 2013 and 2022.³⁹ Under the contract, USEC’s purchases of LEU from TENEX are to increase by 2015 to ***.⁴⁰

2. The Original Investigations and First Review

Original Investigations: In the original investigations, no party contested the Commission’s preliminary determination of a single domestic like product consisting of all LEU

³¹ CR at IV-7; PR at IV-5.

³² CR at II-5; PR at II-3.

³³ CR at I-19; PR at I-14.

³⁴ CR at I-19; PR at I-13.

³⁵ CR at I-25; PR at I-18.

³⁶ CR at I-25; PR at I-18.

³⁷ CR at I-25, II-12 & n.23; PR at I-18, II-7 & n.23. ***. See Confidential Staff Report from the First Review, at D-3.

³⁸ CR at I-26, II-12; PR at I-18, II-7; CR/PR at Table I-8.

³⁹ CR at I-27; PR at I-18-19.

⁴⁰ CR at II-12-13; PR at II-7.

corresponding to the scope of the investigations.⁴¹ Accordingly, the Commission defined the domestic like product as all LEU, coextensive with Commerce's scope definition.⁴²

First Review: In the first review, the respondent interested parties argued that the domestic like product definition should encompass LEU sold through EUP transactions but not SWU transactions, because the U.S. Court of Appeals for the Federal Circuit had held that SWU transactions involved the sale of services and were therefore not subject to the antidumping statute.⁴³ Rejecting this argument, the Commission defined the domestic like product to encompass all LEU within the scope definition, including both EUP and SWU transactions, explaining that it was required to adopt the most recent scope definition published by Commerce in the *Federal Register*, which was unchanged pending the conclusion of all appeals.⁴⁴ Ultimately, the U.S. Supreme Court reversed the Federal Circuit in a unanimous opinion holding that Commerce had reasonably determined that SWU transactions involved the sale of goods.⁴⁵

3. The Current Review

In this five-year review, USEC contends that the Commission should again define the domestic like product to be a single like product that is coextensive with the scope of the order.⁴⁶ The respondent interested parties do not address the domestic like product issue. There is nothing on the record to indicate that the Commission should revisit the like product definition.⁴⁷ We therefore define the domestic like product as LEU, coextensive with the scope of the order.

B. Domestic Industry

Section 771(4)(A) of the Tariff Act defines the relevant industry as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."⁴⁸ In defining the domestic industry, the Commission's general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market. In deciding whether

⁴¹ Original Determinations, USITC Pub. 3486 at 4.

⁴² Original Determinations, USITC Pub. 3486 at 4-5.

⁴³ First Review Determination, USITC Pub. 3967 at 7.

⁴⁴ First Review Determination, USITC Pub. 3967 at 8-9.

⁴⁵ *United States v. Eurodif, S.A.*, 555 U.S. 305 (2009).

⁴⁶ USEC's Response to the Notice of Institution, at 54.

⁴⁷ See generally, CR at I-15-28; PR at I-10-19.

⁴⁸ 19 U.S.C. § 1677(4)(A). The definitions in 19 U.S.C. § 1677 are applicable to the entire subtitle containing the antidumping and countervailing duty laws, including 19 U.S.C. §§ 1675 and 1675a. See 19 U.S.C. § 1677.

a firm qualifies as a domestic producer of the domestic like product, the Commission generally analyzes the overall nature of a firm's U.S. production-related activities, although production-related activity at minimum levels could be insufficient to constitute domestic production.⁴⁹

1. The Original Investigations and First Review

Original Investigations: In the original investigations, the Commission defined the domestic industry as the sole domestic producer of LEU, USEC.⁵⁰ In rejecting the respondent interested parties' argument that the Commission was precluded from conducting an analysis of either cumulation or price effects because LEU is a service and not a good, the Commission noted that Commerce had defined the subject merchandise to include SWU transactions and that no party disputed that LEU was a tangible product.⁵¹

First Review: In the first review, the Commission again defined the domestic industry as USEC, which remained the sole domestic producer of LEU.⁵² Noting that LES had begun construction in 2006 of a U.S. LEU production facility known as the National Enrichment Facility ("NEF") that was projected to commence production in 2009, the Commission also considered that the domestic industry would include the NEF within a reasonably foreseeable time.⁵³

2. The Current Review

USEC argues that it qualifies as a domestic producer because it was the largest domestic producer of LEU throughout the period of review, accounting for *** percent of domestic production in 2012.⁵⁴ Although it ceased producing LEU domestically in May 2013, USEC claims that its continuing production-related activities in conjunction with the ACP are sufficient to qualify it as a domestic producer under the six factors the Commission considers in assessing the issue.⁵⁵

The respondent interested parties argue that the Commission should not include USEC

⁴⁹ The Commission generally considers six factors: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product. No single factor is determinative and the Commission may consider any other factors it deems relevant in light of the specific facts of any investigation. *Diamond Sawblades and Parts Thereof from China and Korea*, Inv. Nos. 731-TA-1092-93 (Final), USITC Pub. 3862 at 8-11 (July 2006).

⁵⁰ Original Determinations, USITC Pub. 3486 at 5. The Commission also noted that there was no related party issue in the investigation. *Id.* at 5 n.13.

⁵¹ Original Determinations, USITC Pub. 3486 at 5.

⁵² First Review Determination, USITC Pub. 3967 at 12.

⁵³ First Review Determination, USITC Pub. 3967 at 12.

⁵⁴ USEC's Posthearing Br. at 7; CR at Table I-5.

⁵⁵ See USEC's Prehearing Br. at 29-32; USEC's Posthearing Br. at Ex. 5, p.7, Ex. 18.

in the domestic industry because it ceased domestic production of LEU in May 2013.⁵⁶ In the respondent interested parties' view, the Commission requires "that a company must be engaged in 'production' to be a 'domestic producer,'" and USEC no longer produces LEU domestically.⁵⁷ The respondent interested parties also argue that USEC has failed to establish that it will likely be a domestic producer within a reasonably foreseeable time.⁵⁸ In their view, USEC has failed to show a greater than 50 percent likelihood that its new centrifuge technology will work on a commercial scale, that it can raise the \$4 billion necessary to deploy the ACP, or that the ACP will be constructed and operational within a reasonably foreseeable time.⁵⁹

We find that USEC qualifies as a domestic producer, even though it ceased domestic LEU production in May 2013, because it was the principal domestic producer during the period of review and continues to engage in sufficient production-related activities to be deemed a domestic producer.

As an initial matter, the Commission generally does not exclude a firm that produced the domestic like product during the period of investigation or review from its definition of the domestic industry because the firm ceased domestic production during the period.⁶⁰ Rather,

⁵⁶ Respondent Interested Parties' Posthearing Br. at 2.

⁵⁷ Respondent Interested Parties' Responses to Commissioner Questions at 47; *see also* Respondent Interested Parties' Prehearing Br. at 8-12; Respondent Interested Parties' Posthearing Br. at 5.

⁵⁸ Respondent Interested Parties' Posthearing Br. at 6.

⁵⁹ Respondent Interested Parties' Posthearing Br. at 6; *see also* Respondent Interested Parties' Prehearing Br. at 16-27; Respondent Interested Parties' Posthearing Br. at 7-8; Respondent Interested Parties' Responses to Commissioner Questions at 8-10.

⁶⁰ Contrary to the respondent interested parties' claim, the Commission has never articulated any requirement that a firm currently produce the domestic like product to be deemed a domestic producer. Rather, in deciding whether a firm qualifies as a domestic producer, the Commission generally has analyzed the overall nature of a firm's production-related activities in the United States with respect to the six factors discussed above. *See Sebacic Acid from China*, Inv. No. 731-TA-653 (Second Review), USITC Pub. 3775 (May 2005) ("*Sebacic Acid*"), at 13-14; *Saccharin from China*, Inv. No. 731-TA-1013 (Review), USITC Pub. 4077 (May 2009) at 5-6; *Brake Rotors from China*, Inv. No. 731-TA-744 (Second Review), USITC Pub. 4009 (June 2008) ("*Brake Rotors*"), at 8 & n.39. Based upon an analysis of these factors, the Commission has deemed firms with no or minimal domestic production to be domestic producers in past sunset reviews. *See Sebacic Acid*, USITC Pub. 3775 at 14; *Brake Rotors*, USITC Pub. 4009 at 8 & n.39.

The cases cited by the respondent interested parties do not support their contention that the Commission requires a firm to produce the like product currently to be considered a domestic producer. *See* Respondent Interested Parties' Prehearing Br. at 9-10; Respondent Interested Parties' Responses to Commissioner Questions at 47-48. In most of these cases, the Commission determined that particular firms did not qualify as domestic producers because they did not engage in sufficient production-related activities during the period of review, not because they did not currently produce the domestic like product. *See, e.g., Multilayered Wood Flooring from China*, Inv. Nos. 701-TA-476 and 731-TA-1179 (Final), USITC Pub. 4728 (Final) at 8-10 (finding that "U.S. Floors merely engages in finishing operations and does not perform sufficient production-related activities to warrant inclusion in the domestic (Continued...)

the Commission typically incorporates data reported by such firms into domestic industry data, if possible, and then considers the relevance of the firms' exit from the domestic industry to its injury or likely injury analysis.⁶¹ Indeed, the U.S. Court of International Trade has held that the Commission must base its analysis of the likely impact of the subject imports on the domestic industry "as a whole" and should include in that analysis producers that exited the industry during the period of review.⁶² Given that USEC accounted for most domestic production of LEU during the period of review and *** percent of domestic production in 2012,⁶³ its reported data is relevant to our likely injury analysis. We therefore define the domestic industry to include USEC.

Furthermore, the record indicates that USEC has continued to engage in substantial production-related activities since ceasing LEU production in May 2013. The Commission has found that a firm need not engage in current production of the domestic like product to be deemed a domestic producer if the firm otherwise engages in sufficient production-related activities.⁶⁴ Based on the following analysis of the six factors generally considered by the Commission in deciding whether a firm qualifies as a domestic producer, we find that USEC continues to engage in sufficient production-related activities to be deemed a domestic producer.

Source and extent of the firm's capital investment. As of June 2013, USEC had invested \$2.5 billion in the ACP to construct a new LEU production plant in Piketon, Ohio, to construct centrifuge manufacturing and testing facilities in Oak Ridge, Tennessee, and to retool supplier

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industry"); *Ferrovandium from China and South Africa*, Inv. Nos. 731-TA-986 and 987 (Review), USITC Pub. 4046 (Nov. 2008) at 9 (finding that International Specialty Alloys was not a domestic producer because it did not produce ferrovandium during the period of review); *Stainless Steel Bar from France, Germany, Italy, Korea, Taiwan, and the United Kingdom*, Inv. Nos. 701-TA-413 and 731-TA-913-918 (Preliminary), USITC Pub. 3395 at 18 n.37 (finding that the service centers at issue did not engage in sufficient production-related activities to be considered domestic producers).

⁶¹ See *Certain Large Residential Washers from Korea and Mexico*, Inv. Nos. 701-TA-488 and 731-TA-1199-1200 (Final), USITC Pub. 4378 (Feb. 2013) at 11-12, 40; *Porcelain-On-Steel Cooking Ware from China, Mexico, and Taiwan*, Inv. Nos. 701-TA-267 and 268 and 731-TA-297-299, 304, and 305 (Review, USITC Pub. 3286 (Mar. 2000), at 11, 34.

⁶² *NSK Corp. v. United States*, 712 F. Supp. 2d 1356, 1364 n.13 (Ct. Int'l Trade 2010), *rev'd on other grounds*, 716 F.3d 1352 (Fed. Cir. 2013); *Nevinnomysskiy Azot v. United States*, 565 F. Supp. 2d 1357, 1373-74 (Ct. Int'l Trade 2008).

⁶³ CR/PR at Table I-5.

⁶⁴ *Sebacic Acid*, USITC Pub. 3775 at 14; *Brake Rotors*, USITC Pub. 4009 at 8 & n.39. We reject the respondent interested parties' argument that USEC's situation in this review is similar to LES's situation in the last sunset review of the antidumping duty order on LEU from France, in which the Commission determined that LES was not a domestic producer even though it was constructing a new LEU production facility in the United States. Respondent Interested Parties' Prehearing Br. at 11-12; Hearing Tr. at 152 (Husisian). No party in the first review argued that LES engaged in sufficient production-related activities to be deemed a domestic producer, and LES did not complete a domestic producers' questionnaire response that would have enabled the Commission to consider the issue.

facilities.⁶⁵ USEC has also invested \$70 million in the lead cascade test program that began in August 2007 and the Research, Development, and Demonstration (“RD&D”) project that began 19 months ago, in which the United States Department of Energy (“DOE”) has invested an additional \$280 million.⁶⁶ Through these investments, USEC has constructed a 120-machine cascade at the ACP that is currently being tested pursuant to the RD&D project and will ultimately be one of 96 cascades at the ACP when and if the ACP is commercially deployed.⁶⁷ Thus, USEC has made substantial capital investments to advance its goal of commencing commercial LEU production at the ACP.

Technical expertise involved in U.S. production activities. The record indicates that the production of LEU involves highly technical and complex processes that are subject to tight governmental control due to proliferation and safety concerns.⁶⁸ USEC is one of only four major companies worldwide with the technical expertise to produce LEU.⁶⁹ Through the ongoing RD&D project, USEC is currently developing and demonstrating its technical expertise to produce LEU using advanced centrifuge technology.⁷⁰

Value added to the product in the United States. Having ceased LEU production in May 2013, USEC is not currently engaged in value-added LEU production activities.⁷¹

Employment levels. USEC employed 1,660 workers as of July 31, 2013, including 430 workers directly employed on the ACP at facilities in Piketon, Ohio; Oak Ridge, Tennessee; and Bethesda, Maryland.⁷² These 430 workers are engaged in activities, such as the RD&D project, that are aimed at advancing USEC’s goal of commercially deploying the ACP.

Quantity and type of parts sourced in the United States. USEC reported that it purchased \$254 million in domestically produced parts for the ACP in 2011, sourced from 100 companies in 26 states, which are highly technical and the result of substantial research and development specific to the ACP project.⁷³ According to USEC, the ACP has thus far supported 2,500 jobs related to manufacturing and construction, in addition to the jobs directly created to operate the ACP.⁷⁴

Other costs and activities in the United States directly leading to production of the like product. USEC obtained the necessary license to construct and operate a commercial LEU

⁶⁵ CR at III-6; PR at III-4; Hearing Tr. at 29-30 (Rogers); USEC’s Prehearing Br. at 29.

⁶⁶ CR at III-4 n.9; PR at III-3 n.9; Hearing Tr. at 31-32 (Rogers); USEC’s Prehearing Br. at 30.

⁶⁷ Hearing Tr. at 23, 93 (Sewell).

⁶⁸ See CR at I-16-18, 20-26, III-14 n.33; PR at I-11-12, 14-18, III-10 n.33; see also Hearing Tr. at 33-34 (Rogers); USEC’s Prehearing Br. at 31.

⁶⁹ CR at IV-14; PR at IV-8. China, Brazil, Iran, Japan, and Pakistan also possess the ability to produce smaller quantities of LEU. *Id.*

⁷⁰ See CR at III-4-6; PR at III-2-4.

⁷¹ CR at I-30, III-2; PR at III-1-2.

⁷² USEC’s Prehearing Br. at 31.

⁷³ USEC’s Prehearing Br. at 15-16, 32; USEC’s Posthearing Br. at Ex. 5, p.7; Hearing Tr. at 36 (Rogers).

⁷⁴ USEC’s Prehearing Br. at 32.

production facility at the ACP from the Nuclear Regulatory Commission (“NRC”) in April 2007.⁷⁵ Pursuant to the RD&D project, USEC must satisfy nine milestones and five performance indicators before the DOE will consider its application for a \$2 billion loan guarantee, which is necessary for deployment and commercialization of the ACP.⁷⁶ USEC has thus far satisfied five milestones, with the sixth milestone satisfied pending certification from the DOE, and four of the five performance indicators, with the fifth indicator satisfied pending certification from the DOE.⁷⁷ USEC anticipates that the three remaining milestones will be completed by the end of 2013.⁷⁸

USEC claims that its ability to secure the additional \$2 billion from private investors that is necessary to commercialize the ACP will depend in part on its ability to secure long-term contracts with customers for future LEU production at the ACP.⁷⁹ Accordingly, USEC continues to compete in the U.S. market for sales from its inventory of domestically produced LEU and for its future U.S. production at the ACP.⁸⁰ Between 2008 and 2011, USEC secured contracts with *** for future production at the ACP, which cover between *** percent and *** percent of projected annual production at the ACP during the 2016-2026 period.⁸¹

Conclusion. The record indicates that, in furtherance of its plans to recommence commercial production of LEU at the ACP, USEC continued to engage in substantial LEU production-related activities after ceasing LEU production in 2013. Having invested \$2.5 billion in the ACP thus far, USEC is on track to complete the RD&D project by the end of the year by operating the demonstration cascade for 60 days or 20 machine years, thereby demonstrating the cascade’s manufacturing quality, reliability, and sustained production.⁸² USEC’s development of the ACP has involved the application of substantial technical expertise, the employment of over 400 workers, and the acquisition of technologically advanced components from domestic manufacturers valued in the hundreds of millions of dollars. To improve its prospects for financing the ACP, USEC has marketed the future production of the ACP and built an order backlog covering a substantial proportion of the facility’s projected production. In light of these considerations, we find that USEC continues to engage in sufficient LEU production-related activities in the United States to be deemed a domestic producer.⁸³

⁷⁵ CR at III-7; PR at III-4; USEC’s Posthearing Br. at Ex. 5, p.7.

⁷⁶ CR at III-4-5 & n. 11; PR at III-2-3 & n.11; USEC’s Posthearing Br. at Ex. 18.

⁷⁷ CR at III-9; PR at III-7; USEC’s Posthearing Br. at Ex. 18; Hearing Tr. at 32 (Rogers).

⁷⁸ CR at III-9; PR at III-7; Hearing Tr. at 32 (Rogers).

⁷⁹ CR at III-6 & n.17; PR at III-4 & n.17; USEC’s Prehearing Br. at 26; Hearing Tr. at 24-25 (Sewell).

⁸⁰ USEC’s Posthearing Br. at Ex. 5, p.7. USEC indicated that ***. USEC’s Responses to Commissioner Questions at Ex. 15.

⁸¹ CR at II-20; PR at II-12. The proportion of the ACP’s estimated production covered by long-term contracts is *** percent in 2016 because of the project’s low estimated production capacity that year, at *** SWU. *Id.* This proportion becomes progressively lower into the future, declining to *** percent in 2017, *** percent in 2018, *** percent in 2019, and *** percent in 2020. *Id.* After 2020, the proportion declines from *** percent in 2021 to *** percent in 2025 and 2026. *Id.*

⁸² CR at III-5 n.11, III-9; PR at III-3 n.11, III-6-7; Hearing Tr. at 23-24 (Sewell), 114 (Rogers).

⁸³ Contrary to the respondent interested parties’ argument, the likelihood of USEC’s successful (Continued...)

C. Related Parties

We must next determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act.⁸⁴ This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise or which are themselves importers.⁸⁵ Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.⁸⁶

In this second review, unlike in the original investigations or first review, there is an issue as to whether a domestic producer is subject to exclusion pursuant to the related parties provision of the statute. USEC argues that the Commission should exclude LES from the domestic industry as a related party because its interests are aligned with Areva's in opposition to USEC. USEC contends that LES qualifies as a related party because LES's parent, Urenco, and Areva are joint venture partners in Enrichment Technology Company ("ETC"), which produces all centrifuges used by both companies,⁸⁷ and because Urenco has supplied Areva with nonsubject imported LEU for sale to Areva's U.S. customers.⁸⁸ The respondent interested parties argue that LES does not qualify as a related party.⁸⁹

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commercialization of the ACP is not relevant to the Commission's consideration of whether USEC engages in sufficient production-related activities in the United States to be deemed a domestic producer. The Commission's assessment of a firm's production-related activities necessarily focuses on the firm's activities during the period of review as the period for which the relevant data has been collected. In *Sebacic Acid*, for example, the Commission concluded that "Genesis's operations constitute sufficient production-related activities to qualify it as a domestic producer" under its six-factor test, USITC Pub. 3775 at 14, even though it had ceased production in the last year of the period of review and was not expected to resume production. *Id.* at 18-19. Nevertheless, the issue raised by the respondent interested parties is relevant to our likely injury analysis, and we address it below.

⁸⁴ 19 U.S.C. § 1677(4)(B).

⁸⁵ See *Torrington Co v. United States*, 790 F. Supp. 1161, 1168 (Ct. Int'l Trade 1992), *aff'd without opinion*, 991 F.2d 809 (Fed. Cir. 1993); *Sandvik AB v. United States*, 721 F. Supp. 1322, 1331-32 (Ct. Int'l Trade 1989), *aff'd mem.*, 904 F.2d 46 (Fed. Cir. 1990); *Empire Plow Co. v. United States*, 675 F. Supp. 1348, 1352 (Ct. Int'l Trade 1987).

⁸⁶ The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

- (1) the percentage of domestic production attributable to the importing producer;
- (2) the reason the U.S. producer has decided to import the product subject to investigation, *i.e.*, whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market; and
- (3) the position of the related producer vis-a-vis the rest of the industry, *i.e.*, whether inclusion or exclusion of the related party will skew the data for the rest of the industry. See, *e.g.*, *Torrington Co. v. United States*, 790 F. Supp. at 1168.

⁸⁷ USEC's Prehearing Br. at 35; USEC's Responses to Commissioner Questions, Ex.8 at 3.

⁸⁸ USEC's Prehearing Br. at 36; USEC's Responses to Commissioner Questions, Ex. 8 at 3-4.

⁸⁹ Respondent Interested Parties' Responses to Commissioner Questions at 35-36.

We find that LES does not fall within the definition of a related party by virtue of the relationship of its parent, Urenco, and Areva, an importer of subject merchandise. Areva's acquisition of nonsubject LEU from Urenco for sale to its U.S. customers is not a relationship that would qualify LES as a related party under the statute.⁹⁰ Such a relationship would not ordinarily permit Areva to exert direct or indirect control over LES and there is no evidence of such control.⁹¹

Moreover, there is no evidence that ETC, the joint venture between Urenco (LES's parent) and Areva, would cause LES to act differently than a nonrelated producer, as would be necessary for LES to qualify as a related party under the statute.⁹² Urenco's joint venture with Areva is for the production of centrifuges used by both companies, not for the production, importation, or exportation of subject LEU, and was approved by the European competition authorities on the condition that Urenco and Areva continued to compete in the LEU market.⁹³ Nor is there any evidence that ***, as USEC alleges, or that any such motivation would influence LES's behavior in the U.S. market for LEU. Similarly, the record does not indicate how LES's domestic LEU operations could derive any direct benefit from ETC's increased sales of centrifuges.

Accordingly, we define the domestic industry to include LES and USEC, the two entities that produced the domestic like product during the period of review.

III. Whether Revocation of the Antidumping and Countervailing Duty Orders Would Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

A. Legal Standards

In a five-year review conducted under section 751(c) of the Tariff Act, Commerce will revoke an antidumping or countervailing duty order unless: (1) it makes a determination that dumping or subsidization is likely to continue or recur and (2) the Commission makes a determination that revocation of the antidumping or countervailing duty order "would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time."⁹⁴ The SAA states that "under the likelihood standard, the Commission will engage in a counterfactual analysis; it must decide the likely impact in the reasonably foreseeable future of

⁹⁰ 19 U.S.C. § 1677(4)(B)(ii)(II) ("a producer and an exporter or importer shall be considered to be related parties if . . . the exporter or importer directly or indirectly controls the producer.").

⁹¹ Direct or indirect control exists when "the party is legally or operationally in a position to exercise restraint or direction over the other party." 19 U.S.C. § 1677(4)(B).

⁹² Under 19 U.S.C. § 1677(4)(B)(ii)(IV), "a producer and an exporter or importer shall be considered to be related parties if . . . the producer and the exporter or importer directly or indirectly control a third party and there is reason to believe that the relationship causes the producer to act differently than a nonrelated producer."

⁹³ CR at III-19; PR at III-12.

⁹⁴ 19 U.S.C. § 1675a(a).

an important change in the status quo – the revocation or termination of a proceeding and the elimination of its restraining effects on volumes and prices of imports.”⁹⁵ Thus, the likelihood standard is prospective in nature.⁹⁶ The U.S. Court of International Trade has found that “likely,” as used in the five-year review provisions of the Act, means “probable,” and the Commission applies that standard in five-year reviews.⁹⁷

The statute states that “the Commission shall consider that the effects of revocation or termination may not be imminent, but may manifest themselves only over a longer period of time.”⁹⁸ According to the SAA, a “‘reasonably foreseeable time’ will vary from case-to-case, but normally will exceed the ‘imminent’ timeframe applicable in a threat of injury analysis in original investigations.”⁹⁹

Although the standard in a five-year review is not the same as the standard applied in an original investigation, it contains some of the same fundamental elements. The statute provides that the Commission is to “consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the orders are revoked or the suspended investigation is terminated.”¹⁰⁰ It directs the Commission to take into account its prior injury determination, whether any improvement in the state of the industry is related to the order or the suspension agreement under review, whether the industry is vulnerable to material injury if

⁹⁵ SAA at 883-84. The SAA states that “{t}he likelihood of injury standard applies regardless of the nature of the Commission’s original determination (material injury, threat of material injury, or material retardation of an industry). Likewise, the standard applies to suspended investigations that were never completed.” *Id.* at 883.

⁹⁶ While the SAA states that “a separate determination regarding current material injury is not necessary,” it indicates that “the Commission may consider relevant factors such as current and likely continued depressed shipment levels and current and likely continued {sic} prices for the domestic like product in the U.S. market in making its determination of the likelihood of continuation or recurrence of material injury if the order is revoked.” SAA at 884.

⁹⁷ See *NMB Singapore Ltd. v. United States*, 288 F. Supp. 2d 1306, 1352 (Ct. Int’l Trade 2003) (“‘likely’ means probable within the context of 19 U.S.C. § 1675(c) and 19 U.S.C. § 1675a(a)”), *aff’d mem.*, 140 Fed. Appx. 268 (Fed. Cir. 2005); *Nippon Steel Corp. v. United States*, 26 CIT 1416, 1419 (2002) (same); *Usinor Industeel, S.A. v. United States*, 26 CIT 1402, 1404 nn.3, 6 (2002) (“more likely than not” standard is “consistent with the court’s opinion;” “the court has not interpreted ‘likely’ to imply any particular degree of ‘certainty’”); *Indorama Chemicals (Thailand) Ltd. v. United States*, 26 CIT 1059, 1070 (2002) (“standard is based on a likelihood of continuation or recurrence of injury, not a certainty”); *Usinor v. United States*, 26 CIT 767, 794 (2002) (“‘likely’ is tantamount to ‘probable,’ not merely ‘possible’”).

⁹⁸ 19 U.S.C. § 1675a(a)(5).

⁹⁹ SAA at 887. Among the factors that the Commission should consider in this regard are “the fungibility or differentiation within the product in question, the level of substitutability between the imported and domestic products, the channels of distribution used, the methods of contracting (such as spot sales or long-term contracts), and lead times for delivery of goods, as well as other factors that may only manifest themselves in the longer term, such as planned investment and the shifting of production facilities.” *Id.*

¹⁰⁰ 19 U.S.C. § 1675a(a)(1).

the orders are revoked or a suspension agreement is terminated, and any findings by Commerce regarding duty absorption pursuant to 19 U.S.C. § 1675(a)(4).¹⁰¹ The statute further provides that the presence or absence of any factor that the Commission is required to consider shall not necessarily give decisive guidance with respect to the Commission's determination.¹⁰²

In evaluating the likely volume of imports of subject merchandise if the orders under review are revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether the likely volume of imports would be significant either in absolute terms or relative to production or consumption in the United States.¹⁰³ In doing so, the Commission must consider "all relevant economic factors," including four enumerated factors: (1) any likely increase in production capacity or existing unused production capacity in the exporting country; (2) existing inventories of the subject merchandise, or likely increases in inventories; (3) the existence of barriers to the importation of the subject merchandise into countries other than the United States; and (4) the potential for product shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products.¹⁰⁴

In evaluating the likely price effects of subject imports if the orders under review are revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether there is likely to be significant underselling by the subject imports as compared to the domestic like product and whether the subject imports are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.¹⁰⁵

In evaluating the likely impact of imports of subject merchandise if the orders under review are revoked and/or a suspended investigation is terminated, the Commission is directed to consider all relevant economic factors that are likely to have a bearing on the state of the industry in the United States, including but not limited to the following: (1) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity; (2) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment; and (3) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.¹⁰⁶ All relevant economic factors are to be considered within the context of the business cycle and the conditions of competition that are distinctive to the industry. As instructed by the statute, we have considered the extent to

¹⁰¹ 19 U.S.C. § 1675a(a)(1).

¹⁰² 19 U.S.C. § 1675a(a)(5). Although the Commission must consider all factors, no one factor is necessarily dispositive. SAA at 886.

¹⁰³ 19 U.S.C. § 1675a(a)(2).

¹⁰⁴ 19 U.S.C. § 1675a(a)(2)(A-D).

¹⁰⁵ See 19 U.S.C. § 1675a(a)(3). The SAA states that "{c}onsistent with its practice in investigations, in considering the likely price effects of imports in the event of revocation and termination, the Commission may rely on circumstantial, as well as direct, evidence of the adverse effects of unfairly traded imports on domestic prices." SAA at 886.

¹⁰⁶ 19 U.S.C. § 1675a(a)(4).

which any improvement in the state of the domestic industry is related to the orders under review and whether the industry is vulnerable to material injury upon revocation.¹⁰⁷

B. Conditions of Competition and the Business Cycle

In evaluating the likely impact of the subject imports on the domestic industry if an order is revoked, the statute directs the Commission to consider all relevant economic factors “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”¹⁰⁸

1. The Original Investigations and First Review

Original Investigations: In the original investigation, the Commission addressed several conditions of competition that were relevant to its analysis. The Commission found that LEU is a fungible, commodity product that is produced in the third stage of the four-stage “nuclear fuel cycle,” traditionally managed by utilities, and used to process uranium ore into nuclear reactor fuel.¹⁰⁹ It found that utilities obtained LEU either through SWU transactions, in which enrichers are paid for the SWU contained in the LEU and provided with uranium feedstock equal to that contained in the LEU, or through EUP transactions, in which enrichers are paid for LEU, including the uranium feedstock contained in the LEU.¹¹⁰

The Commission found that the global LEU industry was highly capital intensive and concentrated, comprised of only USEC, Urenco, Eurodif, and TENEX.¹¹¹ USEC was the sole domestic producer of LEU and was export oriented, supplying roughly 40 percent of global demand for LEU.¹¹² At the time of USEC’s creation by the U.S. government in 1992, USEC operated two enrichment plants in Piketon, Ohio and Paducah, Kentucky, but its declining financial health prompted it to cease enrichment operations at Piketon in June 2000 and shift all enrichment operations to Paducah in May 2001.¹¹³

As another significant condition of competition, the Commission cited the U.S.-Russian HEU Agreement, under which USEC acted as the U.S. Executive Agent and was obligated to purchase 5.5 million SWUs annually from Russia over the 1999-2014 period.¹¹⁴ The Commission

¹⁰⁷ The SAA states that in assessing whether the domestic industry is vulnerable to injury if the order is revoked, the Commission “considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they may also demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.” SAA at 885.

¹⁰⁸ 19 U.S.C. § 1675a(a)(4).

¹⁰⁹ Original Determinations, USITC Pub. 3486 at 8.

¹¹⁰ Original Determinations, USITC Pub. 3486 at 8.

¹¹¹ Original Determinations, USITC Pub. 3486 at 9.

¹¹² Original Determinations, USITC Pub. 3486 at 9.

¹¹³ Original Determinations, USITC Pub. 3486 at 9.

¹¹⁴ Original Determinations, USITC Pub. 3486 at 9.

observed that, because most of the LEU obtained under the Agreement could not be exported, USEC had to sell most of it into the U.S. market and reduce its sales of domestically produced LEU commensurately, which increased the unit costs of the LEU that USEC produced domestically.¹¹⁵

The Commission found that LEU demand had increased between 1998 and 2000, but was expected to remain flat through 2003.¹¹⁶ In addition, the deregulation of electric utilities and the consolidation of nuclear utilities was expected to dampen LEU prices.¹¹⁷

Finally, the Commission found that price was an important consideration for purchasers in making their purchasing decisions, along with diversity and reliability of supply, and that most LEU was sold pursuant to long-term contracts ranging in duration from three to seven years.¹¹⁸ Although relatively little LEU was sold on the spot market, the Commission noted that these spot sales appeared to have some effect on the pricing for long-term contracts.¹¹⁹

First Review: In the first review, the Commission again found that LEU was a fungible commodity and was mostly sold through long-term contracts ranging from four to seven years or longer in duration that were negotiated two to three years in advance of the first contracted deliveries.¹²⁰ It found that long-term contracts did not entirely insulate USEC from current market conditions because the base prices specified in such contracts were subject to adjustment pursuant to “market-based pricing provisions” and renegotiation ***.¹²¹ Most contracts, the Commission found, were “open origin” and permitted LEU to be supplied from any legal source.¹²² Due to the prevalence of long-term contracts, the Commission found that competition between LEU suppliers was most intense for uncommitted demand, which increased into the future beyond the duration of existing long-term contracts.¹²³

The Commission found that U.S. demand for LEU was likely to increase moderately in the reasonably foreseeable future due to enhancements to existing reactors, although a “nuclear renaissance” was unlikely to occur within a reasonably foreseeable time.¹²⁴ The Commission found that global demand for LEU was also projected to increase moderately, spurred by the 28 nuclear reactors then under construction.¹²⁵

With respect to supply, the Commission found that over 95 percent of global enrichment capacity was controlled by USEC, Eurodif, Rosatom in Russia, and Urenco (which

¹¹⁵ Original Determinations, USITC Pub. 3486 at 9-10.

¹¹⁶ Original Determinations, USITC Pub. 3486 at 10.

¹¹⁷ Original Determinations, USITC Pub. 3486 at 10.

¹¹⁸ Original Determinations, USITC Pub. 3486 at 11.

¹¹⁹ Original Determinations, USITC Pub. 3486 at 11.

¹²⁰ First Review Determination, USITC Pub. 3967 at 15-16.

¹²¹ First Review Determination, USITC Pub. 3967 at 16.

¹²² First Review Determination, USITC Pub. 3967 at 16.

¹²³ First Review Determination, USITC Pub. 3967 at 16-17.

¹²⁴ First Review Determination, USITC Pub. 3967 at 17-18.

¹²⁵ First Review Determination, USITC Pub. 3967 at 18.

had facilities in Germany, the Netherlands, and the United Kingdom).¹²⁶ It found that USEC remained the lone domestic producer, although it ceased production at one of its two production facilities, located in Piketon, Ohio, in June 2001.¹²⁷ USEC also supplied a significant proportion of U.S. demand, around *** percent in 2006, with LEU it was obligated to import from Russia pursuant to the Russian HEU Agreement.¹²⁸ In addition, USEC had entered into an agreement with the DOE in 2002, in which it agreed to produce at least 3.5 million SWU per year at its remaining domestic plant, located in Paducah, Kentucky, and deploy a new enrichment plant based on U.S. centrifuge technology, known as the ACP, in Paducah, Kentucky, with production to commence in 2009 and grow to 3.5 million SWU by September 2011.¹²⁹ In exchange, the DOE provided USEC with the U.S. centrifuge technology through a “program of intense technology transfer.”¹³⁰ USEC regarded completion of the ACP to be essential to its survival, given the inefficiency of its Paducah plant, and expected to commence commercial production at the ACP in 2009.¹³¹

The Commission found that Eurodif, too, was in the process of replacing its outdated gaseous diffusion plant in France, Georges Besse I, with a new centrifuge enrichment plant, Georges Besse II, based on centrifuge technology from Urenco.¹³² Georges Besse II was expected to reach its full initial capacity in 2012, at which time Georges Besse I would be shuttered.¹³³ Eurodif expected to increase the capacity of Georges Besse II to 7.5 million SWU by 2018, expandable to 11 million SWU.¹³⁴

The Commission found that several other new LEU production facilities were planned or under construction in the United States. LES was expected to commence commercial LEU production at the NEF in mid-2009, having entered into long-term contracts representing 90 percent of its expected output over its first ten years of operation.¹³⁵ Areva submitted a proposal to the Nuclear Regulatory Commission for the construction of a new LEU plant, named Eagle Rock, aiming to begin construction in late 2010 and operations in 2013.¹³⁶ GE-Hitachi Nuclear Energy sought to deploy a new laser-based enrichment technology known as SILEX at a new U.S. LEU plant by 2012.¹³⁷

¹²⁶ First Review Determination, USITC Pub. 3967 at 18. Rosatom is a state-owned corporation that oversees the Russian civilian nuclear fuel industry. See *Uranium from Russia*, USITC Pub. 4307 at I-62.

¹²⁷ First Review Determination, USITC Pub. 3967 at 18.

¹²⁸ First Review Determination, USITC Pub. 3967 at 19.

¹²⁹ First Review Determination, USITC Pub. 3967 at 19.

¹³⁰ First Review Determination, USITC Pub. 3967 at 19.

¹³¹ First Review Determination, USITC Pub. 3967 at 19-20.

¹³² First Review Determination, USITC Pub. 3967 at 20.

¹³³ First Review Determination, USITC Pub. 3967 at 20.

¹³⁴ First Review Determination, USITC Pub. 3967 at 20.

¹³⁵ First Review Determination, USITC Pub. 3967 at 20.

¹³⁶ First Review Determination, USITC Pub. 3967 at 20.

¹³⁷ First Review Determination, USITC Pub. 3967 at 20.

Finally, the Commission observed that although Russia was the largest source of nonsubject imports, such imports were restrained in terms of both price and volume by a suspension agreement and by the Russian HEU Agreement.¹³⁸

2. The Current Review

The following conditions of competition inform our determinations.

a. Demand Conditions

Most LEU is sold through SWU transactions pursuant to long-term contracts ranging from *** years in duration.¹³⁹ Contracts are signed an average of *** years in advance of the first contracted deliveries.¹⁴⁰ Purchasers reported that 93.7 percent of their purchases were made pursuant to long-term contracts during the period of review, which encompasses January 1, 2007 through March 31, 2013.¹⁴¹ Electric utilities' annual reload requirements, expressed as the quantity of uranium and the quantity of SWU required, are widely used measures of demand for LEU.¹⁴² Future demand committed to long-term contracts is known as "committed demand," while future demand not yet committed to long-term contracts is known as "uncommitted demand."¹⁴³ We note that the prevalence of long-term contracts enhances our ability to make reasonable inferences with respect to future developments in the LEU market.¹⁴⁴ We take this fact into account in considering the likely effects of revocation of the order within a reasonably foreseeable time, which we conclude extends further into the future in this review than is ordinarily the case.¹⁴⁵

Long-term contracts do not entirely insulate transaction prices from current market conditions. USEC contends that long-term contracts that include market-based pricing provisions, through which transaction prices are influenced by market prices, account for ***

¹³⁸ First Review Determination, USITC Pub. 3967 at 21.

¹³⁹ CR at II-15, V-5-6; PR at II-8-9, V-3; CR/PR at Table II-2.

¹⁴⁰ CR at II-18; PR at II-10-11.

¹⁴¹ CR/PR at Table II-4.

¹⁴² CR at II-14; PR at II-8.

¹⁴³ CR at II-18-19; PR at II-10-12; CR/PR at Table II-5.

¹⁴⁴ See Respondent Interested Parties' Responses to Commissioner Questions at 55 (long-term contracts give the Commission "a window into the future").

¹⁴⁵ In this regard, our approach to this review is consistent with the Commission's approach in the prior review of the antidumping duty order on LEU from France and the most recent review of the suspension agreement on uranium from Russia, in which the Commission found a longer reasonable period of time to be appropriate. First Review Determination, USITC Pub. 3967 at 16; *Uranium from Russia*, USITC Pub. 4307 at 14. Both USEC and the respondent interested parties have argued that a four-year reasonably foreseeable period of time is appropriate in this review. See USEC's Responses to Commissioner Questions, Ex. 21; Hearing Tr. at 185 (Rosen) ("I would say four years would be appropriate here."); see also Respondent Interested Parties' Responses to Commissioner Questions at 55.

percent of the volume of LEU sold pursuant to currently signed contracts and will account for *** percent of deliveries pursuant to such contracts over the next three years.¹⁴⁶ Responding purchasers reported that approximately one-third of their long-term contracts (based on contract quantity) set prices partially based on market prices at the time of delivery.¹⁴⁷ Thus, transaction prices under long-term contracts containing market-based pricing provisions would be influenced by current market prices. Moreover, some long-term contracts allow for price renegotiations in the middle of the contract period to ensure that delivered prices do not diverge significantly from market prices.¹⁴⁸

Some long-term contracts are “open origin” and permit LEU to be supplied from any legal source.¹⁴⁹ Purchasers reported that the share of their committed demand, in kgs of U, slated to be satisfied through open origin contracts is 20.7 percent in 2013, 33.3 percent in 2014, 37.4 percent in 2015, and 38.0 percent in 2016.¹⁵⁰

To the extent that long-term contracts commit purchasers to satisfying their future LEU requirements with purchases from certain LEU suppliers, competition between LEU producers is most intense for uncommitted demand.¹⁵¹ Uncommitted demand for LEU approaches zero in the very short term, but becomes progressively higher several years into the future, as current long-term contracts expire.¹⁵² Responding purchasers reported that their uncommitted demand is 90,096 SWU for 2013, 149,812 SWU for 2014, zero for 2015, 188,723 SWU for 2016, zero for 2017, 1.7 million SWU for 2018, 2.3 million SWU for 2019, 5.2 million SWU for 2020, 3.5 million SWU for 2021, and 7.3 million SWU for 2022.¹⁵³ Uncommitted demand for all U.S. purchasers, including those that did not submit questionnaire responses, would be higher.¹⁵⁴

We find that U.S. demand for LEU will likely remain flat in the reasonably foreseeable future.¹⁵⁵ Responding purchasers report that their demand for LEU will fluctuate between 13.8 million SWU and 16.2 million SWU during the 2013-2017 period before increasing to 17.1 million SWU in 2017 and remaining over 16.0 million SWU annually through 2022.¹⁵⁶ USEC and the respondent interested parties agree that U.S. demand for LEU will likely remain flat.¹⁵⁷

¹⁴⁶ USEC’s Prehearing Br. at 42.

¹⁴⁷ CR at V-6; PR at V-3.

¹⁴⁸ CR at V-5; PR at V-3.

¹⁴⁹ CR at II-17-18; PR at II-11; CR/PR at Table II-5.

¹⁵⁰ CR/PR at Table II-5.

¹⁵¹ CR at II-18-19; PR at II-10-11.

¹⁵² CR at II-19; PR at II-10-11.

¹⁵³ CR/PR at Table II-5 (converted from kgs to SWU using the conversion factor on CR at I-7).

¹⁵⁴ CR/PR at Table II-10 n.2 (the total annual quantities reported by purchasers accounted for approximately *** percent of apparent U.S. consumption).

¹⁵⁵ See generally, CR at II-16-18; PR at II-9-11.

¹⁵⁶ CR/PR at Table II-5 (converted to SWU).

¹⁵⁷ USEC’s Prehearing Br. at 40 (citing a U.S. Energy Information Administration Report projecting flat enrichment feed deliveries over the 2013-2022 period); Respondent Interested Parties’ Prehearing Br. at 4; Respondent Interested Parties’ Responses to Commissioner Questions at 57; Hearing Tr. at 84 (Donelson), 188 (Chevrel).

We find that global demand for LEU will likely increase in the reasonably foreseeable future, after declining during the period of review in the wake of the Fukushima incident in March 2011.¹⁵⁸ According to the World Nuclear Association, global demand for LEU is expected to increase 60 percent between 2012 and 2030, as declining consumption in established markets such as Japan, Germany, Belgium, and Switzerland is offset by increased demand in emerging markets, such as China and India.¹⁵⁹ Although most of Japan's nuclear reactors have been idled since the Fukushima incident, USEC and the respondent interested parties anticipate that a majority of Japan's reactors will be reactivated in the near future.¹⁶⁰

b. Supply Conditions

As in the original investigations and first review, over 95 percent of global enrichment capacity is controlled by four enrichers: USEC, Eurodif, TENEX, and Urenco.¹⁶¹ In 2012, global enrichment capacity was 51.0 million SWU.¹⁶² The high concentration of the global enrichment industry is probably a result of the high capital cost of enrichment facilities; a new enrichment plant can cost over \$3 billion.¹⁶³ Moreover, the large capital investment required to construct centrifuge enrichment facilities, coupled with their relatively low operating costs, creates an economic incentive to operate such facilities at a high rate of capacity utilization, so as to minimize unit fixed costs.¹⁶⁴

The U.S. market was served by two domestic producers during the period of review, LES and USEC.¹⁶⁵ USEC was the only domestic producer until June 11, 2010, when LES began commercial operations; USEC accounted for *** percent of domestic industry production in

¹⁵⁸ CR at II-21; PR at II-13; Hearing Tr. at 86 (Donelson), 188 (Chevrel). A tsunami resulting from a major earthquake in March 2011 caused irreparable damage to four reactors at Japan's Fukushima Daiichi nuclear power station and subsequently resulted in 50 reactors in Japan and Germany being taken off line as of the start of 2013. CR at II-3; PR at II-2.

¹⁵⁹ CR at II-21-22; PR at II-13. The World Nuclear Association projects that LEU demand in emerging markets will increase by 91 percent between 2013 and 2020 and 260 percent between 2013 and 2030. Respondent Interested Parties' Responses to Commissioner Questions at 29-30.

¹⁶⁰ Hearing Tr. at 125 (Sewell), 193 (Chevrel); USEC's Responses to Commissioner Questions at Ex. 23; Respondent Interested Parties' Responses to Commissioner Questions at 59.

¹⁶¹ CR at IV-13; PR at IV-8.

¹⁶² CR at IV-17; PR at IV-10.

¹⁶³ LES has invested \$*** billion in the NEF, while Areva has invested approximately €3 billion in Georges Besse II, its new centrifuge enrichment facility. Domestic Producers' Questionnaire Response of LES at III-18; CR at IV-8; PR at IV-5. USEC claims that commercialization of the ACP would require a capital investment of \$4 billion. CR at III-6; PR at III-4.

¹⁶⁴ USEC's Prehearing Br. at 3, 62, 73; Hearing Tr. at 187 (Chevrel) ("[T]he economics of the centrifuge technology is such that you have a huge investment and a much smaller operation cost. So, obviously, it's a high incentive to use it at full capacity, yes."); Respondent Interested Parties' Responses to Commissioner Questions at 25.

¹⁶⁵ CR/PR at Table I-5.

2012.¹⁶⁶ USEC produced LEU at its gaseous diffusion enrichment plant in Paducah, Kentucky, until May 31, 2013.¹⁶⁷ According to USEC, the substantial amounts of electricity required by the gaseous diffusion technology had rendered the Paducah plant uncompetitive and necessitated its replacement by the forthcoming ACP.¹⁶⁸ The ACP, if commercialized, would utilize approximately 97.9 percent less electricity per SWU than the Paducah plant.¹⁶⁹ Until production commences at the ACP, USEC will continue to serve its customers using inventories of U.S.-produced LEU, which will be exhausted by ***, and LEU imports from Russia, as discussed below.¹⁷⁰

As discussed in section II.B.2 above, USEC is in the process of demonstrating the ACP technology through the RD&D program with the DOE and is scheduled to complete the remaining three milestones by the end of 2013.¹⁷¹ Pursuant to the RD&D program, USEC has invested approximately \$350 million, including \$70 million from USEC and \$280 million from the DOE, to develop and construct a demonstration cascade consisting of 120 individual centrifuges.¹⁷² USEC expects to have demonstrated the cascade's reliability, quality, and ability to produce commercially LEU on a sustained basis upon the successful completion of the program.¹⁷³ At that point, USEC will need to secure \$4 billion in financing to commercialize the ACP through the construction of an additional 95 cascades.¹⁷⁴ To this end, USEC plans to submit an updated application for \$2 billion in loan guarantees from the DOE and to raise an additional \$1 billion investment from Japanese sources and \$1 billion from private investors.¹⁷⁵

¹⁶⁶ CR at III-10; PR at III-7; CR/PR at Table I-5.

¹⁶⁷ CR at III-2; PR at III-1-2. USEC will continue to use the Paducah, Kentucky facility to manage inventory and meet the turnover requirements of its lease with the DOE. *Id.* at III-2. USEC ceased production at its second gaseous diffusion enrichment plant in Piketon, Ohio in May 2001, decommissioned the facility in 2006, and transferred ownership of the facility back to DOE in September 2011. CR at III-1; PR at III-1.

¹⁶⁸ USEC's Prehearing Br. at 16; Hearing Tr. at 15-16 (Sewell).

¹⁶⁹ USEC's Prehearing Br. at 13, 48. Gaseous diffusion enrichment requires approximately 48 times more kilowatt-hours per SWU than centrifuge enrichment, which translates into an additional power cost of approximately \$58.72 per SWU. CR at I-24; PR at I-17.

¹⁷⁰ CR/PR at III-2 & n.5.

¹⁷¹ CR at III-9; PR at III-6; Hearing Tr. at 114-15 (Rogers); USEC's Responses to Commissioner Questions at Ex. 18.

¹⁷² CR at III-4-5 & n.9; PR at III-3 & n.9. USEC's total investment in the ACP was approximately \$2.5 billion as of June 2013. CR at III-6-7; PR at III-4.

¹⁷³ CR at III-5; PR at III-3; USEC's Responses to Commissioner Questions at Ex. 18.

¹⁷⁴ CR at III-6; PR at III-4; Respondents' Responses to Commissioner Questions at Ex. 1.

¹⁷⁵ CR at III-6 n.17; PR at III-4 n.17. USEC indicated that it has discussed financing of up to \$1 billion of the cost of completing the ACP with two Japanese export credit agencies ("ECAs"), the Japanese Bank for International Cooperation ("JBIC") and Nippon Export and Investment Insurance ("NEX"), with the support of Toshiba, which has made an equity investment in USEC. USEC's Responses to Commissioner Questions, Ex. 19 at 2. According to USEC, in 2010, the Japanese government determined that there was sufficient Japanese interest to justify ECA financing of the ACP. *Id.* USEC was represented by Sumitomo Mitsui Banking Corporation in these discussions, and has presented extensive (Continued...)

USEC claims that its ability to secure financing for commercialization of the ACP will depend on its ability to sign contracts for ACP's future production in a fair and stable market over the next two years.¹⁷⁶ If these efforts are successful, USEC anticipates that it will be able to commence commercial production of LEU at the ACP as early as mid-2016 and attain the facility's full capacity of *** SWU by 2019.¹⁷⁷

LES, the other domestic producer, began construction of the NEF near Eunice, New Mexico in 2006, and commenced commercial operations on June 11, 2010, using centrifuges sourced from ETC, the joint venture between Urenco, its parent, and Areva.¹⁷⁸ LES's capacity increased from *** SWU in 2010 to *** SWU in 2012 and *** in 2013, and is in the process of being expanded to *** SWU.¹⁷⁹ LES has submitted a request to the NRC to amend its license to increase the maximum capacity of the NEF from 5.7 million SWU to 10 million SWU by 2020.¹⁸⁰

Two other U.S. enrichment projects remain in the planning stages. In October 2011, the NRC issued a license to Areva to construct and operate Eagle Rock, a \$2 billion centrifuge enrichment plant with an annual capacity of 6.6 million SWU, but Areva placed the project on hold before construction began due to financing issues.¹⁸¹ In September 2012, the NRC issued a license to Global Laser Enrichment, a subsidiary of General Electric Co., to construct and

(...Continued)

due diligence documentation to JBIC and NEX over the past several years. *Id.* at 3, Attachment (USEC presentation to JBIC and NEX, dated December 2012).

¹⁷⁶ USEC's Responses to Commissioner Questions, Ex. 21 at 3; Hearing Tr. at 24-25 (Sewell) ("The commercialization plan depends on a strong backlog of long term contracts . . . you should understand that the market conditions that exist now and that could be influenced by revocation of the antidumping order on French LEU will determine whether USEC can obtain the contracts it needs for this plant. If USEC cannot secure these contracts, there will be no financial basis to proceed with the plant."), 44 (Donelson), 57, 95-96, 116-18 (Sewell) ("[T]he case to investors is that . . . the sales of output of ACP at the appropriate price level, assuming this order is not rescinded, will generate a return that is sufficient to attract equity."). During the 2008-11 period, USEC secured contracts with *** firms to purchase LEU from the ACP over the *** period to support financing of the ACP. CR at II-20; PR at II-12. Because diversity of supply is a primary concern for purchasers, many utilities elect to support enrichment facility projects through such contracts. *Id.* LES reports that its "initial contracts" with U.S. utilities "provided the indispensable foundation that justified the huge capital investment required to build the LES plant." LES's Final Comments at 2; *see also* First Review Determination, USITC Pub. 3967 at 35 (finding that LES had already committed 90 percent of the NEF's projected output through 2019).

¹⁷⁷ CR at II-20, III-7; PR at II-12, III-5.

¹⁷⁸ CR at III-10 & n.23; PR at III-8 & n.23.

¹⁷⁹ CR at II-5 n.12, II-7; PR at II-3 n.12, II-4; *see also* USEC's Responses to Commissioner Questions at Ex. 22 (Fueltrac data from October 2012, which "may be somewhat outdated," indicating that LES's capacity will reach 5.7 million SWU in 2016). Duke Energy stated that "LES has recently announced plans to lower targeted plant capacity following expansions thru 2015 from 5.7 million SWU to 4.7 million SWU, installing the delayed 1 million SWU at a slower pace from 2016-2022." Duke Energy's Non-Party Written Statement at 1.

¹⁸⁰ CR at III-10 n.23; PR at III-8 n.23.

¹⁸¹ CR at III-11; PR at III-8.

operate a uranium enrichment plant using laser technology from Silex Systems, Ltd., of Australia, with a projected capacity of 3.5 to 6 million SWU by 2020.¹⁸²

Subject imports were not a significant source of supply in the U.S. market during the period of review. The only subject imports during the period were *** SWU in 2007, equivalent to *** percent of apparent U.S. consumption that year.¹⁸³ All subject LEU from France was imported by Areva, whose affiliate Eurodif is the only producer of subject LEU in France.¹⁸⁴ Areva reports that Eurodif's new plant's annual capacity will be *** SWU in 2013, *** SWU in 2014, and 7.5 million SWU in 2016, which Areva describes as the plant's optimal capacity.¹⁸⁵ Eurodif has been granted a nuclear license to produce up to 8.2 million SWU per year at the plant.¹⁸⁶

Nonsubject imports were the largest source of supply in the U.S. market during the period of review, accounting for *** percent to *** percent of annual apparent U.S. consumption during the period.¹⁸⁷ As discussed in section II.A above, USEC's purchases of LEU under the Russian HEU Agreement account for *** and satisfied around *** of apparent U.S. consumption during the period of review.¹⁸⁸ After the HEU Agreement's completion in November 2013, USEC will import commercially produced LEU from Russia under its March 2011 agreement with TENEX at ***.¹⁸⁹

USEC's new agreement with TENEX works within the confines of the amended suspension agreement that was entered into by Commerce and the Government of Russia in February 2008, which restrains nonsubject imported LEU from Russia through 2020.¹⁹⁰ The agreement imposes an annual quota on commercially produced LEU imported from Russia

¹⁸² CR at III-12; PR at III-8-9; *see also* CR at I-24-25; PR at I-17.

¹⁸³ CR/PR at IV-1; CR/PR at Tables I-7-8.

¹⁸⁴ CR at IV-1, 6; PR at IV-1, 4.

¹⁸⁵ CR at IV-8; PR at IV-5.

¹⁸⁶ CR at IV-7; PR at IV-5. Areva has indicated that the plant's capacity could be increased to 11 million SWU to meet market demand. See Daniel W. Klett Hearing Exhibit 4; USEC's Posthearing Br. at Ex. 11, p.2; *see also* CR at IV-17; PR at IV-10.

¹⁸⁷ CR/PR at Table I-8.

¹⁸⁸ CR at I-26, II-12; PR at I-18, II-7.

¹⁸⁹ CR at II-12-13; PR at II-7.

¹⁹⁰ CR at III-21-22; PR at III-13-14; Hearing Tr. at 110-11 (Cunningham) ("[T]he underlying premise of the suspension agreement was that where you have the Russian imports controlled by a member of the U.S. industry, it will not be in the U.S. industry member's interest to sell them in the marketplace at a market-distorting or depressing price."). The Russian suspension agreement covers all four semifinished products along the production process used to produce fuel for nuclear reactors, including LEU. CR at I-6 n.19; PR at I-4 n.19. Nonsubject imports from Russia are also restrained by U.S. law, 42 U.S.C. § 2297h-10a, which imposes an annual quota on such imports during the 2014-2020 period. The annual quota on LEU imported from Russia ranges from 455,142 kg to 514,754 kg, 42 U.S.C. § 2297h-10a(c)(2)(A), and may be increased up to another 120,000 kg if Russia agrees to downblend an additional 300 metric tons of HEU. 42 U.S.C. § 2297h-10a(c)(2)(B).

during the 2014-2020 period equivalent to approximately 20 percent of the expected U.S. enrichment market during the period.¹⁹¹

During the period of review, Areva primarily supplied its U.S. customers with nonsubject imported LEU acquired from ***.¹⁹² According to responding purchasers, Areva's deliveries of nonsubject imported LEU as a share of total deliveries in the U.S. market peaked at 19.3 percent in 2008 before declining to 15.4 percent in 2009, 14.3 percent in 2010, 11.7 percent in 2011, and 10.8 percent in 2012.¹⁹³ Areva reports that revocation of the order would result in ***.¹⁹⁴

c. Substitutability

We find that LEU is a fungible commodity, with a high degree of substitutability among the domestic like product, subject imports, and nonsubject imports.¹⁹⁵ Out of 20 responding purchasers, which accounted for *** of total U.S. consumption of LEU in 2012,¹⁹⁶ almost all reported that the domestic like product is always interchangeable with subject and nonsubject imported LEU and that subject imported LEU is always interchangeable with nonsubject imported LEU.¹⁹⁷ *** also reported that the domestic like product is always interchangeable with subject and nonsubject imported LEU and that subject imported LEU is always interchangeable with nonsubject imported LEU.¹⁹⁸ Almost all responding purchasers also reported that the domestic like product, subject imports, and nonsubject imports were

¹⁹¹ CR at III-22; PR at III-13-14.

¹⁹² Hearing Tr. at 136 (McMurphy). The respondent interested parties state that Areva purchased *** SWU from Urenco during the period of review, including ***, in order to facilitate Areva's transition from Georges Besse I to Georges Besse II. Respondent Interested Parties' Responses to Commissioner Questions at 71. They also indicate that Areva acquired *** SWU by engaging in swaps with Urenco and obtained additional LEU sourced from Urenco and resold by other entities, without Urenco's participation. *Id.* at 72.

¹⁹³ CR/PR at Table II-10. Responding purchasers reported that Areva's deliveries of LEU in 2007, which would have included both subject and nonsubject imports, accounted for 17.4 percent of total deliveries that year. *Id.*

¹⁹⁴ CR at D-13; PR at Appendix D; Respondent Interested Parties' Prehearing Br. at 38. Responding purchasers reported that Areva's expected deliveries as a share of total expected deliveries in the U.S. market will be 5.7 percent in 2013, 11.2 percent in 2014, 6.4 percent in 2015, and 5.7 percent in 2016. CR/PR at Table II-10.

¹⁹⁵ CR at II-23; PR at II-14.

¹⁹⁶ CR at II-23; PR at II-14.

¹⁹⁷ CR/PR at Table II-12. When asked how often the domestic like product is interchangeable with subject imported LEU, 17 purchasers reported always, one reported sometimes, and two reported no familiarity. *Id.* When asked how often the domestic like product is interchangeable with nonsubject imported LEU, 17 purchasers reported always, two reported frequently, and one reported sometimes. *Id.* When asked how often subject imported LEU is interchangeable with nonsubject imported LEU, 14 purchasers reported always, one reported sometimes, and five reported no familiarity. *Id.*

¹⁹⁸ CR/PR at Table II-12.

comparable in terms of 19 enumerated factors, including availability, delivery time, and quality meeting industry standards.¹⁹⁹

We also find that price is a significant factor in purchasing decisions. Responding purchasers cited price as among the three most important factors used in purchasing decisions (16 firms) and as the most important such factor (8 firms) more often than any other factor, including reliability/security of supply, diversity of supply, and contract terms and conditions.²⁰⁰ Seventeen of 20 responding purchasers reported that they always or usually purchase the lowest-priced LEU.²⁰¹ When asked to rate the importance of 19 enumerated factors, 19 responding purchasers rated price as very important, tied with reliability of supply as the factor rated very important by the most responding purchasers.²⁰² When asked to assess how often differences other than price were significant in sales of LEU from the United States, France, and nonsubject sources, the *** responded never, and *** responding domestic producers and most responding purchasers reported sometimes or never.^{203 204}

C. Revocation of the Antidumping Order Is Likely to Lead to the Continuation or Recurrence of Material Injury to the Domestic Industry within a Reasonably Foreseeable Time

1. Likely Volume of Subject Imports

a. The Original Investigations and First Review

Original Investigations: In the original investigations, the Commission found that cumulated subject import volume (including imports from France, Germany, the Netherlands, and the United Kingdom) increased *** percent between 1998 and 2000, while domestic industry market share declined sharply.²⁰⁵ Focusing on contracts negotiated or re-negotiated over the period of investigation, the Commission found that cumulated subject import volume

¹⁹⁹ CR/PR at Table II-11. All responding purchasers with knowledge of LEU from the different sources reported that LEU from the United States, France, Russia, and other nonsubject sources “always” meets minimum quality specifications. *Id.* at Table II-13.

²⁰⁰ CR/PR at Table II-7.

²⁰¹ CR at II-25; PR at II-15.

²⁰² CR/PR at Table II-8.

²⁰³ CR/PR at Table II-14.

²⁰⁴ Commissioner Broadbent has reached a negative determination and does not join the remainder of this opinion. See her Dissenting Views.

²⁰⁵ Confidential Views, *Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom*, Inv. Nos. 701-TA-409-412 and 731-TA-909 (Final) (“Confidential Original Determination”), EDIS Doc.#501428, at 15. The Commission determined that cumulation was appropriate in the original investigations and analyzed subject imports from France, Germany, the Netherlands, and the United Kingdom on a cumulated basis. See Original Determinations, USITC Pub. 3486 at 7. Subject imports from France increased *** percent between 1998 and 2000. CR/PR at Table I-1.

shipped pursuant to such contracts increased *** percent over the period.²⁰⁶ While recognizing that nonsubject imports from Russia increased at a similar rate as subject imports, the Commission emphasized that the domestic industry lost more market share to subject imports (*** percentage points) than to nonsubject imports (*** percentage points) and concluded that the volume of subject imports was significant.²⁰⁷

First Review: In the first review, the Commission found that the likely volume of subject imports would be significant if the order were to be revoked.²⁰⁸ In reaching that conclusion, the Commission explained that a significant proportion of the increase in cumulated subject import volume during the original period of investigation, which the Commission found to be significant, consisted of subject imports from France.²⁰⁹ The Commission also found that subject imports maintained a significant presence in the U.S. market during the period of review, with a market share ranging from *** percent to *** percent, indicating that Eurodif remained interested in and capable of serving U.S. customers.²¹⁰ In addition, the Commission found that Eurodif possessed the ability to significantly increase its exports of LEU to the United States, notwithstanding its reported capacity utilization rate of *** percent in 2006, because Eurodif produced *** more SWU in 2005 than in 2006 with the same capacity and possessed inventories at the end of the first half of 2007 that were equivalent to *** percent of U.S. apparent consumption in the period.²¹¹

The Commission also found that Eurodif had the opportunity and the incentive to increase exports to the United States significantly after revocation. Specifically, the Commission found that Eurodif had the opportunity to increase exports significantly in light of uncommitted demand in the U.S. market through 2010 and the likelihood that long-term contracts for delivery beyond 2010 would be finalized during the next few years.²¹² The Commission also found it likely that Eurodif would significantly increase subject imports under existing “open origin” contracts as it replaced the nonsubject imports that Eurodif increasingly supplied to its U.S. customers during the period of review with subject imports.²¹³

²⁰⁶ Confidential Original Determination at 16.

²⁰⁷ Confidential Original Determination at 16.

²⁰⁸ First Review Determination, USITC Pub. 3967 at 21.

²⁰⁹ First Review Determination, USITC Pub. 3967 at 22.

²¹⁰ Confidential Views, *Low Enriched Uranium from France*, Inv. No. 731-TA-909 (Review) (“Confidential Review Determination”), EDIS Doc.#501484, at 30-31.

²¹¹ Confidential Review Determination at 32-33. Rejecting Eurodif’s arguments that its inventories were earmarked for the possibility of a power outage during negotiations to renew its power supply contract and for its transition from Georges Besse I to Georges Besse II, the Commission found that those inventories would be available for export after conclusion of a power supply contract and that Georges Besse I was not scheduled to be fully decommissioned until 2020. *Id.* at 33.

²¹² First Review Determination, USITC Pub. 3967 at 24.

²¹³ First Review Determination, USITC Pub. 3967 at 24; CR at II-19; PR at II-11. The Commission found evidence suggesting that *** of Eurodif’s contracts with U.S. customers were open origin and noted that contracts that were not open origin could be renegotiated to permit increased subject (Continued...)

The Commission found that Eurodif had ample incentive to increase exports of LEU to the United States significantly after revocation in light of Areva's stated "strategic priority" of increasing its share of the nuclear fuel market in the United States and Asia and its declining fortunes in Europe.²¹⁴ Given Areva's vertical integration into all four stages of the nuclear fuel cycle, Eurodif's increased penetration of the U.S. nuclear fuel market would likely also significantly expand its share of the U.S. LEU market.²¹⁵

Finally, the Commission found further support for its likely volume analysis in the responses of 11 purchasers that reported that the order had restrained subject imports and of 16 purchasers that reported that revocation of the order would intensify subject import competition in the U.S. market.²¹⁶

b. The Current Review

In this review, we find that the likely subject import volume from France would be significant, both in absolute terms and relative to production or consumption in the United States, if the antidumping duty order on LEU from France were revoked. As an initial matter, Areva has maintained a significant presence in the U.S. market since before imposition of the order and continued to do so during the period of review by supplying its U.S. customers with imported LEU from nonsubject sources.²¹⁷ Prior to imposition of the order, a substantial proportion of the significant increase in cumulated subject import volume from 1998 to 2000 was due to subject imports from France.²¹⁸ Subject imports from France accounted for *** percent to *** percent of apparent U.S. consumption during the period.²¹⁹ During the 2002-2006 period examined in the first review, shipments of subject imports from France accounted for *** percent to *** percent of annual apparent U.S. consumption, declining to *** percent of apparent U.S. consumption in the first half of 2007.²²⁰ During the period examined in this review, subject imports entered the U.S. market only in 2007.²²¹ Nevertheless, Areva continued to supply its U.S. customers with significant quantities of imported LEU from nonsubject sources pursuant to existing long-term contracts. Areva's total U.S. deliveries accounted for 10.8 percent to 19.3 percent of total annual deliveries reported by responding purchasers

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imports. First Review Determination, USITC Pub. 3967 at 35.

²¹⁴ See First Review Determination, USITC Pub. 3967 at 25. The Commission observed that Eurodif had provided LEU to a declining number of nuclear reactors in Europe and projected further declines through 2010. *Id.* at 36-37.

²¹⁵ First Review Determination, USITC Pub. 3967 at 25. The Commission found that Eurodif would likely offer inducements for U.S. customers to bundle purchases of LEU and fuel rods, given that *** long-term contracts submitted by Eurodif included ***. *Id.*

²¹⁶ First Review Determination, USITC Pub. 3967 at 26.

²¹⁷ CR/PR at Table II-10.

²¹⁸ CR/PR at Table I-1; see also Confidential Review Determination at 30.

²¹⁹ CR/PR at Table I-1.

²²⁰ CR/PR at Table I-1.

²²¹ CR/PR at Tables IV-1.

during the 2007-2012 period.²²² In light of Areva's longstanding significant presence in the U.S. market and its ongoing contractual relationships with U.S. customers, we find it likely that Areva will continue to have a strong interest in serving the U.S. market in the reasonably foreseeable future.

Furthermore, Areva reports that *** if the order were revoked, suggesting that these contracts are *** to some extent.²²³ Responding purchasers reported that expected U.S. deliveries from Areva will be 487,000 SWU in 2013, 873,000 SWU in 2014, 533,000 SWU in 2015, and 450,000 SWU in 2016, equivalent to 5.7 percent of total expected U.S. deliveries in 2013, 11.2 percent in 2014, 6.4 percent in 2015, and 5.7 percent in 2016.²²⁴ If the order were revoked, we find it likely that Areva would satisfy these contractual obligations ***, resulting in an increase in subject import volume to significant levels within a reasonably foreseeable time.²²⁵

We also find it likely that Areva will seek out significant additional long-term contracts with U.S. customers after revocation because it possesses both the ability and the incentive to do so. Areva reports that the capacity of its Georges Besse II enrichment facility will increase from *** SWU in 2014 to 7.5 million SWU in 2016, and there is nothing on the record to suggest that Areva would not be able to produce the full 8.2 million SWU per year for which the facility is licensed thereafter.²²⁶ Given that Areva's capacity is 90 percent committed through 2020,²²⁷ Areva would possess approximately *** SWU of uncommitted capacity for the 2014-2020 period, equivalent to *** percent of uncommitted U.S. demand during the period.²²⁸ Areva has

²²² CR/PR at Table II-10; Hearing Tr. at 136 (McMurphy).

²²³ CR at D-13; PR at Appendix D; Importers' Questionnaire Response of Areva at Qs. II-4, II-13; Respondent Interested Parties' Prehearing Br. at 38.

²²⁴ CR/PR at Table II-10. Purchasers' annual LEU deliveries and anticipated deliveries are based on requirements that are contracted for and are formulated on reload schedules. CR at II-28; PR at II-17.

²²⁵ The expected deliveries from Areva reported by responding purchasers are equivalent to 5.4 percent of expected demand in 2014, 3.5 percent of expected demand in 2015, and 2.9 percent of expected demand in 2016. CR/PR at Tables II-5 (converted to SWU), II-10.

²²⁶ CR at IV-7-8; PR at IV-5. The capacity for which the Georges Besse II facility is licensed is similar to the reported capacity of the Georges Besse I facility that it replaced, which was *** SWU. See CR/PR at Table IV-3. As discussed in section III.B.2.b above, enrichers that use centrifuges have an economic incentive to operate at a high rate of capacity utilization. Areva has not reported any ability to increase its production of LEU through product shifting. See CR at IV-11-12; PR at IV-7.

²²⁷ CR at IV-8 n.8; PR at IV-5 n.8; Respondent Interested Parties' Responses to Commissioner Questions at 25, 28-29, 30; USEC's Responses to Commissioner Questions, Ex. 11, Attachments 1 and 2 (Areva presentation of first half results, dated July 24, 2013, indicating that Georges Besse II production is 90 percent sold for 2012-2020). The Commission does not have information showing how Areva calculated the average 90 percent figure, but accepts it for purposes of this discussion.

²²⁸ We focus our likely injury analysis on competition for long-term contracts covering uncommitted demand in the 2014-2020 period because those are the contracts for which competition between Areva and the domestic industry is most likely to occur within the next two years. CR at II-18; PR at II-10-11 (the average delay between signature and delivery of LEU ranges from two to seven years); USEC's Responses to Commissioner Questions at Ex. 12. We derived Areva's uncommitted (Continued...)

indicated that it intends to fill its uncommitted capacity with new long-term contracts in the near future, and the high fixed costs of centrifuge enrichment facilities will give it a strong economic incentive to do so.²²⁹

We find it likely that Areva would, in the event of revocation of the order, fill its uncommitted capacity in part with significant new long-term contracts with U.S. customers covering the 2014-2020 period. Areva is highly export-oriented, having exported *** percent of its total shipments in 2011, 2012, and the first quarter of 2013.²³⁰ As already discussed, Areva's longstanding significant presence in the U.S. market and continuing contractual relationships with U.S. customers suggest that its focus on serving the U.S. market will continue in the reasonably foreseeable future. Indeed, Areva's contractual relationships with U.S. customers during the period of review would likely facilitate its negotiation of new long-term contracts with the same customers after revocation.²³¹ When asked about the likely effects of

(...Continued)

capacity of *** SWU during the 2014-2020 period by multiplying its aggregate expected capacity during the period (***+ ***+7.5 million+(8.2 million*4)) by the percentage of its expected capacity during the period that is not yet committed (.10). Aggregate uncommitted U.S. demand during the 2014-2020 period, as reported by responding purchasers, is 9.5 million SWU. CR at I-7, II-18-19; PR at I-5, II-10-12; CR/PR at Table II-5 (converted to SWU and zeroing negative uncommitted demand because committed demand in subsequent years would include material responding purchasers plan to use from inventory). We would reach the same conclusion regarding likely volume if Areva's capacity were to remain at 7.5 million SWU through 2020, resulting in uncommitted capacity of *** SWU for the 2014-2020 period.

²²⁹ Respondent Interested Parties' Prehearing Br. at 37 ("Areva fully expects that remaining capacity will soon be contracted for as utilities move ahead with their long-term planning."); Hearing Tr. at 180 (McMurphy).

²³⁰ CR/PR at Table IV-3. Areva's export orientation was high throughout the period of review, and exports as a share of its total shipments were *** percent in 2007, *** percent in 2008, *** percent in 2009, and *** percent in 2010. *Id.* There are no known trade remedies against LEU exported from France in third-country markets, although the countries that formerly comprised the Soviet Union, including Russia and Ukraine, are closed to non-Russian producers. CR at II-6; PR at II-4.

Eurodif's end-of-period inventories in France declined irregularly during the period of review, from *** SWU in 2007 to *** SWU in 2012. CR/PR at Table IV-3. They were *** SWU in January-March 2013, down from *** SWU in January-March 2012. *Id.* The ratio of end-of-period inventories to total shipments also declined irregularly from *** percent in 2007 to *** percent in 2011, before increasing to *** percent in 2012. *Id.* Areva maintained *** of subject LEU in the United States. CR/PR at Table IV-2.

²³¹ CR/PR at Table II-10. At the hearing, an Areva official indicated that the contracts Areva "can reasonably expect to land in the near term future" are in "our traditional SWU market in Europe and Asia" where they have "particularly strong customer relationships." Hearing Tr. at 143 (Chevrel). We see no reason Areva could not reasonably expect to land new contracts with its existing U.S. customers in the near future as well, given that the United States is also one of Areva's traditional SWU markets in which it has cultivated strong customer relationships. *See, e.g., id.* at 136 (McMurphy).

Moreover, in the last review, we found that Areva promoted the fact that its U.S. operations were vertically integrated into all four stages of the nuclear fuel cycle, offering "possible one-stop shopping for utilities." First Review Determination, USITC Pub. 3967 at 25. Nothing on the record of this review suggests that Areva's U.S. operations are any less vertically integrated today, *see, e.g.,* CR at IV-11 (Continued...)

revocation, five responding purchasers indicated that they would consider contracting for subject imports²³² and eleven responding purchasers reported that increased subject import volume is likely.²³³ Areva would also have every incentive to seek out new contracts with U.S. purchasers given that uncommitted demand in the U.S. market for the 2014-2020 period, at over 9.5 million SWU, is nearly twice as large as Areva's uncommitted capacity during the period.²³⁴ Thus, we find it likely that Areva would significantly increase its penetration of the U.S. market with subject imports within a reasonably foreseeable time if the order were to be revoked.²³⁵

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n.17; PR at IV-7 n.17, and such integration would enhance Areva's ability to serve the U.S. LEU market.

²³² CR at D-15-18; PR at Appendix D (responses of ***).

²³³ CR at D-15-18; PR at Appendix D (responses of ***); *see also* LES's Final Comments at 3 (stating that ***).

²³⁴ Uncommitted demand, and by extension uncommitted capacity, approaches zero in the very short term and becomes progressively larger in future years. CR at II-19; PR at II-10-11. Uncommitted demand in the U.S. market is expected to increase from 188,723 SWU in 2016 and zero in 2017 to 1.7 million in 2018, 2.3 million in 2019, and 5.2 million in 2020. CR/PR at Table II-5 (converted to SWU). We would expect Areva's annual uncommitted capacity to increase from a relatively lower level in 2016 to a relatively higher level in 2020. *See* Respondent Interested Parties' Responses to Commissioner Questions at 30 (Areva's expected capacity is 90 percent committed through 2020 and 80 percent committed through 2025). Consequently, Areva would likely have a relatively greater volume of uncommitted capacity during the latter part of the period with which to contract for the relatively greater volume of uncommitted demand in the U.S. market.

²³⁵ Areva's uncommitted capacity is equivalent to *** percent of uncommitted U.S. demand for LEU in the 2014-2020 period, and uncommitted U.S. demand as a share of total expected U.S. demand is 1.2 percent in 2016, zero in 2017, 9.9 percent in 2018, 13.0 percent in 2019, and 30.9 percent in 2020. CR/PR at Table II-5. We recognize that Areva will likely also seek out new contracts with purchasers in non-U.S. markets. The respondent interested parties argue that Areva's marketing efforts in third country markets alone should be sufficient to increase the proportion of its capacity that is fully committed through 2025 to 100 percent, Respondent Interested Parties' Responses to Commissioner Questions at 25, 31, and stress the strong demand growth projected in emerging markets such as Korea and China. *Id.* at 29-30; *see also* CR at II-22; PR at II-13; Hearing Tr. at 171, 180 (McMurphy). We find that Areva's efforts to secure contracts in non-U.S. markets would not likely prevent it from significantly increasing its penetration of the U.S. market with subject imports after revocation. That is because Areva is more likely to fill its uncommitted capacity during the 2014-2020 period through new contracts with established customers, including customers in the United States, than through new contracts with new customers in emerging markets, which are necessarily more speculative. *See* Hearing Tr. at 136 (McMurphy), 143 (Chevrel). The record also indicates that Areva's prospects for securing new contracts with established customers in the near future would likely be brighter in the United States after revocation than in certain of its other traditional markets in Asia and Europe, due to reactor shutdowns and other actions taken in those markets in the wake of the Fukushima incident in March 2011. *See* CR at II-3, 21; PR at II-2, 13; USEC's Prehearing Br. at 67-70; USEC's Response to the Notice of Institution, Exs. 8-10; Hearing Tr. at 144 (Chevrel); Respondent Interested Parties' Responses to Commissioner Questions at 28-29 ("Areva is the only enricher that ***."); USEC's Responses to Commissioner Questions at Ex. 23, p.2 ("Initial refueling of restarted *** reactors likely will utilize material that was (Continued...)

2. Likely Price Effects

a. The Original Investigations and First Review

Original Investigations: In the original investigations, the Commission observed that analyzing the price effects of subject imports was complicated by the fact that prices in the U.S. market over the period examined resulted from both long-term contracts entered into prior to the period and contracts negotiated or re-negotiated during the period.²³⁶ Consequently, the Commission collected three sets of pricing data: bid-price data on contracts entered into over the period of investigation, quarterly pricing data broken down by type of contract (specifically, spot sales and long-term contracts with three different types of pricing provisions), and annual pricing data over the 1998-2004 period broken down by type of contract (specifically, EUP, SWU, preexisting contracts, new contracts, and newly re-negotiated contracts).²³⁷ Based on annual pricing data and average spot prices, the Commission found that USEC's prices on U.S. shipments generally declined over the period of investigation.²³⁸ To assess the source of these price declines, the Commission examined bid-price data and found that contracts had almost always been awarded to the lowest bidder after "intense price competition, with USEC winning a larger number of contracts but subject enrichers winning a larger volume of SWU and EUP."²³⁹ The Commission concluded that the intense price competition evident from the bidding data and the significant volume of SWU and EUP won by subject enrichers over the period of investigation had depressed domestic LEU prices to a significant degree.²⁴⁰

First Review: In the first review, the Commission found that if the order were revoked, subject imports would likely undersell the domestic like product to a significant degree, which would likely depress or suppress domestic prices to a significant degree.²⁴¹ The Commission prefaced its price effects analysis by finding that subject imports and the domestic like product were highly substitutable and that price was an important factor in purchasing decisions.²⁴² It recognized that most LEU was sold pursuant to long-term contracts, but noted that such contracts would not insulate domestic prices from subject import competition because contract

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already delivered so that new sales in Japan will be delayed due to the need to utilize the inventory of existing material.") .

²³⁶ Original Determinations, USITC Pub. 3486 at 13.

²³⁷ Original Determinations, USITC Pub. 3486 at 13-14.

²³⁸ Original Determinations, USITC Pub. 3486 at 14.

²³⁹ Original Determinations, USITC Pub. 3486 at 14-15.

²⁴⁰ Original Determinations, USITC Pub. 3486 at 15-16. The Commission acknowledged that purchasers considered certain non-price factors to be important and generally identified USEC as the price leader, but found that neither factor significantly detracted from its conclusion. *Id.*

²⁴¹ First Review Determination, USITC Pub. 3967 at 28.

²⁴² First Review Determination, USITC Pub. 3967 at 27.

negotiations are influenced by current prices and transaction prices for shipments pursuant to existing contracts can be subject to market-based pricing mechanisms.²⁴³

The Commission found that subject imports were likely to undersell the domestic like product significantly after revocation based on pricing data from the original investigations and the limited data on the record of the review. With respect to deliveries during the original period of investigation pursuant to contracts entered into between 1994 and 1999, subject imports were priced less than the domestic like product in four of five comparisons, while the average unit value of subject import deliveries was 9.4 percent less than the average unit value of USEC's shipments during the period.²⁴⁴ Observing that Eurodif refused to report pricing data on shipments made pursuant to contracts entered into between 2001 and 2005, the Commission relied on the one price comparison on the record of the review, in which subject imports undersold the domestic like product, as facts available.²⁴⁵ Based on Eurodif's past pattern of underselling, the Commission concluded that, absent the restraining effect of the order, Eurodif would likely undersell the domestic like product to a significant degree as a means of increasing its exports to the United States.²⁴⁶

Having found that LEU is a fungible product sold primarily on the basis of price, the Commission reasoned that the likely significant volume of subject imports sold at significant underselling margins would likely depress USEC's prices for shipments under existing contracts with market-based pricing provisions and for prices established in new and renegotiated contracts.²⁴⁷ The Commission found that subject import competition was also likely to suppress domestic prices after revocation because USEC's electricity costs increased dramatically toward the end of the period of review and were expected to remain high for the foreseeable future and intensified subject import competition would likely eliminate USEC's leverage to raise prices to cover these costs.²⁴⁸

b. The Current Review

In this review, we find that subject imports and the domestic like product are highly substitutable and that price is an important factor in purchasing decisions, as discussed in section III.B.2.c above. As in the original investigations and first review, most LEU is sold pursuant to long-term contracts of *** years in duration,²⁴⁹ signed an average of *** years in advance of the first contracted deliveries.²⁵⁰ Long-term contracts do not entirely insulate transaction prices from current market conditions because some include market-based pricing

²⁴³ First Review Determination, USITC Pub. 3967 at 27.

²⁴⁴ First Review Determination, USITC Pub. 3967 at 28. The Commission noted that an estimated 38.0 percent of USEC's shipments were of domestic origin and 62.0 percent were of Russian origin. *Id.*

²⁴⁵ First Review Determination, USITC Pub. 3967 at 28.

²⁴⁶ First Review Determination, USITC Pub. 3967 at 28.

²⁴⁷ First Review Determination, USITC Pub. 3967 at 29.

²⁴⁸ First Review Determination, USITC Pub. 3967 at 29.

²⁴⁹ CR at II-15, V-5-6; PR at II-8-9, V-3.

²⁵⁰ CR at II-18; PR at II-10-11.

provisions while others allow for price renegotiations in the middle of the contract period.²⁵¹ Pricing in the negotiation of new contracts and the renegotiation of existing contracts is influenced by ***.²⁵²

We find that subject imports are likely to undersell the domestic like product to a significant degree if the order were to be revoked based on Areva's history of significant underselling, particularly before imposition of the order, and the likelihood that subject imports will increase their penetration of the U.S. market in the event of revocation. In the original investigations, the record indicated that subject imports from France generally undersold the domestic like product over the period examined. With respect to deliveries made during the original period of investigation pursuant to long-term contracts entered into between 1994 and 1999, subject imports from France were priced less than the domestic like product in four of five comparisons at margins ranging from 4.2 to 9.0 percent.²⁵³ With respect to deliveries under contracts entered into during the original period of investigation, the average unit value of \$87.87 per SWU for LEU from France was 9.4 percent less than the average unit value of \$97.00 per SWU for shipments under USEC's contracts, of which an estimated 38.0 percent was of domestic origin and 62.0 percent was of Russian origin.²⁵⁴ Similarly, in the first review, the Commission found subject import underselling to be significant based on the only possible price comparison, which showed subject import underselling at a margin of *** percent, relying on that comparison as the facts available in the absence of full cooperation from respondent Eurodif.²⁵⁵

In this review, subject imports undersold the domestic like product in two of three quarterly comparisons at an average underselling margin of *** percent, although we recognize that these comparisons may reflect differing long-term contract terms and conditions.²⁵⁶ Absent the restraining effect of the order, Areva would have greater latitude to undersell the domestic like product and would likely do so to a significant degree as a means of securing new contracts with U.S. customers and increasing its penetration of the U.S. market with subject imports.²⁵⁷

²⁵¹ CR at V-5-6; PR at V-3; USEC's Prehearing Br. at 42.

²⁵² CR at V-6-7; PR at V-3.

²⁵³ Confidential Staff Report from the Original Investigations ("OCR") at V-33-36, Table V-6.

²⁵⁴ OCR at V-45-47, Tables V-9a-9c. We recognize that the record from the original investigation indicates that LEU from France delivered under contracts that were renegotiated during the period of investigation had a higher unit value than LEU delivered under USEC's contracts that were renegotiated during the period of investigation. *Id.* at V-47.

²⁵⁵ Confidential Review Determination at 41 & n.207.

²⁵⁶ CR at V-17; PR at V-6-7. Subject imports were *** as the domestic like product in the third quarterly comparison. *Id.*

²⁵⁷ Commissioner Johanson notes that USEC argued the importance of the European Union's ("EU's") policy restricting imports of LEU, referred to as the Corfu Declaration. CR at IV-10-11; PR at IV-_; USEC's Prehearing Brief at 25; USEC's Responses to Commissioner Questions at Exhibit 17. USEC claims that the Corfu Declaration adversely affects USEC by allowing enrichers based in the EU to "differentially price," that is, to recover their capital costs through higher prices in the EU home market (Continued...)

We further find that the significant subject import underselling likely to occur after revocation would likely depress domestic prices to a significant degree. LEU is a fungible product sold primarily on the basis of price and subject imports are highly substitutable with the domestic like product. Were the order revoked, the significant likely volume of subject imports, coupled with the significant likely underselling margins, would likely depress the domestic industry's transaction prices for shipments under existing contracts with market-pricing provisions and the prices established in new and renegotiated contracts in the foreseeable future. In particular, low-priced subject import competition would likely force USEC to choose between lowering its prices to secure new contracts covering the expected capacity of the ACP, which are essential to USEC's ability to secure financing for the ACP, and losing such contracts to Areva.²⁵⁸ Moreover, the likely significant increase in subject import volume would occur against a backdrop of flat U.S. LEU demand,²⁵⁹ placing additional downward pressure on domestic prices.²⁶⁰ Five purchasers reported that revocation of the order would likely result in lower LEU prices.²⁶¹

In sum, we find that subject imports are likely to significantly undersell the domestic like product and depress domestic like product prices to a significant degree after revocation.²⁶²

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and then “engage in incremental pricing, i.e. dumping” in their export markets. Hearing Tr. at 106-07 (Cunningham). This, according to USEC, allows EU-based enrichers to “aggressively compete . . . in the United States.” Hearing Tr. at 105 (Sewell). Commissioner Johanson considers that, were the facts as alleged by USEC, such market conditions could plausibly lead to, in the absence of an order, significant underselling by subject imports.

²⁵⁸ Hearing Tr. at 24-25 (Sewell), 44 (Donelson) (“[B]ecause current market prices are considered by utilities when signing long term contracts, a reduction in market prices would lower the price at which we sign long term contracts. Thus, even if USEC were able to win a contract, it would be at a lower price and would yield lower revenue over the life of that contract, thereby reducing our ability to commercialize ACP.”), 57, 95-96, 116-18 (Sewell); USEC's Responses to Commissioner Questions, Ex. 21 at 3.

²⁵⁹ See section III.B.2.a above.

²⁶⁰ See USEC's Prehearing Br. at 74-75 (citing “Quantification of the Potential Impact on Commercial Markets of Introduction of Enrichment Services Component of DOE Low Enriched Uranium Inventory During Calendar Year 2013,” dated January 2013). Because aggregate U.S. demand for LEU is inelastic with respect to price, declining LEU prices would not generate additional LEU demand. CR at II-33; PR at II-22.

²⁶¹ CR at D-10-12; PR at Appendix D (Purchaser Questionnaire Responses of ***, ***, ***, ***, ***, and ***)

²⁶² We reject the respondent interested parties' argument that the likely antidumping margin calculated by Commerce in its latest five-year review of the order is invalid. See Respondent Interested Parties' Responses to Commissioner Questions at 17; Hearing Tr. at 185-86 (Rosen). The statute requires the Commission to accept the likely margin calculated by Commerce. 19 U.S.C. § 1677(35)(C)(iv). In any event, we are not required to consider the magnitude of the likely dumping margin. 19 U.S.C. § 1675a(a)(6); see CR/PR at Table I-3.

3. Likely Impact

a. The Original Investigations and First Review

Original Investigations: In the original investigations, the Commission found that USEC's production, sales, and employment declined and that its capacity utilization remained low as it lost market share to subject imports over the period of investigation.²⁶³ It further found that USEC's loss of long-term contracts to subject foreign producers over the period of investigation would likely further depress USEC's market share for years to come and increase subject import market share to over 40 percent by 2002.²⁶⁴ Subject imports had also contributed to USEC's declining operating income over the period of investigation, the Commission explained, by reducing both domestic sales volume and unit prices.²⁶⁵ Although it acknowledged that USEC had also lost sales to nonsubject imports and that USEC's export shipments had attenuated the impact of subject imports on its operations to some degree, the Commission concluded that cumulated subject imports were having a significant adverse impact on the domestic industry.²⁶⁶

First Review: In the first review, the Commission prefaced its likely impact analysis by finding that the domestic industry was vulnerable to the continuation or recurrence of material injury, with most indicators of USEC's performance, and particularly its financial performance, declining over the period of review.²⁶⁷ As further evidence of the industry's vulnerability, the Commission observed that USEC's gaseous diffusion plant at Paducah, Kentucky was not economically viable and that USEC's prospects for financing its replacement with the ACP were contingent on investor expectations with respect to the LEU market and USEC's financial condition, which Standard & Poor's and Moody's viewed as increasingly tenuous.²⁶⁸ The Commission also found that any sales volume lost by USEC to subject imports would likely jeopardize USEC's compliance with the Russian HEU Agreement, which required USEC to purchase and sell 5.5 million SWU of Russian LEU annually, and a 2002 Agreement between the DOE and USEC, which required USEC to maintain domestic LEU production of 3.5 million SWU annually in exchange for access to U.S. centrifuge technology.²⁶⁹

The Commission found some evidence that the domestic industry had benefitted from the order.²⁷⁰ The Commission observed that subject import volume had declined toward the end of the period of review, as Eurodif apparently substituted nonsubject imports for subject

²⁶³ Original Determinations, USITC Pub. 3486 at 17.

²⁶⁴ Original Determinations, USITC Pub. 3486 at 17.

²⁶⁵ Original Determinations, USITC Pub. 3486 at 17-18.

²⁶⁶ Original Determinations, USITC Pub. 3486 at 18.

²⁶⁷ First Review Determination, USITC Pub. 3967 at 30.

²⁶⁸ First Review Determination, USITC Pub. 3967 at 32.

²⁶⁹ First Review Determination, USITC Pub. 3967 at 33.

²⁷⁰ First Review Determination, USITC Pub. 3967 at 33.

imports under open source contracts.²⁷¹ The Commission also noted that 11 responding purchasers reported that the order had restrained subject imports and that prices on U.S. produced LEU improved over the period of review, as did spot and long-term contract prices.²⁷²

The Commission found that if the order were revoked, the likely significant increased volume of subject imports, coupled with their likely adverse price effects, would likely have a significant negative impact on most measures of domestic industry performance.²⁷³ As subject import competition intensified, the domestic industry would likely have to accept lower prices to secure new long-term contracts for open demand as well as in renegotiated contracts for committed demand, and would experience lower transaction prices under existing contracts with market-based pricing provisions.²⁷⁴ The Commission also found it likely that customers would decline options in existing contracts to purchase additional volumes from USEC in favor of lower-priced subject imports.²⁷⁵ The Commission concluded that lower sales volumes and transaction prices would likely depress the domestic industry's financial performance.²⁷⁶

The Commission also found that the likely decline in USEC's financial performance after revocation would adversely affect USEC's ability to deploy the ACP, which was critical to the health of the domestic industry.²⁷⁷ Specifically, the Commission found that such a decline would likely impede USEC's ability to secure the investment capital necessary to proceed with the ACP.²⁷⁸ The Commission also found that revocation would likely undermine USEC's ability to satisfy its obligation to produce 3.5 million SWU domestically, which would threaten its access to U.S. centrifuge technology under the 2002 DOE Agreement.²⁷⁹

Finally, the Commission found that the significant presence of nonsubject imports in the U.S. market would not mitigate the likely adverse impact of subject imports on USEC after revocation because most competition for open demand in the U.S. market would be between USEC and Eurodif in the reasonably foreseeable future.²⁸⁰ As the Commission explained, Urenco would reportedly lack the spare capacity to increase exports to the United States until

²⁷¹ First Review Determination, USITC Pub. 3967 at 33.

²⁷² First Review Determination, USITC Pub. 3967 at 33.

²⁷³ First Review Determination, USITC Pub. 3967 at 33.

²⁷⁴ First Review Determination, USITC Pub. 3967 at 34.

²⁷⁵ First Review Determination, USITC Pub. 3967 at 34.

²⁷⁶ First Review Determination, USITC Pub. 3967 at 34.

²⁷⁷ First Review Determination, USITC Pub. 3967 at 34.

²⁷⁸ First Review Determination, USITC Pub. 3967 at 34.

²⁷⁹ First Review Determination, USITC Pub. 3967 at 34. The Commission rejected the respondent interested parties' argument that the Russian HEU Agreement would insulate USEC from any adverse impact from subject imports after revocation. *Id.* at 52. As the Commission explained, the focus of its likely impact is on the domestic industry's domestic operations, not its import activities. *Id.* The Commission also noted that the Russian HEU Agreement was a "two edged sword," in that it had forced USEC to shrink its domestic operations, while making it more difficult for USEC to produce 3.5 million SWU domestically, as required for continued access to the U.S. centrifuge technology under the 2002 DOE Agreement. *Id.* at 52-53.

²⁸⁰ First Review Determination, USITC Pub. 3967 at 35.

2010, LES's projected capacity was 90 percent committed, and nonsubject imports from Russia were restrained by the HEU Agreement and a suspension agreement.²⁸¹

b. The Current Review

In this review, we find the domestic industry vulnerable to the continuation or recurrence of material injury.²⁸² USEC has ceased production at its inefficient gaseous diffusion

²⁸¹ First Review Determination, USITC Pub. 3967 at 35.

²⁸² We have examined record data concerning the domestic industry's performance during the period of review, but find these data to be of limited relevance to our analysis of domestic industry vulnerability and likely injury. That is because these data reflect LEU production from USEC's enrichment facility in Paducah, Kentucky, which ceased operations in May 2013, CR at III-2; PR at III-1-2, and from LES's enrichment facility in Eunice, New Mexico, which incurred substantial start-up costs after commencing production in June 2010. CR at III-10, III-26 n.56, III-28 n.59; PR at III-7, III-17 n.56, III-18 n.59.

The capacity of the domestic industry increased from *** SWU in 2007 to *** SWU in 2012, a level *** percent higher than in 2007. CR/PR at Table III-1. It was *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's production fluctuated during the period, ranging from a low of *** SWU in 2011 to a high of *** SWU in 2009. *Id.* It was *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's rate of capacity utilization fluctuated with production, ranging from a low of *** percent in 2011 to a high of *** percent in 2009. *Id.* It was *** percent in January-March 2012 and *** percent in January-March 2013. *Id.*

The domestic industry's U.S. shipments fluctuated during the period of review, ranging from a low of *** SWU in 2011 to a high of *** SWU in 2012. CR/PR at Table I-7. They were *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's share of apparent U.S. consumption also fluctuated during the period, ranging from a low of *** percent in 2011 to a high of *** percent in 2012. *Id.* at Table I-8. It was *** percent in January-March 2012 and *** percent in January-March 2013. *Id.* The domestic industry's end-of-period inventories increased irregularly from *** SWU in 2007 to *** SWU in 2012, a level *** percent higher than in 2007, as ***. CR at III-17; PR at III-11; CR/PR at Table III-3. They were *** SWU in January-March 2013, up from *** SWU in January-March 2012. CR/PR at Table III-3.

The domestic industry's net sales quantity, including exports, fluctuated between *** SWU in 2011 and *** SWU in 2009 during the period examined, ending the period at *** SWU in 2012. CR/PR at Table III-7. It was *** SWU in January-March 2013, up from *** SWU in January-March 2012. *Id.* The domestic industry's net sales value fluctuated with net sales quantity, ranging from \$ *** in 2011 to \$ *** in 2009, and ending the period at \$ *** in 2012. *Id.* It was \$ *** in January-March 2012 and \$ *** in January-March 2013. *Id.*

The domestic industry's average number of production related workers ("PRWs") increased irregularly from *** PRWs in 2007 to *** PRWs in 2012, a level *** percent higher than in 2007. CR/PR at Table III-5. It was *** PRWs in January-March 2012 and *** PRWs in January-March 2013. Hours worked and wages paid exhibited similar trends. *See id.* Productivity, in SWUs per hour, fluctuated during the period, ranging between a low of *** in 2011 and a high of *** in 2009. *Id.* Productivity in SWUs per hour was *** in January-March 2012 and *** in January-March 2013. *Id.*

The industry's operating income declined irregularly during the period of review, declining from (Continued...)

enrichment facility at Paducah, Kentucky, and its efforts to engage in advanced centrifuge enrichment on a commercial scale at the ACP are at a critical juncture. As discussed in sections II.B.2 and III.B.2.b above, USEC is scheduled to complete the remaining three milestones of the RD&D program by the end of 2013, and we find it likely that USEC will do so based upon the record of this review.²⁸³ After completion of the RD&D program, USEC will need to secure \$4 billion in financing to construct the ACP and commence commercial LEU production there.²⁸⁴ We do not view USEC's past inability to secure financing for the ACP as indicative of its future ability to secure financing because the RD&D program's successful completion will bolster USEC's financing efforts. Having confirmed the demonstration cascade's reliability, quality, and ability to commercially produce LEU on a sustained basis, USEC would likely be in a better position to secure \$2 billion in loan guarantees from the DOE and an additional \$2 billion investment from Japanese and private investors.²⁸⁵ However, USEC would be unlikely to secure financing from these sources if it cannot assure prospective investors of the ACP's commercial viability by entering into contracts with utilities for a substantial proportion of the ACP's future production at economical prices.²⁸⁶ USEC's successful deployment of the ACP will depend in

(...Continued)

a profit of \$ *** in 2007 to a loss of \$ *** in 2012. *Id.* The industry sustained operating losses of \$ *** in January-March 2012 and \$ *** in January-March 2013. *Id.* The industry's operating income as a share of net sales showed a similar trend, declining from *** percent in 2007 to negative *** percent in 2012. *Id.* It was negative *** percent in January-March 2012 and negative *** percent in January-March 2013. *Id.*

The domestic industry's capital expenditures increased irregularly during the period of review, from \$ *** in 2007 to \$ *** in 2012, a level *** percent higher than in 2007. CR/PR at Table III-12. They were \$ *** in January-March 2012 and \$ *** in January-March 2013. *Id.* The industry's research and development expenses fluctuated within a narrow band between 2007 and 2011, ranging from \$ *** in 2008 to \$ *** in 2011, but increased to \$ *** in 2012, a level *** percent higher than in 2007. *Id.* They were \$ *** in January-March 2012 and \$ *** in January-March 2013. *Id.*

²⁸³ CR at III-5, 9; PR at III-4, 7; Hearing Tr. at 23-24 (Sewell), 31-32, 114-15 (Rogers); USEC's Form 8-K filed October 25, 2013, EDIS doc. # 521046 (stating that DOE has agreed to fund the RD&D project through December 31, 2013).

²⁸⁴ CR at III-6; PR at III-4.

²⁸⁵ CR at III-6 n.17; PR at III-4 n.17; Hearing Tr. at 24 (Sewell) ("At the end of the program, the cascade will have accumulated 20 years worth of run time and we expect to submit an updated application for a DOE loan guarantee that will allow us to complete deployment of the plant. To get that guarantee we have to provide both a strong technical record of the technology and a strong plan to commercialize the output of the plan. We will have the necessary technical record. The open question is the commercialization plan."), 116 (Sewell) ("[C]ompletion of the RD&D program will then fold into I'll say an update of a loan guarantee application between USEC and the Department of Energy, and any other project financing processes that we'll be seeking, whether it be from Japan, which is part of the portfolio of financing for the American centrifuge plant that we've already discussed with the Japanese, or from other sources, equity financing or other forms of debt. So there is a transition and a folding in of the RD&D program with the financing and the deployment of the American centrifuge . . .").

²⁸⁶ USEC's Responses to Commissioner Questions, Ex. 21 at 3; Hearing Tr. at 24-25 (Sewell), 44 (Donelson), 57, 95-96, 116-18 (Sewell); CR at II-20; PR at II-12; *see also* LES's Final Comments at 2.

large part on its ability to secure such contracts over the next two years,²⁸⁷ including contracts covering the *** SWU of the ACP's estimated production capacity of *** SWU for the 2016-2020 period that remains uncommitted.²⁸⁸ USEC's failure to secure sufficient additional contracts for the ACP's expected production within the reasonably foreseeable future would imperil the ACP, making USEC, and by extension the domestic industry, vulnerable to the continuation or recurrence of material injury.²⁸⁹

We find that if the order on LEU from France were revoked, the likely significant increase in the volume of subject imports, coupled with their likely adverse price effects, would likely have a significant negative impact on the domestic industry, particularly in terms of the industry's ability to raise capital, its investment, and its development and production efforts.²⁹⁰ If the order were revoked, Areva would be likely in the reasonably foreseeable future to fill its substantial uncommitted capacity for the 2014-2020 period, equivalent to *** percent of uncommitted U.S. demand for the period, in part by entering into new long-term contracts with U.S. customers for delivery during the period.²⁹¹ To secure such contracts, Areva would likely undersell the domestic like product to a significant degree, given its pattern of significant underselling in the original investigations, the high degree of substitutability between subject imports and the domestic like product, and the price sensitivity of the U.S. LEU market. Faced with intensified subject import competition, USEC would have to either accept lower prices to secure new long-term contracts for the ACP's expected capacity or lose such contracts to Areva. Given that USEC's financing of the ACP will hinge in part on its ability to commit a substantial proportion of the ACP's expected capacity during the next two years, we find that revocation of

²⁸⁷ USEC's Responses to Commissioner Questions, Ex. 21 at 3. During the 2008-11 period, USEC secured contracts with *** firms to purchase LEU from the ACP over the *** period, to support financing of the ACP. CR at II-20; PR at II-12. Because diversity of supply is a primary concern for purchasers, many utilities elect to support enrichment facility projects through such contracts. *Id.* LES reports that its "initial contracts" with U.S. utilities "provided the indispensable foundation that justified the huge capital investment required to build the LES plant." LES's Final Comments at 2.

²⁸⁸ CR at II-20; PR at II-12. USEC must also secure contracts covering the *** SWU of the ACP's expected capacity of *** SWU for the 2021-2026 period that remains uncommitted. *See id.* We focus our likely injury analysis on contracts for the 2014-2020 period because those are the contracts for which competition between Areva and the domestic industry is most likely to occur within the next two years. CR at II-18; PR at II-11 (the average delay between signature and delivery of LEU ranges from two to seven years); USEC's Responses to Commissioner Questions at Ex. 12 ("The next significant amount of open demand is in 2020 and beyond. USEC expects that utilities will need to begin to cover these open requirements in the 2015-2017 timeframe.").

²⁸⁹ We have also considered the condition of domestic producer LES in our vulnerability analysis. As explained below, the information on record concerning LES does not detract from that analysis.

²⁹⁰ We find that there is some evidence that the domestic industry has benefitted from the imposition of the antidumping duty orders on LEU from France. There were ***, the price of LEU sold to electric utilities generally increased throughout the period of review, and 11 responding purchasers reported that the order has had a restraining effect on imports of LEU from France. CR at V-16, D-15-18; PR at V-6, Appendix D; CR/PR at Table IV-1.

²⁹¹ *See* Section III.C.1.b above.

the order would likely result in USEC being unable to secure the long-term contracts it requires at the prices it requires to proceed with commercialization of the ACP.²⁹²

We reject the respondent interested parties' argument that USEC is unlikely to commercialize the ACP, irrespective of revocation. Notwithstanding past delays and cost overruns,²⁹³ USEC is closer to commercializing the ACP than ever before and is on the cusp of successfully completing the RD&D program, at which point it will have established the technical feasibility of the ACP.²⁹⁴ The DOE would not have committed \$241.3 million to the RD&D program, including \$13.6 million covering the November 2, 2013 through December 31, 2013 period, if it did not believe the ACP to be viable.²⁹⁵ USEC's successful completion of the RD&D program will enhance its ability to secure financing for the ACP, but financing will remain contingent in part on USEC's securing, within the next two years, sufficient long-term contracts covering the ACP's expected capacity. We recognize that USEC will face financial challenges in

²⁹² We find that USEC's termination of the ACP would represent a significant impact on the domestic industry as a whole within a reasonably foreseeable time. Such termination would result in the loss of the 430 PRWs currently employed by the ACP, equivalent to *** percent of industry employment in 2012, and the loss of USEC's \$2.5 billion investment in the project with the closure of USEC's ACP-related facilities in Piketon, Ohio and Oak Ridge, Tennessee. CR at III-3, 6; PR at III-2, 4; CR/PR at Table III-5; USEC's Prehearing Br. at 31. It would also reduce domestic industry capital investment by \$4 billion and capacity by 3.5 million SWU, relative to the levels that would be attained if the ACP were to proceed. *Id.*

²⁹³ *See, e.g.*, Respondent Interested Parties' Prehearing Br. at 16. While we recognize that there have been significant delays in the deployment of the ACP, this appears to be a not uncommon experience in this sector where complex engineering projects require billions of dollars of investment and are subject to intense scrutiny by government regulators. During the period examined in the original investigations, LES had, in 1998, apparently abandoned its efforts to build an enrichment facility in the United States after seven years of effort. Original Determinations, USITC Pub. 3486 at II-16 n.67. This implies that it took about 20 years for LES to go from initiation of the NEF project to its initial production in 2010. AREVA's own Georges Besse II centrifuge facility was, in 2007, expected to begin enrichment operations in the first half of 2009, First Review Determination, USITC Pub. 3967 at 20; as has already been observed here, that initial production did not begin until April 2011. CR at IV-7; PR at IV-5. Further, AREVA's Eagle Rock project planned for Idaho was, in 2007, expected to begin production in 2013, *id.* at 20; construction has not yet begun and the project is on hold due to financing issues. CR at III-11; PR at III-8; Hearing Tr. at 22 (Sewell), at 187-88 (McMurphy). Nevertheless, we agree with USEC's counsel that the "make or break" time by which the ACP must be financed is within "one and a half to two years . . ." Hearing Tr. at 223 (Cunningham). If USEC's efforts to finance the ACP ultimately fail, Areva or any other interested party may request the conduct of a changed circumstances review. 19 U.S.C. § 1675(b).

²⁹⁴ *See* CR at III-5, 9; PR at III-4, 7; Hearing Tr. at 23-24 (Sewell), 31-32, 114-15 (Rogers).

²⁹⁵ CR at III-6; PR at III-4; USEC's Form 8-K filed October 25, 2013, EDIS doc. # 521046 (the Amendment to the cooperative agreement between USEC and the DOE also states that there is an expectation that DOE would provide additional funding for the RD&D program for the funding period ending December 31, 2013).

deploying the ACP,²⁹⁶ but reject the respondent interested parties' notion that the ACP is not viable.^{297 298}

We also reject the respondent interested parties' argument that the domestic industry could suffer no material injury within a reasonably foreseeable time because LES will likely remain the dominant domestic producer and it ***.²⁹⁹ As discussed above, we have found that revocation of the order would likely result in USEC's inability to commercialize the ACP within a reasonably foreseeable time and that the elimination of USEC as a domestic producer would constitute a significant impact on the domestic industry. Furthermore, we find that revocation of the order would likely have an adverse impact on LES as well, notwithstanding its ***.³⁰⁰ Confronted with intensified subject import competition, LES would likely have to accept lower prices to secure new long-term contracts for open demand, renegotiate contracts for committed demand at lower prices, and experience lower transaction prices on deliveries pursuant to long-term contracts containing market-based pricing provisions.³⁰¹ Thus, LES would

²⁹⁶ See Respondent Interested Parties' Prehearing Br. at 17-24; Respondent Interested Parties' Posthearing Br. at 7-8; Respondent Interested Parties' Responses to Commissioner Questions at 8-10.

²⁹⁷ We also reject the respondent interested parties' argument that the NERA report submitted by USEC somehow establishes that the ACP is not economically viable. See Respondent Interested Parties' Final Comments at 3. We find the NERA report's estimates of the enrichment cost per SWU of various new and existing enrichment facilities as of 2008, based on a 2009 study, to be of limited value to our analysis. See NERA Report, EDIS Doc. # 875260, at 24 n.59. The 2009 study referenced in the NERA report is not on the record, and its estimate of USEC's cost of production at the Paducah, Kentucky enrichment facility in 2008, \$163 per SWU, is inconsistent with the facility's actual unit cost of goods sold that year, which was \$ *** per SWU. CR/PR at Table III-10. In any event, the NERA report characterizes the ACP as "efficient gas centrifuge capacity," NERA Report at 50, and cites the 2009 study's estimate that the ACP's price-cost margin would have been a positive 33 percent in 2008, as compared to the Paducah facility's negative price-cost margin of 6.5 percent that year. See *id.* at 28. Thus, the NERA report as a whole in no way suggests that the ACP would be economically uncompetitive, particularly from the standpoint of prospective investors. See also Hearing Tr. at 19 (Sewell) ("{T}he most dramatic evidence of the superiority of the USEC technology, our AC-100 machine has demonstrated performance levels of 350 SWUs per machine, per year. This makes the performance of USEC machines over the Areva-URENCO centrifuge machines more than four times greater.").

²⁹⁸ We have given no weight to USEC's argument that the ACP is critical to national security, see USEC's Prehearing Br. at 16; USEC's Responses to Commissioner Questions at Ex. 7, because the issue is not relevant to our likely injury analysis under the statute. This analysis focuses on "all relevant economic factors," 19 U.S.C. § 1675a(a)(4), and national security considerations are not "economic" factors.

²⁹⁹ See Respondent Interested Parties' Prehearing Br. at 31; Respondent Interested Parties' Posthearing Br. at 12; CR/PR at Table I-5.

³⁰⁰ LES claims that its opposition to continuation of the order was motivated by ***. LES's Final Comments at 3.

³⁰¹ See section III.B.2.a above; CR at V-5; PR at V-3.

likely suffer a decline in its financial performance, including reduced cash flow and profitability, even as it shoulders the costs associated with expanding its enrichment capacity at the NEF.³⁰²

Finally, we find that the significant presence of nonsubject imports in the U.S. market would not negate the likely adverse impact of subject imports on the domestic industry after revocation. Russia was the largest source of nonsubject imports during the period of review, accounting for *** percent of apparent U.S. consumption in 2012, and nonsubject imports from Russia will be restrained by the suspension agreement and will also be subject to control by USEC pursuant to its March 2011 Agreement with TENEX.³⁰³ We recognize that nonsubject imports from other sources accounted for *** percent of apparent U.S. consumption in 2012³⁰⁴ and would likely lose sales and market share to subject imports from France after revocation to some extent. This does not, however, negate the adverse effects any likely significant increase in subject import volume would have on the industry's pricing, development plans, employment, and financial performance in light of its vulnerable condition. Consequently, notwithstanding nonsubject imports, subject imports would have a likely significant adverse impact of subject imports on the domestic industry after revocation of the order.

IV. Conclusion

For the foregoing reasons, we determine that revocation of the antidumping duty order on LEU from France would likely lead to the continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

³⁰² See CR/PR at Table III-10; CR at III-10, III-26 n.56, III-28 n.59; PR at III-7, III-17 n.56, III-18 n.59.

³⁰³ See section III.B.4 above; CR/PR at Tables I-8, IV-1.

³⁰⁴ CR/PR at Table I-8.

Dissenting Views of Commissioner Meredith M. Broadbent

I. Introduction

Based on the record in this second five-year review, I determine, under section 751(c) of the Tariff Act of 1930, as amended,¹ that revocation of the antidumping duty order on low enriched uranium (“LEU”) from France would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

I therefore dissent from my colleagues in this determination, and perform a separate likely injury analysis for subject imports from France. Except as otherwise noted, I join the discussion in the majority views of background (section I), domestic like product and domestic industry (section II), legal standards for likely injury (section III.A), and conditions of competition and the business cycle (section III.B).

II. Revocation of the Antidumping Duty Order on Subject Imports from France Would Not Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

1. General

As a preliminary matter, given the nature of this industry and market, my assessment of the effects of revocation of the order within a reasonably foreseeable time extends further into the future in this review than is ordinarily the practice of the Commission. Both USEC and Areva advise that it is appropriate for the Commission to consider an unusually long period of four years as the reasonably foreseeable future for this industry.² Specifically, I note that in assessing volume, price, and impact effects, I am considering LEU shipments that will be delivered between 2013 and 2017, which is made easier to predict by the nature of long-term contracts in this market. I give less weight to contracts signed between 2013 and 2017 for deliveries after 2017, as these contracts will not be realized until a more distant, less-understood future.³

¹ 19 U.S.C. § 1675(c).

² USEC Posthearing Brief, Exh. 21 at 3; Hearing Transcript at 185 (Rosen); Hearing Transcript at 233 (Cunningham).

³ LEU sold pursuant to long-term contracts may have delivery schedules lasting *** years. CR at II-15, V-5-6; PR at II-8-9, V-3. These contracts may be signed between *** years in advance of the first contracted deliveries. CR at II-18; PR at II-10-11. Therefore, while competition for future deliveries may take place between 2013 and 2017, these contracts’ volume, price, and impact effects will largely not be realized for up to *** years after the end of that reasonably foreseeable time period. An assessment of injury beyond our extended reasonably foreseeable timeframe requires an assumption that the conditions of competition that are considered likely to hold through the next four years will continue to prevail in the years beyond.

(Continued...)

2. Likely Volume Effects

During the original period of investigation, subject imports from France increased by *** percent, rising from *** SWU in 1998 to *** SWU in 2000. This rapid increase took place within the context of a strong increase in apparent U.S. consumption, and the market share held by subject imports from France increased only modestly from *** percent in 1998 to *** percent in 2000.⁴ As noted by the Commission during the first review, subject imports from France maintained a significant presence in the U.S. market during the first period of review despite the presence of the antidumping duty order.⁵ Subject imports from France accounted for *** percent of apparent U.S. consumption in 2002, *** percent in 2003, *** percent in 2004, and *** percent in 2005 before falling to *** percent of the U.S. market in 2006.⁶ The Commission considered this significant presence of subject imports to be indicative of the French producer's interest in and ability to serve U.S. customers.⁷

During the current period of review, the significant presence of subject imports (produced in France by Eurodif and imported by Areva) evaporated. Subject imports from France accounted for *** percent of apparent U.S. consumption in 2007, and then were absent in every subsequent year.⁸ As discussed in section II.B.2.b, Areva has continued to ship nonsubject merchandise to the United States. According to purchaser data, the market share held by Areva declined from highs of 17.4 percent in 2007 and 19.3 percent in 2008 to 10.8 percent in 2012, with this share projected to fall as low as 5.7 percent in 2016 based on expected delivery schedules under existing long-term contracts.⁹ Therefore, volume trends during the current review period and extending into the foreseeable future demonstrate that Areva's interest in serving the U.S. market, either with subject or nonsubject imports, has diminished considerably from the original period of investigation and the previous review period.

Areva's ability to increase shipments of subject imports to the United States is constrained by the reduced capacity of its subsidiary, Eurodif, which alone constitutes the industry in France.¹⁰ Eurodif's Georges Besse I gaseous diffusion facility had a nameplate

(...Continued)

Contracts negotiated between 2013 and 2017 for deliveries beyond a reasonably foreseeable time period may affect sales subject to market prices. However, as discussed below, I do not find that these indirect effects will be significant.

⁴ CR/PR at Table I-1.

⁵ Confidential First Review Determination at 30-31.

⁶ CR/PR at Table I-1.

⁷ Confidential First Review Determination at 30-31.

⁸ CR/PR at Table I-1.

⁹ CR/PR at Table II-10.

¹⁰ Areva *** of French LEU within the United States during the period of review. CR/PR at Table IV-2. Eurodif's end-of-period inventories in France decreased from *** in 2007 to *** SWU in 2012, and were *** SWU in interim 2013. CR/PR at Table IV-3.

Eurodif reported that it ***. CR at II-11; PR at II-6.

capacity of 10.8 million SWU per year, and production reached as high as *** SWU in 2005.¹¹ In June 2012, Eurodif ceased production at the Georges Besse I facility due to the gaseous diffusion plant no longer being economical due to the higher price of electricity.¹² The Georges Besse II centrifuge enrichment facility, which commenced commercial operations in April 2011, had total capacity of *** SWU in 2013, and is projected to have capacity of *** SWU in 2014 with optimal capacity of 7.5 million SWU projected to be reached in 2016.¹³ French capacity to produce LEU will therefore be significantly lower even at its projected optimal level in 2016 and beyond than it was during the original period of investigation, during the first review period, and during much of the current review period.

Capacity utilization rates for Eurodif were low in 2011 and 2012 as it shuttered Georges Besse I and ramped up production at Georges Besse II.¹⁴ However, as Eurodif's capacity and production increases from its low levels in 2013, most of this production will already have been committed by Areva. Areva reported that it has secured large contracts with non-U.S. customers with committed deliveries averaging over 90 percent of its capacity through 2020.¹⁵ USEC does not contest the veracity of Areva's future commitments.¹⁶ Therefore, taking into account that 90 percent of Georges Besse II's capacity is already committed through 2020, the French industry will have average available excess capacity of *** SWU per year between 2016 and 2020. This excess capacity in France is equivalent to only *** percent of 2016 U.S. expected demand for LEU as projected by U.S. purchasers, and this annual share will decrease slightly as

¹¹ CR at IV-6; PR at IV-4; Memorandum INV-EE-163 at Table IV-3; Memorandum INV-Z-004 at Table VII-1. Eurodif reported that its capacity, derived solely from its Georges Besse I facility, was *** SWU between 2007 and 2010. CR/PR at Table IV-3.

¹² CR at IV-6-7; PR at IV-4.

¹³ CR at IV-7-8; PR at IV-5. USEC argues that the modular nature of Georges Besse II's centrifuge technology would allow it to expand capacity beyond 7.5 million SWU if market conditions allowed. Citing an Areva press release, USEC assumes within its analysis that this increase could reach as high as 11 million SWU by 2019. USEC Posthearing Brief, Exh. 11. As a preliminary matter, this assumed additional capacity would be coming online beyond what I consider as a "reasonably foreseeable time" in this review. Moreover, USEC's assumption that Eurodif will increase its capacity beyond its expected and optimal growth trajectory is based on speculation, and therefore does not provide a basis for my analysis of Eurodif's likely capacity.

¹⁴ CR/PR at Table IV-3. Capacity utilization, based on KgU as reported, was *** percent in 2011 (the year that Georges Besse II opened) and *** percent in 2012 (the year that Georges Besse I closed). Eurodif's capacity utilization figures provided for 2011 and 2012 are not indicative of the firm's actual ability to produce at maximum capacity, as Georges Besse I was shutting down and Georges Besse II was still in its start-up phase. Areva Posthearing Brief, Question 16 at 27.

¹⁵ Areva Posthearing Brief, Question 16 at 28-30; CR at II-22; PR at II-13. Areva has provided details of the commitments which reach the average totals of 90 percent of its capacity through 2020, which include contracts with *** . Areva Posthearing Brief, Question 16 at 28-29.

¹⁶ USEC Posthearing Brief, Exh. 11; USEC final comments at 5. In fact, USEC provides evidence that Areva has secured contracts at guaranteed prices equivalent to 90 percent of Georges Besse II's production between 2012 and 2020, and 85 percent between 2020 and 2030. USEC Posthearing Brief, Attachment 2 of Exh. 11.

U.S. demand is expected to expand through 2020.¹⁷ Therefore, even if all of Eurodif's excess capacity were shipped to the United States during this timeframe, the volume of subject imports would not be significant.

The record indicates that it is unlikely that Areva will ship all of this relatively small volume of Georges Besse II's excess capacity to the United States at levels that will have a significant impact on U.S. market share. As stated above, Areva has continued to sell LEU sourced exclusively by nonsubject merchandise to the U.S. market under long-term contracts since 2007. Areva has stated that *** if the orders were revoked, indicating that these long-term contracts may be *** contracts.¹⁸ Purchasers' expected deliveries of LEU supplied by Areva will be 487,000 SWU for 2013, 873,000 SWU for 2014, 533,000 SWU for 2015, and 450,000 SWU for 2016.¹⁹ To the extent that Areva satisfies these relatively small commitments using the ***, it will by definition be *** in the U.S. market as opposed to ***.

Beyond its sales within existing open-origin contracts, Areva faces a market in which uncommitted demand is scarce. In the first review, the Commission relied on data showing uncommitted demand in the U.S. market of *** SWU in 2009 and *** SWU in 2010, providing evidence that there was a large segment of the market open to foreign competition within three years after the end of the review.²⁰ In contrast, the record in this review establishes that between 2013 and 2017, the highest annual amount of uncommitted demand within this period will be in 2016, at 188,723 SWU, or 1.2 percent of total expected demand in that year.²¹ The very small levels of uncommitted demand in the U.S. market indicate clearly that Areva has

¹⁷ CR/PR at Table II-5 (converted from kgs to SWU using the conversion factor on CR at I-7). According to questionnaire responses from U.S. purchasers, total expected demand for LEU will be 15.4 million SWU in 2016, 14.3 million SWU in 2017, 17.1 million SWU in 2018, 17.6 million SWU in 2019, and 16.8 million SWU in 2020. Therefore, excess capacity in France would be equivalent to *** percent of expected demand in 2016, *** percent in 2017, *** percent in 2018, *** percent in 2019, and *** percent in 2020. This data is far more reliable than predictions in other industries given firms' knowledge of annual reload schedules.

¹⁸ CR at D-13; PR at Appendix D.

¹⁹ CR/PR at Table II-10.

²⁰ Confidential First Review Determination at 33-34.

²¹ CR/PR at Table II-5 (converted from kgs to SWU using the conversion factor on CR at I-7). Committed demand accounted for 99.3 percent of total expected demand in 2013, 99.1 percent in 2014, 103.2 percent in 2015, 98.8 percent in 2016, and 104.0 percent in 2017. *Id.* The total annual quantities reported by purchasers accounted for the large majority (*** percent) of apparent U.S. consumption, therefore providing a representative accounting of the market. CR/PR at Table II-10 n. 2.

USEC argues that utilities purchase SWU in bunches every three to seven years. It states that the next significant amount of open demand is in 2020 and beyond, and that utilities will need to begin to cover these open requirements in the 2015-2017 timeframe. USEC Posthearing Brief, Exh. 12 at 1. Any competition for requirements in 2020 and the years afterward would take place well beyond a reasonably foreseeable timeframe. Moreover, based on evidence from U.S. purchasers, committed demand as a share of total expected demand is 58.6 percent or higher through 2022. CR/PR at Table II-5 (converted from kgs to SWU using the conversion factor on CR at I-7).

little room in the U.S. market to begin to make sales of the subject merchandise within the reasonably foreseeable future.²²

Moreover, there are sufficient growth opportunities in other markets that will likely absorb the limited excess capacity at Georges Besse II. While global demand decreased temporarily as a result of the Fukushima incident in March 2011, firms anticipate that global demand will increase in the near future, particularly in developing markets in Asia that plan to meet rapid economic growth and corresponding increased demand for electricity with nuclear power plants.²³ In addition, many countries, particularly those in the OECD, are expected to build nuclear plants as a way of reducing carbon emissions within their energy portfolio.²⁴ *** reported that global LEU requirements are expected to grow by approximately 60 percent between 2012 and 2030.²⁵ Areva has stated that its sales efforts are concentrated on serving these emerging markets, and this trend is borne out by its commitments to Asian customers in addition to its traditional European customers.²⁶

For all of these reasons stated above, the record in this review indicates that Areva does not have the ability to significantly increase its U.S. imports within a reasonably foreseeable time if the order were revoked. I consequently conclude that any likely increase in subject imports from France would not be significant either in absolute terms or relative to production or consumption in the United States if the order were revoked.

3. Likely Price Effects

As discussed in section III.B.2.c above, subject imports are highly substitutable with the domestic like product, and price is an important factor in purchasing decisions. Most LEU is sold pursuant to long-term contracts signed an average of *** years in advance of the first contracted deliveries.²⁷ Pricing is therefore based on two time parameters: the year the

²² For the same reasons, Areva will have little room to expand sales of nonsubject imports, including ***.

²³ CR at II-21; PR at II-13.

²⁴ "Global Nuclear Power Development: Major Expansion Continues," *Nuclear Energy Institute*, July 2012.

²⁵ CR at II-21-22; PR at II-13. There are currently 435 nuclear reactors operating in 31 countries. More than 60 nuclear power reactors are currently being constructed in 13 countries, notably China, India, South Korea, and Russia. Beyond those now under construction, 160 power reactors are planned and over 320 more are proposed. CR at IV-12 and IV-14; PR at IV-8.

²⁶ Areva's Posthearing Brief, Question 16 at 28-31. As discussed above, Areva has secured large contracts with non-U.S. customers, primarily in Europe and Asia, with committed deliveries averaging over 90 percent of its capacity through 2020. *Id.*

While there are no known trade remedies against imports of LEU from France in third-country markets, several markets, such as Russia and Ukraine, remain closed to non-Russian producers. CR at II-6; PR at II-4. However, European enrichers, including Eurodif, appear to receive some level of preferential access to the European Union given EU limitations on imports of foreign-produced LEU. CR at II-6; PR at II-4; CR at IV-10-11; PR at IV-7.

²⁷ CR at II-18; PR at II-10-11.

contract was signed (the “contract year”) and the year of delivery, when payments are made under a fully realized transaction price. Pricing in the negotiation of new contracts is influenced by ***. In addition, price competition may affect long-term contracts that contain market-based pricing provisions or price renegotiations in the middle of the contract period.²⁸ However, 66.9 percent of the total quantity of LEU delivered pursuant to long-term contracts during the period of review had prices that were fixed at the signing of the contract or subject to escalator clauses, and this share will increase to 90.9 percent for the 2013-2014 period.²⁹ Therefore, the majority of existing contracts will not be affected by any market price or future market price fluctuation.

The price comparison data available in this current review are based on comparisons by type of contract as negotiated in various contract years for deliveries made during the period of review. In the current period of review, French-produced LEU was sold only under long-term contracts where prices were fixed or subject to escalator clauses specified in the contract.³⁰ Areva’s imports from France only entered the U.S. market in 2007.³¹ For contracts negotiated in 2004, Areva’s imports from France undersold the domestic like product in two quarters in 2007, by margins of *** and *** percent. For contracts negotiated in 2005, U.S.-produced LEU and subject LEU *** in a single quarter in 2007.³² These results are similar to those found in the original investigation and in the first review, in which a limited number of available price comparisons showed that subject imports undersold the domestic like product.³³

This price comparison data allows for a limited assessment of the likelihood of underselling for contracts negotiated and deliveries made in the reasonably foreseeable future, particularly since the last deliveries of French LEU sold in the U.S. market were from contracts negotiated in ***.³⁴ However, this data demonstrates that Areva has undersold the domestic like product in the past, albeit by relatively low margins. Alternative measures of underselling show that French and U.S.-produced LEU are sold at comparable prices in the U.S. market. When asked to compare the prices of U.S.-produced LEU and LEU imported from France, thirteen out of fifteen purchasers considered them to be comparable.³⁵ Areva’s

²⁸ CR at V-5-6; PR at V-3; USEC’s Prehearing Brief at p. 42.

²⁹ Consolidated purchaser questionnaire responses, question II-13(b).

³⁰ CR/PR at Table V-3. Areva reported that its long-term contracts fixed both price and quantity, did not have standard quantity requirements, and did not contain a meet or release provision. CR at V-6; PR at V-3.

³¹ CR/PR at Table V-2, V-3.

³² CR/PR at Table V-2, V-3.

³³ CR at V-17; PR at V-6. In the original investigation, French-produced LEU undersold domestic product in *** possible comparisons at margins ranging from 4.2 to 9.0 percent. Memorandum INV-Z-004 at V-33-36, Table V-6. In the last review, French-produced LEU undersold domestic product in the one possible comparison at a margin of *** percent. Memorandum INV-EE-163 at V-20-21.

³⁴ CR/PR at Table V-3.

³⁵ CR/PR at Table II-11. In addition to the thirteen purchasers reporting comparable prices, one purchaser considered U.S.-produced LEU to have a superior price to imported French LEU, while one purchaser considered U.S.-produced LEU to have an inferior price. *Id.* Unlike in reviews of markets (Continued...)

characterization of the global market as involving “healthy competition among all sellers of enrichment services” in which Areva wins some bids and loses others, often to USEC, matches purchasers’ assessments of the U.S. market.³⁶ Indeed, thirteen purchasers in the current review identified either LES or USEC as the price leaders in the U.S. market, whereas only two purchasers identified Areva as the price leader.³⁷

Therefore, I find that limited volumes of subject imports are likely to undersell the domestic like product for certain contracts if the order were revoked, as they have in the past. However, underselling by subject imports is likely to be mixed with instances of overselling, and prices of subject imports are likely to be within a reasonable margin of U.S. producer prices, as demonstrated in both the comparative price data and the purchasers’ responses. Accordingly, I do not find likely underselling to be significant.

Moreover, I find it unlikely that subject imports will undersell the domestic like product in a manner that will lead to significant price depression or suppression. USEC argues that subject imports could cause downward price pressure if they entered the U.S. market in large volumes, therefore increasing available supply relative to demand.³⁸ However, as discussed above, I do not find it likely that subject imports will enter the U.S. market in large volumes. Eurodif will have maximum annual excess capacity of *** SWU between 2016 and 2020, and less than that prior to 2016.³⁹ Areva is limited in exporting even that small amount to the United States due to the highly committed nature of the U.S. market for the reasonably foreseeable future and its primary interests in serving expanding markets elsewhere, as borne out by existing commitments to non-U.S. customers. Therefore, any increase in imports from France upon revocation of the orders will be limited to substituting subject imports for nonsubject imports under Areva’s open-origin contracts or competition for uncommitted demand in the U.S. market. As stated above, all of Areva’s currently held long-term contracts have prices that are either fixed or subject to escalator clauses,⁴⁰ and even if prices could fluctuate based on market prices, Areva will have little incentive to try to reduce its prices under any of its existing contracts. With respect to competition for new contracts, while Areva is likely to undersell the domestic like product for certain contracts available in the U.S. market,

(...Continued)

where purchasers may simply be unfamiliar with the subject merchandise following imposition of the orders, the long-term nature of this market and the large number of purchasers responding to this question indicate that purchasers are familiar with both French and domestically produced LEU.

³⁶ Areva Posthearing Brief, Question 10 at 16-17.

³⁷ CR at V-8; PR at V-4. Three purchasers considered TENEX the price leader. *Id.*

³⁸ USEC Posthearing Brief at 74-75. As argued by USEC, an additional one million SWU of supply available in the U.S. market will lead to a reduction in price of \$3.50 per SWU. Because USEC asserts that an increase in import volume from France of *** is “very possible” upon revocation of the order, it finds that this would lead to a reduction in prices of between *** per SWU. *Id.*

³⁹ CR at IV-7-8; PR at IV-5 (showing optimal capacity from 2016 onward); Areva Posthearing Brief, Question 16 at 28-30 (describing commitments equating to 90 percent committed capacity through 2020).

⁴⁰ CR at V-6; PR at V-3.

the very limited volume of uncommitted demand through 2017 will limit any price effects from these sales.

Therefore, I do not find that the limited volumes of subject imports from France would likely have a significant depressing or suppressing effect on the price of the domestic like product. Accordingly, I conclude that subject imports from France are not likely to have significant adverse price effects if the order were revoked.

4. Likely Impact

I find the data concerning the domestic industry's performance during the period of review to be of limited relevance to my analysis of the industry's vulnerability, as these data primarily reflect LEU production from USEC's enrichment facility in Paducah, Kentucky, which ceased operations in May 2013.⁴¹ Therefore, the domestic industry's performance during the

⁴¹ CR at III-2; PR at III-1-2.

The capacity of the domestic industry increased from *** SWU in 2007 to *** SWU in 2012, a level *** percent higher than in 2007. CR/PR at Table III-1. It was *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's production fluctuated during the period, ranging from a low of *** SWU in 2011 to a high of *** SWU in 2009. *Id.* It was *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's rate of capacity utilization fluctuated with production, ranging from a low of *** percent in 2011 to a high of *** percent in 2009. *Id.* It was *** percent in January-March 2012 and *** percent in January-March 2013. *Id.*

The domestic industry's U.S. shipments fluctuated during the period of review, ranging from a low of *** SWU in 2011 to a high of *** SWU in 2012. CR/PR at Table I-7. They were *** SWU in January-March 2012 and *** SWU in January-March 2013. *Id.* The industry's share of apparent U.S. consumption also fluctuated during the period, ranging from a low of *** percent in 2011 to a high of *** percent in 2012. *Id.* at Table I-8. It was *** percent in January-March 2012 and *** percent in January-March 2013. *Id.* The domestic industry's end-of-period inventories increased irregularly from *** SWU in 2007 to *** SWU in 2012, a level *** percent higher than in 2007, as ***. CR at III-17; PR at III-11; CR/PR at Table III-3. They were *** SWU in January-March 2013, up from *** SWU in January-March 2012. CR/PR at Table III-3.

The domestic industry's net sales quantity, including exports, fluctuated between *** SWU in 2011 and *** SWU in 2009 during the period examined, ending the period at *** SWU in 2012. CR/PR at Table III-7. It was *** SWU in January-March 2013, up from *** SWU in January-March 2012. *Id.* The domestic industry's net sales value fluctuated with net sales quantity, ranging from \$*** in 2011 to \$*** in 2009, and ending the period at \$*** in 2012. *Id.* It was \$*** in January-March 2012 and \$*** in January-March 2013. *Id.*

The domestic industry's average number of production related workers ("PRWs") increased irregularly from *** PRWs in 2007 to *** PRWs in 2012, a level *** percent higher than in 2007. CR/PR at Table III-5. It was *** PRWs in January-March 2012 and *** PRWs in January-March 2013. Hours worked and wages paid exhibited similar trends. *See id.* Productivity, in SWUs per hour, fluctuated during the period, ranging between a low of *** in 2011 and a high of *** in 2009. *Id.* Productivity in SWUs per hour was *** in January-March 2012 and *** in January-March 2013. *Id.*

The industry's operating income declined irregularly during the period of review, declining from a profit of \$*** in 2007 to a loss of \$*** in 2012. *Id.* The industry sustained operating losses of \$*** in January-March 2012 and \$*** in January-March 2013. *Id.* The industry's operating income as a share of
(Continued...)

period of review is not indicative of the current status or future prospects of the industry. In addition, I note that the industry's operating income was highest in 2007, the only year in which subject imports were in the market, and declined throughout the remainder of the review period.⁴² Any declines experienced by the industry over the period of review therefore cannot be attributed to subject import competition.

With full recognition of USEC's history as the only U.S. producer prior to 2010, as well as its substantial technical expertise and investment footprint within the U.S. LEU enrichment industry, it is clear that LES is now the primary producer of LEU in the United States. LES, which commenced commercial operations in Eunice, New Mexico in 2010, is the only U.S. firm engaged in commercial production of LEU, and therefore is the largest producer of LEU in terms of value-added.⁴³ LES has proven that it has the ability to sign contracts and ramp up production based on existing and expanding productive capacity. While keeping production *** capacity,⁴⁴ LES reported capacity of *** SWU in 2010, *** SWU in 2011, and *** SWU in 2012,⁴⁵ with a planned further expansion of capacity to *** SWU in 2016.⁴⁶ In September 2013, LES employed 350 full-time workers.⁴⁷ As LES has grown into a major U.S. producer, purchasers have reported replacing USEC with LES as a source due to both pricing and LES's stature as a more reliable source for the next ten years.⁴⁸ LES's staying power within the U.S. industry is further validated by the size of the investment that Urenco has made in the establishment of LES's National Enrichment Facility. The total capital investment in LES's enrichment plant during the period of review was ***.⁴⁹ Urenco's continued support for this major investment in the United States adds to the resilience of its subsidiary, particularly as it continues to grow from its early stages. In addition, LES's affiliation with its European parent company means that it has

(...Continued)

net sales showed a similar trend, declining from *** percent in 2007 to negative *** percent in 2012. *Id.* It was negative *** percent in January-March 2012 and negative *** percent in January- March 2013. *Id.*

The domestic industry's capital expenditures increased irregularly during the period of review, from \$*** in 2007 to \$*** in 2012, a level *** percent higher than in 2007. CR/PR at Table III-12. They were \$*** in January-March 2012 and \$*** in January-March 2013. *Id.* The industry's research and development expenses fluctuated within a narrow band between 2007 and 2011, ranging from \$*** in 2008 to \$*** in 2011, but increased to \$*** in 2012, a level *** percent higher than in 2007. *Id.* They were \$*** in January-March 2012 and \$*** in January-March 2013. *Id.*

⁴² CR/PR at Table C-1.

⁴³ As stated above in section III.B.2.b, LES commenced commercial operations on June 11, 2010, while USEC ceased commercial operations at its Paducah, Kentucky on May 31, 2013.

⁴⁴ CR at II-5; PR at II-4.

⁴⁵ CR/PR at Table C-3. Its reported capacity was *** SWU in the first quarter of 2012 and *** SWU in the first quarter of 2013. *Id.* LES reported that ***. CR at II-5 n. 12; PR at II-3 n. 12.

⁴⁶ CR at II-7; PR at II-4-5. In 2012, LES submitted a request to the NRC to amend its license in order to increase maximum capacity at the facility to 10 million SWU by 2020. CR at III-10 n. 23; PR at III-8 n. 23.

⁴⁷ LES Final Comments at 2.

⁴⁸ CR at II-27-28; PR at II-17. LES's U.S. shipments were *** SWU in 2012, and were *** SWU in the first quarter of 2013 compared to *** SWU in the first quarter of 2012. CR/PR at Table C-3.

⁴⁹ LES Final Comments at 2.

full access to a centrifuge technology that is proven to be viable for commercial operation, as this technology has been successfully utilized by both Areva and Urenco's global enrichment operations.⁵⁰

In contrast to LES, USEC is currently only able to serve the U.S. market and its global export commitments with imports from Russia under the U.S.-Russia transitional supply contract,⁵¹ as well as *** of inventory that USEC estimates ***.⁵² USEC's goal is to restart domestic production using centrifuge enrichment technology at the ACP, which it projects could commence commercial production as early as mid-2016.⁵³ However, USEC's stated ability to reach this goal must be viewed in context. In its determination on the first review in 2007, the Commission noted that, under USEC's 2002 agreement with the DOE ("2002 DOE Agreement"), USEC was obligated to commence commercial production at the ACP in 2009, increase capacity to 1.0 million SWU by 2010, and reach a capacity of 3.5 million SWU by September 2011.⁵⁴ USEC had committed to have a test Lead Cascade operational and generating product assay in a range usable by commercial power plants by October 2007, a milestone that had already been rescheduled with DOE.⁵⁵ Meanwhile, another milestone for securing a financing commitment for a 1 million SWU centrifuge plant was rescheduled for January 2008,⁵⁶ and USEC projected that the ACP's total cost would be \$2.3 billion. In other words, at the time of the previous review, USEC had not successfully proven that it had sufficiently mastered the technology to commence commercial operations, and was still seeking financial investment in the project. With USEC's critical upcoming deadlines in mind, the Commission found that revocation of the order would imperil USEC's ability to raise financial capital, including ***, which depended largely on investor expectations and ability to meet its obligation to produce 3.5 million SWU worth of LEU.⁵⁷

In this second review, the Commission is faced with a nearly identical assertion that ACP will reach commercial production within a reasonably foreseeable time, as the commercialization plan's milestones have been pushed back by six to nine years since the time of the first review. USEC's 2002 DOE Agreement was amended in 2012 to reflect the delayed schedule, committing USEC to finalize testing by May 2014 and secure financing for construction of the commercial production facility by November 2014. Under the new deadlines, USEC would commence commercial ACP plant operations by July 2017, and reach 1 million SWU capacity by September 2018 and 3.5 million SWU capacity by September 2020.⁵⁸ However, USEC's estimate of the additional financing that ACP will require has now grown to \$4 billion in addition to the \$2.5 billion that has already been invested, up from USEC's total

⁵⁰ CR at IV-8; PR at IV-5.

⁵¹ CR at III-22-23; PR at III-14.

⁵² USEC Posthearing Brief at Exhibit 15. ***. CR at II-6 n. 14; PR at II-4 n. 14.

⁵³ CR at III-7; PR at III-5.

⁵⁴ Confidential First Review Determination at 26.

⁵⁵ Memorandum INV-EE-163 at III-2-3.

⁵⁶ *Id.*

⁵⁷ Confidential First Review Determination at 48-49, 51-52.

⁵⁸ CR at III-3 n. 7; PR at III-2 n. 7.

estimate of \$2.3 billion made during the last review.⁵⁹ USEC claims that in order to secure additional capital for the completion of the ACP project, it will: (1) seek to update its application for \$2 billion in DOE loan guarantees; (2) secure \$1 billion from the Japanese Export Credit Agencies (ECAs), part of the Government of Japan; and (3) seek out an additional \$1 billion in private capital.⁶⁰

USEC's first step in securing financing, either through loans or private capital, is to formally demonstrate the ACP's technical ability to produce LEU using its advanced centrifuge technology through the successful completion of the DOE-invested RD&D project. While this project remains incomplete, USEC has satisfied six of nine milestones in the project, with the remaining milestones due to be completed by December 31, 2013.⁶¹ USEC anticipates that the milestones will be met on time and within budget,⁶² resulting in an update of the \$2 billion DOE loan guarantee application that was first submitted in 2008.⁶³ However, USEC has received no assurance that a successful demonstration program will result in a loan guarantee, as stated explicitly on the record by *** and USEC's own 10-Q.⁶⁴ In addition, USEC has not supplied any information with respect to Japanese Export Credit Agencies' interest in financing the project for \$1 billion other than to describe why it believes Japan is interested, provide a statement that the ECAs conveyed an expression of interest in 2010 (before Fukushima), and assert that dialog with the ECAs has continued since then.⁶⁵

There is no indication on the record that the completion of the RD&D program will lead easily to guaranteed financing either from the DOE or from the Japanese ECAs. USEC recognizes this, and argues that this is one of its primary points of vulnerability. USEC asserts that its need for capital, including from the DOE loan guarantee, the Japanese ECAs, and from private investors, is contingent upon its ability to commercialize ACP by securing long-term contracts for the plant's production at reasonable prices.⁶⁶ However, it is more likely that USEC's ability to commercialize ACP will be driven primarily by the willingness of public investors to commit financing to the project, not by any expectations of future market conditions.

In fact, to the extent that demand-side issues influence public or private investment decisions, the LEU market should continue to support USEC as it seeks long-term contracts using potential output from the ACP. While price is a major consideration in purchasers' decisions when choosing between suppliers, reliability and/or diversity of supply are equally important.⁶⁷ As a result, several purchasers noted that they have entered into supply contracts

⁵⁹ CR at III-6; PR at III-4.

⁶⁰ CR at III-6 n. 17; PR at III-4 n. 17.

⁶¹ CR at III-9; PR at III-7.

⁶² *Id.*

⁶³ Hearing Tr. at 24 (Sewell); 116 (Sewell). The DOE loan guarantee application was first submitted in 2008. CR at III-8; PR at III-6.

⁶⁴ USEC's Form 10-Q submitted to the Securities and Exchange Commission (SEC) for the second quarter and the first six months of 2013 ended June 30, 2013; Email from ***, October 24, 2013.

⁶⁵ USEC Posthearing Brief, Exhibit 19 at 1-3.

⁶⁶ USEC Posthearing Brief, Exhibit 19 at 3; Hearing Tr. at 24-25 (Sewell).

⁶⁷ CR/PR at Table II-7 (eight U.S. purchasers ranked reliability/security of supply or diversity of supply as the first most important factor, compared to eight that ranked price as the first most important factor); (Continued...)

for LEU produced at enrichment facilities that have not been constructed, including USEC's ACP, in order to support a diversity of supply in the market.⁶⁸ Many utilities elect to support enrichment facilities through these contracts, and USEC has reported that ***.⁶⁹ USEC's signed ACP contracts cover *** percent of projected ACP production in 2016, and *** percent of projected ACP production in 2017.⁷⁰ In addition, USEC's quantities of ACP-supplied LEU for ***,⁷¹ indicating that USEC may have flexibility to serve utilities with open-origin LEU, including from inventories and Russian-supplied LEU, even while under ACP contracts.⁷² Therefore, purchasers have a strong incentive to sign ACP contracts and support an additional source of supply within the U.S. market while potentially still having an alternative source of supply if the plant does not come online.

As argued above, USEC's ability to commence commercial production of LEU within the reasonably foreseeable future is contingent upon a number of long-standing issues being resolved with respect to the viability of the technology and a lack of financing. I cannot make the speculative assumption that all of these issues will be overcome and that USEC will begin producing LEU by 2016 or 2017, and I therefore do not find it likely that USEC will begin commercial production within a reasonably foreseeable time. In addition, USEC's problems do not preclude it from securing long-term contracts based on ACP deliveries, as purchasers are eager to seek additional sources of U.S. supply.

As discussed above, the domestic industry is comprised of LES, the currently larger, growing producer that has successfully marketed all of its LEU within the U.S. market and ***, as well as USEC, a historically dominant but currently non-producing firm that is hindered more by its own difficulties in restarting production than by market conditions. Therefore, I do not find the industry to be vulnerable to the continuation or recurrence of material injury.

Consistent with my findings that the likely volume and likely price effects of subject imports from France will not be significant, I find that subject imports would not be likely to have a significant adverse impact on the domestic industry's output, deliveries, market share, profits, or return on investment, if the orders were revoked. Based on the stable and growing demand in the United States and the growth of the domestic industry, as well as the ***, the small volumes of subject imports from France that may appear in the U.S. market upon revocation cannot be expected to have a significant adverse impact on the domestic industry within a reasonably foreseeable time.

(...Continued)

CR/PR at Table II-8 (19 firms ranked price as "very important", while 19 firms ranked reliability of supply as "very important").

⁶⁸ CR at II-20; PR at II-12.

⁶⁹ *Id.*

⁷⁰ *Id.* USEC signed *** ACP contracts with *** between 2008 and 2011: ***.

⁷¹ *Id.*

⁷² Purchasers also reported that they had changed their purchasing patterns from different sources since 2007 due to the open source of USEC's contracts, as the product would either be of U.S. or Russian origin. CR at II-27; PR at II-17.

III. Conclusion

I find that the facts of this case do not fit the statutory criteria that would allow me to make an affirmative finding that there is likelihood that material injury would recur or continue if the order is revoked. In this case, the domestic industry is not vulnerable to subject import competition; instead, one plant is facing supply-side challenges that are distinct from subject import competition and the general dynamics of the global LEU market.

The domestic industry currently does not resemble the industry that existed in the original investigations. The industry has been transformed to include a new, thriving producer that has successfully commercialized advanced production technology and which ***. As discussed above, USEC, which indicated that commercial production was imminent at the ACP in the last review, continues to struggle with a variety of production issues that are distinct from existing or potential subject import competition.

While USEC may be able to resume commercial production of LEU at some point in the future, I cannot conclude, based on the evidence on the record, that USEC's ACP will be up and running within the reasonably foreseeable future. Indeed, it is difficult to expect that, absent substantial government support, USEC will be producing commercial quantities of enriched uranium within that timeframe.

For the above-stated reasons, and those set forth in the sections of the majority views that I join, I determine that revocation of the antidumping duty order on LEU from France would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

PART I: INTRODUCTION

BACKGROUND

On December 3, 2012, the Commission gave notice, pursuant to section 751(c) of the Tariff Act of 1930 (the Act), that it had instituted a review to determine whether revocation of the antidumping duty order on low enriched uranium (“LEU”) from France would be likely to lead to the continuation or recurrence of material injury to a domestic industry within a reasonably foreseeable time.¹ Effective March 8, 2013, the Commission determined that it would conduct full reviews pursuant to section 751(c)(5) of the Act.² The following tabulation presents information relating to the background and schedule of this proceeding:³

Effective date	Action
February 13, 2002	Commerce’s antidumping duty order on LEU from France (67 FR 6680)
December 3, 2012	Commission’s institution of a five-year review (77 FR 71626)
December 3, 2012	Commerce’s initiation of a five-year review (77 FR 71684)
March 8, 2013	Commission’s determination to conduct a full five-year review (78 FR 19311, March 29, 2013)
April 4, 2013	Commission’s scheduling of the review (78 FR 21416, April 10, 2013)
April 9, 2013	Commerce’s final results of the expedited review of the antidumping duty order (78 FR 21100)
September 10, 2013	Commission’s hearing
November 13, 2013	Commission’s vote
December 6, 2013	Commission’s determination and views

The original investigations

On December 7, 2000, a petition was filed with Commerce and the Commission alleging that an industry in the United States was materially injured by reason of dumped and subsidized imports of LEU from France, Germany, the Netherlands, and the United Kingdom.⁴

¹ *Low Enriched Uranium from France, Institution of a Five-Year Review Concerning the Antidumping Duty Order on Low Enriched Uranium from France*, 77 FR 71626, December 3, 2012.

² *Low Enriched Uranium from France, Notice of Commission Determination to Conduct a Full Review*, 78 FR 19311, March 29, 2013.

³ The Commission’s notice of institution, notice to conduct full reviews, scheduling notice, and statement on adequacy appear in appendix A and may also be found at the Commission’s web site (internet address www.usitc.gov). Commissioners’ votes on whether to conduct expedited or full reviews may also be found at the web site. Appendix B contains a list of the witnesses that appeared at the Commission’s hearing.

⁴ The petition was filed by USEC, Inc., and its wholly owned subsidiary United States Enrichment Corp.

On December 21, 2001, Commerce published: (1) its final negative determinations in the antidumping duty investigations of LEU from Germany, the Netherlands, and the United Kingdom; (2) its final affirmative countervailing determinations on LEU from France, Germany, the Netherlands, and the United Kingdom, and ⁵ (3) its final affirmative antidumping determination in the investigation of LEU from France, finding dumping margins of 19.95 percent for Eurodif/Areva, and 19.95 percent for “All Others.”⁶

The Commission made its final affirmative injury determinations on February 4, 2002, and Commerce issued an antidumping duty order with respect to imports from France, and countervailing duty orders with respect to imports from France, Germany, the Netherlands, and the United Kingdom, on February 6, 2002.

The Eurodif litigation

The parties to the original investigation litigated the issue of whether “SWU⁷ transactions”⁸ were the sale of goods or the sale of services and thereby not covered by antidumping and countervailing duty laws. Respondents argued that they were the sale of services and properly excluded from the scope of any Title VII investigation.⁹ The U.S. Court of International Trade (“CIT”) and the Court of Appeals for the Federal Circuit (“CAFC”) held that “the SWU contracts in this case were contracts for services and not for goods or merchandise.” The CAFC explained that “the sale of goods (or ‘merchandise’) is covered by the antidumping duty statute” and that “***he provision of services, however, is not covered by that statute.” Commerce subsequently issued a remand determination that removed SWU transactions from its margin calculations, but not from the scope of the antidumping duty order.

Eurodif, the French producer, challenged Commerce’s remand determination on the grounds that Commerce should have excluded SWU transactions from the scope of the order,

⁵ *Notice of Final Determination of Sales at Not Less Than Fair Value: Low Enriched Uranium from the United Kingdom, Germany, and the Netherlands*, 66 FR 65886, December 21, 2001.

⁶ *Notice of Final Determination of Sales at Less Than Fair Value: Low Enriched Uranium from France*, 66 FR 65877, December 21, 2001 as amended by 67 FR 6680, February 13, 2002.

⁷ A “separative work unit” or (“SWU”) is an international unit of measure for enrichment service and sales.

⁸ LEU end users, i.e. utility companies, procure LEU from enrichers, i.e. USEC, by two types of transactions: (1) a “SWU transaction” (the most common transaction); or (2) an “Enriched Uranium Product” (“EUP”) transaction.

In a SWU transaction, a utility company pays for conversion and enrichment, but the utility company owns and supplies the raw material input, namely, uranium concentrates and natural UF₆, to a uranium enricher. The enricher never takes title to either the natural uranium or the resulting LEU.

In an EUP transaction the utility company purchases the LEU outright from enricher, paying for both the SWU and the UF₆ used to produce the LEU.

⁹ See *Eurodif S.A. v. United States*, 411 F.3d 1355 (Fed. Cir. 2005); *Eurodif S.A. v. United States*, 423 F.3d 1275 (Fed. Cir. 2005); *Eurodif S.A. v. United States*, 414 F. Supp. 2d 1263 (Ct. Int’l Trade 2006); *Eurodif S.A. v. United States*, 431 F. Supp. 2d 1351 (Ct. Int’l Trade 2006); and *Eurodif S.A. v. United States*, 442 F. Supp. 2d 1367 (Ct. Int’l Trade 2006).

and the CIT agreed, remanding to Commerce with instructions to amend the scope accordingly.¹⁰ In response, Commerce issued a second remand determination indicating that the scope of the order would be amended to exclude SWU transactions “{u}pon final and conclusive court decisions.” Commerce and USEC then appealed the CIT’s decision to the CAFC on the grounds that the CIT erred in ordering Commerce to amend the scope of the order to exclude SWU transactions. The CAFC held that the issue raised by appellants was not ripe for adjudication.¹¹

The issue was ultimately decided by the U.S. Supreme Court. The Court, in January of 2009, reversed the CAFC and held that “{w}here a domestic buyer’s cash and an untracked, fungible commodity are exchanged with a foreign contractor for a substantially transformed version of the same commodity, the Commerce Department may reasonably treat the transaction as the sale of a good under §1673.”¹²

Commerce revocation of countervailing duty orders

The countervailing duty orders on LEU from Germany, the Netherlands, and the United Kingdom were revoked by Commerce on July 7, 2006, based on a finding that all the programs providing countervailing subsidies had been abolished.¹³

On May 29, 2007, Commerce issued an amended final negative determination, revoking the countervailing duty order for LEU from France.¹⁴ Therefore, the Commission, on June 7, 2007, terminated its ongoing five- year review concerning the countervailing duty order on imports of LEU from France.¹⁵

¹⁰ *Eurodif*, 431 F.Supp.2d 1356-1357.

¹¹ *Eurodif*, 506 F.3d 1051, 1054 (Fed. Cir. 2007).

¹² *United States v. Eurodif S.A.*, 555 U.S. 305, 322, 129 S.Ct. 878, 890 (2009). The Commission in its original and first five-year review investigations included both EUP and SWU transactions in its definition of the domestic like product. The Commission in both investigations defined the domestic like product coextensive with the scope as defined by Commerce, which at the time did not exclude SWU transactions. See *Low Enriched Uranium From France*, Inv. No. 731-TA-909 (Review), Pub. No. 3967 (December 2007), pp. 7-11.

¹³ *Low Enriched Uranium from Germany, the Netherlands, and the United Kingdom: Final Results of Countervailing Duty Administrative Reviews and Revocation of Countervailing Duty Orders*, 71 FR 38626, July 7, 2006.

¹⁴ *Low Enriched Uranium from France: Notice of Amended Final Negative Determination Pursuant to Final Court Decision, Rescission of Administrative Review, and Revocation of the Countervailing Duty Order*, 72 FR 29301, May 25, 2007. Commerce issued an amended final negative determination after directed by the CIT to remove from its subsidy calculations all SWU transactions in compliance with the CAFC holding in *Eurodif*. Commerce’s amended calculation of the net subsidy rate for Eurodif was *de minimis*. Commerce and USEC did not appeal the CAFC decision as it applied to the countervailing duty determination. See *Eurodif*, 555 U.S. at 316.

¹⁵ *Low Enriched Uranium from France: Termination of Five-year Review*, 72 FR 31606, June 7, 2007.

Subsequent five-year reviews

In December 2007, the Commission completed its first full five-year review of the subject order and determined that revocation of the antidumping order on LEU from France would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.¹⁶ Following affirmative determinations in the first five-year review by Commerce and the Commission, Commerce issued a continuation of the antidumping duty order on imports of LEU from France, effective January 3, 2008.¹⁷

RELATED INVESTIGATIONS

There currently exists a suspension agreement with regard to Uranium from Russia.¹⁸ The scope of the suspension agreement is much broader than the scope of this review.¹⁹ In February 2012, the Commission completed its third review of the suspension agreement and determined that termination of the suspended investigation would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.²⁰ In its third expedited review, Commerce determined that revocation of the suspended investigation on uranium from Russia would be likely to lead to a

¹⁶ *Low Enriched Uranium from France*, Inv. No. 731-TA-909 (Review), USITC Publication No. 3967 (December 2007), p. 1.

¹⁷ *Continuation of Antidumping Duty Order on Low Enriched Uranium from France*, 73 FR 449, January 3, 2008.

¹⁸ The petition was originally filed on November 8, 1991 claiming that a U.S. industry was materially injured by reason of dumped imports of uranium from the U.S.S.R. and each republic that was a member of the U.S.S.R. on the filing date of the petition, namely, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Ukraine, and Uzbekistan. Since the original suspension agreement, all suspension agreements or antidumping orders on all the former Soviet Republics have been revoked except the suspension agreement with Russia. *Uranium from Russia*, Inv. No. 731-TA-539-C (Third Review), USITC Publication No. 4307 (February 2012), pp. I-4-I-5.

¹⁹ The scope of this review covers only LEU, one semifinished product along the entire production process, (enriched UF₆ (LEU-HF)), whereas the scope of the Russian suspension agreement covers all semifinished products along the production process (uranium concentrate (U₃O₈), natural UF₆, enriched UF₆ (LEU-HF), and uranium oxides (UO₂ or LEU-DO)). Its scope is defined in part as:

“Natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U²³⁵ and its compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing uranium enriched in U²³⁵ or compounds of uranium enriched in U²³⁵; and any other forms of uranium within the same class or kind.”

²⁰ *Uranium From Russia*, Inv. No. 731-TA-539-C (Third Review), USITC Publication No. 4307 (February 2012).

continuation or recurrence of dumping at the following weighted-average margin: Russia-wide (115.82 percent).²¹

SUMMARY DATA

Table I-1 presents a summary of data from the original investigations, the first full five-year review, and the current full five-year review. In the original investigations, U.S. import data for all countries were compiled using responses to the Commission's U.S. importer questionnaire. In the first five-year review, U.S. import data for all countries were compiled using adjusted official Department of Commerce statistics²² due in large part to U.S. importer non-responsiveness. In this review, U.S. import data for France is compiled using the U.S. importer response of Areva NC, an affiliate of the Areva Group S.A. of Courbevoie, France ("Areva"), the sole U.S. importer of LEU from France during the period of review. Data for U.S. imports from nonsubject countries were compiled using the same method as was used in the first five-year review, namely, adjusted official Department of Commerce statistics.

During both the original investigations and the first five-year review, the U.S. industry consisted of one firm, USEC, Inc. ("USEC.") During this period of review, a second U.S. producer, Louisiana Energy Services, LLC ("LES"), commenced production of LEU.

Table I-1

LEU: Summary data from the original investigations, first review, and current review, 1998-2001, 2002-2006, and 2007-2012

* * * * *

STATUTORY CRITERIA AND ORGANIZATION OF THE REPORT

Statutory criteria

Section 751(c) of the Act requires Commerce and the Commission to conduct a review no later than five years after the issuance of an antidumping or countervailing duty order or the suspension of an investigation to determine whether revocation of the order or termination of the suspended investigation "would be likely to lead to continuation or recurrence of dumping or a countervailable subsidy (as the case may be) and of material injury."

Section 752(a) of the Act provides that in making its determination of likelihood of continuation or recurrence of material injury--

²¹ *Uranium from the Russian Federation: Final Results of Expedited Sunset Review of the Suspension Agreement*, 76 FR 68404, November 4, 2011.

²² Official statistics of the U.S. Department of Commerce, HTS 2844.20.0020. Commerce statistics are compiled by weight (kilogram) therefore the conversion factor of: SWU= kg*0.67618*6 was used to convert the quantity data into SWU.

(1) IN GENERAL.-- . . . the Commission shall determine whether revocation of an order, or termination of a suspended investigation, would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time. The Commission shall consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated. The Commission shall take into account--

(A) its prior injury determinations, including the volume, price effect, and impact of imports of the subject merchandise on the industry before the order was issued or the suspension agreement was accepted,

(B) whether any improvement in the state of the industry is related to the order or the suspension agreement,

(C) whether the industry is vulnerable to material injury if the order is revoked or the suspension agreement is terminated, and

(D) in an antidumping proceeding . . ., (Commerce's findings) regarding duty absorption . . .

(2) VOLUME.--In evaluating the likely volume of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether the likely volume of imports of the subject merchandise would be significant if the order is revoked or the suspended investigation is terminated, either in absolute terms or relative to production or consumption in the United States. In so doing, the Commission shall consider all relevant economic factors, including--

(A) any likely increase in production capacity or existing unused production capacity in the exporting country,

(B) existing inventories of the subject merchandise, or likely increases in inventories,

(C) the existence of barriers to the importation of such merchandise into countries other than the United States, and

(D) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products.

(3) PRICE.--In evaluating the likely price effects of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether--

(A) there is likely to be significant price underselling by imports of the subject merchandise as compared to domestic like products, and

(B) imports of the subject merchandise are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of domestic like products.

(4) IMPACT ON THE INDUSTRY.--In evaluating the likely impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated, the Commission shall consider all relevant economic

factors which are likely to have a bearing on the state of the industry in the United States, including, but not limited to—

- (A) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity,*
- (B) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, and*
- (C) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.*

The Commission shall evaluate all such relevant economic factors . . . within the context of the business cycle and the conditions of competition that are distinctive to the affected industry.

Section 752(a)(6) of the Act states further that in making its determination, “the Commission may consider the magnitude of the margin of dumping or the magnitude of the net countervailable subsidy. If a countervailable subsidy is involved, the Commission shall consider information regarding the nature of the countervailable subsidy and whether the subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement.”

Organization of report

Information obtained during the course of this review that relates to the statutory criteria is presented throughout this report. A summary of trade and financial data for LEU, as collected in the review, is presented in appendix C, table C-1.

U.S. industry data are based on the questionnaire responses of two U.S. producers of LEU, USEC and LES, that accounted for all domestic production of LEU during the period of review. Data compiled for U.S. imports from nonsubject countries are based on Commerce’s official import statistics. Data for U.S. imports from France are compiled using the questionnaire response of one U.S. importer of LEU, Areva, which accounted for 100 percent of the total U.S. imports from France during the period of review. Foreign industry data and related information are based on the questionnaire responses of one producer of LEU, Eurodif, S.A. (“Eurodif”)²³ which accounted for 100 percent of total production of LEU in France. Responses by U.S. producers, importers, purchasers, and foreign producers of LEU to a series of questions concerning the significance of the existing antidumping duty order and the likely effects of revocation of the order are presented in appendix D.

²³ For purposes of clarity and consistency, this report will use “Eurodif” to refer to the sole producer of LEU in France and “Areva” to refer to its affiliates’ U.S. importing activities.

COMMERCE'S REVIEWS

Administrative reviews

Commerce has completed three administrative reviews of the outstanding antidumping duty order on LEU from France, none of which have occurred in the past five years. The results of the administrative reviews are shown in table I-2.

Table I-2

LEU: Administrative reviews of the antidumping duty order for France

Date results published	Period of review	Producer or exporter	Margin (percent)
September 29, 2004 (69 FR 58128)	07/13/01-01/31/03	COGEMA/Eurodif	4.56
October 21, 2005 (70 FR 61253)	02/1/03 - 01/31/04	COGEMA/Eurodif	9.75
September 5, 2006 (71 FR 52318)	02/1/04 - 01/31/05	Eurodif/Areva	14.60

Source: Cited Federal Register notices.

Changed circumstances reviews

Commerce has conducted one changed circumstances review with respect to LEU from France. On December 5, 2011, Areva requested that Commerce conduct an expedited changed circumstances review to amend the definition of the scope of the order for one entry of LEU in order to relax the deadline for re-exporting required by the scope. Areva stated that following the March 11, 2011, earthquake and tsunami that struck Japan, its Japanese customer was required by the Japanese government to shut down its nuclear power facility pending necessary remediation of the situation. Therefore, the Japanese customer was not able to take delivery of an LEU shipment within the 18-month period, as required by the scope of the antidumping order. USEC had no objection to the relaxation of the deadline for this one entry and Commerce did amend the scope language to extend the deadline for the entry.²⁴

Scope inquiry reviews

Commerce has conducted no scope inquiry reviews with respect to LEU from France.

Five-year reviews

Commerce has issued the final results of its expedited review with respect to LEU from France.²⁵ Table I-3 presents the dumping margins calculated by Commerce in its original

²⁴ *Low Enriched Uranium from France: Preliminary Results of Antidumping Duty Changed Circumstances Review*, 77 FR 7128, February 10, 2012; *Low Enriched Uranium from France: Final Results of Antidumping Duty Changed Circumstances Review*, 77 FR 19642, April 2, 2012.

²⁵ *Low Enriched Uranium from France: Final Results of the Expedited Second Sunset Review of the Antidumping Duty Order*, 78 FR 21100, April 9, 2013; USEC observes that Commerce sets its 19.95

(continued...)

investigations, first review, and second review. Table I-4 presents the countervailable subsidy margins calculated by Commerce in its original investigations.

Table I-3
LEU: Commerce’s original, first five-year review, and second five-year review dumping margins for producers/exporters in France

Producer/exporter	Original margin (percent)	First five-year review margin (percent)	Second five-year review margin (percent)
Eurodif/Areva	19.95	19.95	19.95
All others	19.95	19.95	19.95

Source: Notice of Final Determination of Sales at Less Than Fair Value: Low Enriched Uranium from the United Kingdom, Germany, and the Netherlands, 66 FR 65886, December 21, 2001 as amended by Low Enriched Uranium from Germany, the Netherlands, and the United Kingdom: Final Results of Countervailing Duty Administrative Reviews and Revocation of Countervailing Duty Orders, 71 FR 38626, July 7, 2006; Low Enriched Uranium from France: Final Results of Expedited Sunset Review of the Antidumping Duty Order, 72 FR 26593, May 10, 2007; and Low Enriched Uranium From France: Final Results of the Expedited Second Sunset Review of the Antidumping Duty Order, 78 FR 21100, April 9, 2013.

Table I-4
Product: Commerce’s original countervailable subsidy margins for producers/exporters in France

Producer/exporter	Original margin (percent)	First five-year review margin (percent)	Second five-year review margin (percent)
Eurodif/Areva	12.15	N/A	N/A
All others	12.15	N/A	N/A

Source: Notice of Final Determination of Sales at Less Than Fair Value: Low Enriched Uranium from the United Kingdom, Germany, and the Netherlands, 66 FR 65886, December 21, 2001 as amended by Low Enriched Uranium from Germany, the Netherlands, and the United Kingdom: Final Results of Countervailing Duty Administrative Reviews and Revocation of Countervailing Duty Orders, 71 FR 38626, July 7, 2006.

THE SUBJECT MERCHANDISE

Commerce’s scope

Commerce has defined the scope of this investigation as follows:

The product covered by the order is all low enriched uranium (“LEU”). LEU is enriched uranium hexafluoride (UF₆) with a U²³⁵ product assay of less than 20 percent that has not been converted into another chemical form, such as UO₂, or fabricated into nuclear fuel assemblies, regardless of the means by which the LEU is produced (including LEU produced through the downblending of highly enriched uranium).

Certain merchandise is outside the scope of the order. Specifically, the order does not cover enriched uranium hexafluoride with a U²³⁵ assay of 20 percent or greater, also known as highly enriched uranium. In addition, fabricated LEU is

(...continued)

percent margin on a LEU basis, which USEC approximates to be a 30 percent margin on a SWU basis. USEC’s posthearing brief, p. 5.

not covered by the scope of the order. For purposes of the order, fabricated uranium is defined as enriched uranium dioxide (UO₂), whether or not contained in nuclear fuel rods or assemblies. Natural uranium concentrates (U₃O₈) with a U²³⁵ concentration of no greater than 0.711 percent and natural uranium concentrates converted into uranium hexafluoride with a U²³⁵ concentration of no greater than 0.711 percent are not covered by the scope of the order.

Also excluded from the order is LEU owned by a foreign utility end-user and imported into the United States by or for such end-user solely for purposes of conversion by a U.S. fabricator into uranium dioxide (UO₂) and/or fabrication into fuel assemblies so long as the uranium dioxide and/or fuel assemblies deemed to incorporate such imported LEU (i) remain in the possession and control of the U.S. fabricator, the foreign end-user, or their designed transporter(s) while in U.S. customs territory, and (ii) are reexported within eighteen (18) months of entry of the LEU for consumption by the end user in a nuclear reactor outside the United States. Such entries must be accompanied by the certifications of the importer and end user.

The merchandise subject to this order is classified in the Harmonized Tariff Schedule of the United States at subheading 2844.20.0020. Subject merchandise may also enter under 2844.20.0030, 2844.20.0050, and 2844.40.00. Although the HTSUS subheadings are provided for convenience and customs purposes, the written description of the merchandise subject to the order is dispositive.

Tariff treatment

The subject merchandise is currently imported under Harmonized Tariff Schedule of the United States (“HTS”) statistical reporting number 2844.20.0020. Subject merchandise may also be reported under statistical reporting numbers 2844.20.0030, 2844.20.0050, and subheading 2844.40.00. The current tariff rate for LEU for nations with normal trade relations with the United States is free.²⁶

THE PRODUCT

Physical characteristics and uses

The subject product, LEU, is one of four intermediate products containing elemental uranium that are used to produce fuel for electric power generation in nuclear reactors. The four products include, in order of processing: (1) natural uranium concentrate or concentrated U₃O₈ (generally referred to as “concentrate” or “yellowcake”); (2) natural UF₆; (3) the subject product (also known as enriched UF₆, EUP, or LEU-HF); and (4) enriched uranium oxide or enriched UO₂ (also known as LEU-DO). Each is successively consumed in the manufacture of

²⁶ Harmonized Tariff Schedule of the United States, 2013.

the other in the production of the fuel. A discussion of elemental uranium, the fuel production process, and LEU in particular follows.

Elemental Uranium

LEU and the other three basic forms of uranium are manufactured products consisting of elemental uranium in combination with other elements. Uranium consists of three principal isotopes, U^{238} , U^{235} , and U^{234} , which constitute 99.285 percent, 0.71 percent, and 0.005 percent, respectively, of the element by weight as found in nature. The properties of its U^{235} isotope are particularly important for uranium's use as a fuel to generate electricity in nuclear power plants.

Processing Uranium into Fuel

Uranium is generally found throughout the world in chemical combination with oxygen, embedded in various concentrations in rock formations, known as uranium ores. To bring it to usable form, four successive and distinct processes are required, each resulting in a different uranium product and each successive product being closer to the product required for actual use (the various steps in converting uranium ore to nuclear fuel suitable for use in light water reactors are shown in figure I-1). The processes and products are as follows: (1) mining and concentrating the uranium into the chemical form U_3O_8 (three atoms of uranium combined with eight atoms of oxygen); (2) converting the concentrate into natural UF_6 ; (3) enriching the natural UF_6 to LEU by increasing the proportion of U^{235} in its constituent uranium; and (4) fabricating the LEU into fuel rods and fuel rod assemblies that can be incorporated in a nuclear reactor for final use.

Value Added by Segment

The estimated cost of processing uranium ore through the various stages of the nuclear fuel cycle to produce 1 kg of uranium as UO₂ reactor fuel at the spot uranium price as of June 2013 is presented in table I-5. As shown, the enrichment process accounted for 37.3 percent of total operating costs.²⁹

Table I-5

LEU: Operating costs to process 1 kg of uranium (at the spot uranium price as of June 2013), by stage of production

Processing stage	Calculation	Cost (in U.S. dollars)	Share of total processing cost (in percent)
Uranium concentrate	8.9 kg U ₃ O ₈ x \$130	1,160	49.2
Conversion	7.5 kg U x \$11	83	3.5
Enrichment	7.3 SWU x \$120	880	37.3
Fuel fabrication	per kg	240	10.1
Total cost, all stages		2,360	100.0

Source: World Nuclear Association ("WNA"), "The Economics of Nuclear Power," <http://www.world-nuclear.org/info/inf02.html>, September 23, 2013.

LEU

LEU is an intermediate product in the nuclear fuel cycle having distinct physical and/or chemical characteristics from all other forms of uranium, such as natural uranium oxide (uranium concentrate), natural uranium hexafluoride, and uranium in fabricated fuel.³⁰ However, prior to fabrication into fuel rods, LEU from one manufacturer is highly interchangeable with LEU produced by other enrichers. The domestic product and the subject imported merchandise are chemically and physically identical and have the same use, namely, as fuel for the production of electric power in nuclear reactors. The channels of distribution for all LEU, imported and domestic, are similar and the product is sold to the same customers, i.e., to U.S. utilities for fabrication and manufacture into fuel assemblies (by fuel fabricators), which are used as fuel for nuclear reactors in the production of electricity. U.S. utilities can purchase LEU from an enricher either by purchasing the entire LEU (including the uranium component),

²⁹ USEC observed that the country in which the enrichment process occurs confers the country of origin of the LEU. USEC's prehearing brief, p. 31 (stating that the value added of the enrichment process is approximately *** percent of the total value of LEU); USEC's posthearing brief, p. 9.

³⁰ Natural uranium oxide and natural uranium hexafluoride, regardless of form, have a U²³⁵ assay of 0.711 percent, which is a lower U²³⁵ assay than LEU. Similarly, the uranium in fabricated fuel has the same U²³⁵ assay as the LEU it was made from, however, the chemical and physical properties of the two materials are different.

referred to as Enriched Uranium Product (“EUP”),³¹ or the utilities can pay only for the processing deemed to be contained in the LEU, known as SWU transactions.³² In the majority of cases, U.S. utilities procure LEU through SWU transactions.

As noted, before uranium can be used as a fuel in most nuclear power plants, the proportion of its U²³⁵ isotope must be increased relative to that of its other isotopes.³³ In the enrichment process, the proportion of U²³⁵ of the uranium in natural UF₆ is increased from 0.71 percent to about 3-5 percent by weight of UF₆ in LEU. Most nuclear utilities operating in the world today require LEU fuel with a U²³⁵ concentration in this 3-5 percent range for use in generating electricity.

There are two principal methods of uranium enrichment - gaseous diffusion enrichment and gas centrifuge (“centrifuge”) enrichment. There is also the lesser used method of downblending highly enriched uranium (HEU) from weapons stock. In addition, several newer enrichment methods are being examined. On balance, the global enrichment industry has embraced state-of-the-art centrifuge technology is superior to gaseous diffusion technology. Centrifuge technology is predicted to replace gaseous diffusion technology as the method of enrichment within the next ten years as illustrated in the following tabulation.³⁴

Supply source	2010	2017
<i>Percent</i>		
Diffusion	25	0
Centrifuge	65	93
Laser	0	3
HEU ex-weapons	10	4

³¹ This is called an EUP purchase.

³² This is called a SWU purchase. SWU, or separative work units, are a standard of measure of effort or service employed in the uranium enrichment. It is a measure of the effort that is required to transform a given amount of natural uranium feed stock (UF₆) into two streams of uranium, one enriched in the U²³⁵ isotope (the subject product) and the other depleted in the U²³⁵ isotope (referred to as depleted uranium; currently used commercially as tails).

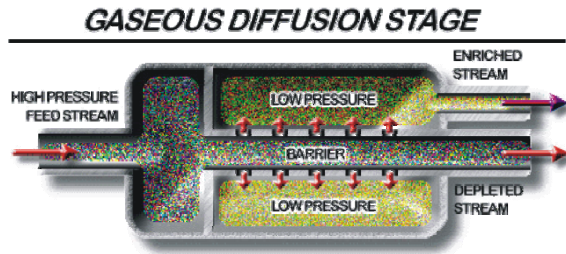
³³ Most of the world’s and all of the United States’ nuclear power plants are so-called “light-water” reactors (“LWR”) and require enriched uranium for fuel; however, there are a small number of others, known as “heavy-water” reactors (“HWR”), that are capable of using natural uranium. According to the International Atomic Energy Agency (“IAEA”), there are currently 359 LWR in 27 countries and 29 HWR in 7 countries.

³⁴ WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

Gaseous Diffusion

Gaseous diffusion, illustrated in figure I-2, involves the passage of UF_6 in a gaseous form through thousands of barriers or cascades, containing millions of microscopic holes, until the desired assay is reached. Because U^{235} is lighter than U^{238} , the U^{235} passes through the barriers more readily than the U^{238} .

Figure I-2
Gaseous diffusion method



Source: USEC, *Uranium Enrichment and the Gaseous Diffusion Process*. Found at: http://www.usec.com/v2001_02/HTML/Aboutusec_enrichment.asp, retrieved on July 23, 2013.

The components for a single diffusion stage include a large cylindrical vessel containing the barrier called a diffuser, a gas compressor driven by an electric motor, a heat exchanger and an auxiliary system consisting of pipes and valves, interstage connections and process control system. However, the heart of a gaseous diffusion system is the barrier membrane containing holes in the order of a millionth of an inch which should be of uniform size. In addition, the barrier membrane must be porous enough to allow sufficiently high flow rates, be resistant to corrosive UF_6 gas and be durable enough to last years.

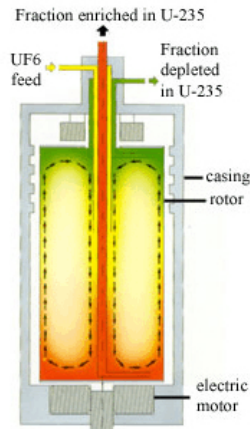
Gaseous Centrifuge

The centrifuge method of enrichment, illustrated in figure I-3, employs rapidly spinning cylinders containing UF_6 under high pressure to separate the U^{235} (which, being a lighter isotope, moves at a greater velocity in the centrifuge) from the U^{238} . The heavier U^{238} tends to move toward the outer walls of the centrifuge, whereas the lighter U^{235} tends to remain near the center.³⁵ A casing encloses the centrifuge and provides two important functions – leak tightness to preserve a vacuum and physical protection from the spinning rotor. To reduce

³⁵ World Nuclear Association ("WNA"), *Global Nuclear Fuel Market, May 2013*, retrieved on July 24, 2013.

friction, the rotor spins in a vacuum. The rotor is a thin wall right circular cylinder³⁶ that spins in response to a drive motor. The suspension system holds the rotor upright within the casing. The rotation of the rotor generates the centrifugal force acting on the UF₆ gas to be enriched.

Figure I-3
Centrifuge method



Source: Institute for Science and International Security, *What is a Gas Centrifuge*. Found at: http://www.exportcontrols.org/cent_diagram1.html, retrieved on July 23, 2013.

Separative performance of a cascade is related to among other things, its rotor velocity and length. As either rotor velocity or length increase so does the centrifuge's separative performance.³⁷ The centrifuges currently used by Urenco, the European nuclear consortium, called the TC12, have an annual performance of 40 SWU per machine. The American Centrifuge, which is longer and faster than the TC12, produces 350 SWU per machine.³⁸ As with

³⁶ A thin wall right circular cylinder is a cylinder with the bases circular and with the axis joining the two centers of the bases perpendicular to the planes of the two bases, in which a charge can be uniformly distributed across the surface.

³⁷ According to a mathematical expression derived by Dirac, the separative power produced by an individual gas centrifuge is proportional to the length of the rotor in the centrifuge times the peripheral rotor velocity raised to the fourth power. Thus by increasing the rotor length and by increasing the rotor velocity, the separative power of the centrifuge can be significantly enhanced.

³⁸ USEC, "USEC updates progress on Lead Cascade, American Centrifuge Project," news release, August 1, 2007. The American Centrifuge, at more than 40 feet high, is reportedly more than three times longer than the TC12 used by Urenco. In addition, the American Centrifuge is designed to have a faster rotor speed, probably exceeding 1,000 miles per hour, achieved by increasing the tensile strength of the rotor utilizing materials which are known to have high tensile strengths such as carbon fiber or other composite materials. Nuclear Engineering International, *Back to the Future: American Centrifuge*, (continued...)

gaseous diffusion, individual centrifuges are connected in series and parallel cascades to increase enrichment levels and capacity, although commercial enrichment levels can be reached in about one hundred times fewer stages in a centrifuge cascade.³⁹

As an illustrative example, the following tabulation included in a report issued in 1990 provides an estimate of power usage and power cost for diffusion, centrifuge, and the related laser enrichment technologies, atomic vapor laser isotope separation (“AVLIS”) and separation of isotopes by laser excitation (“SILVA”).⁴⁰

Technology	Power usage	Power cost
	<i>(Kilowatt-hour electric per SWU)</i>	<i>(per SWU)¹</i>
Diffusion	2,400	\$60.00
Centrifuge	50	1.25
AVLIS/SILVA	100	2.50

¹ Assuming 25 mills per kilowatt-hour (1 mill per kilowatt-hour = 0.1 cents per kilowatt-hour).

Laser Based Enrichment

Laser based enrichment involves using a specific wavelength of light to excite U²³⁵ atoms in a source material, causing the desired atoms to be separated from the source material. Laser-enrichment is potentially more cost effective than either gas diffusion or centrifuge technology due to its lower energy inputs, lower capital costs and lower tails assays.⁴¹ Four main laser-enrichment methods have been pursued, AVLIS, molecular laser isotope separation (“MLIS”), chemical reaction isotope selective laser activation (“CRISLA”), and separation of isotopes by laser excitement (“SILEX”). None of these is currently in commercial use, and only SILEX is presently under commercial development.

The only laser enrichment process that is currently being commercially pursued is SILEX. This third-generation uranium enrichment technology has several potential advantages over existing gaseous and centrifuge enrichment technologies, including lower power consumption and capital costs, relatively simple separation modules, and a modular, scalable technology.⁴² In the SILEX process, the UF₆ is mixed with a carrier gas, cooled to a low temperature, and is fed

(...continued)

September 2003, pp. 37-38, and Dan Charles, “U.S. Centrifuge Work Revived in Updated Form,” *The Washington Post*, April 23, 2007.

³⁹ Nuclear Engineering International, *Back to the Future: American Centrifuge*, September 2003, pp. 37-38.

⁴⁰ Edison Electric Institute, *EI Enrichment Handbook*, 1990, pp. 8-13.

⁴¹ WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

⁴² See http://www.silex.com.au/s03_about_silex/s30_1_content.html, retrieved on July 23, 2013.

to a separator system. The U^{235} component is selectively excited, which results in a separation of the two isotopic forms into an enriched product and a U^{238} -rich “tails” stream, both of which are mechanically removed into a collection system. The separator system is cascaded to enrich the U^{235} concentration.⁴³

Down-blending of HEU

In the down-blending process, the U^{235} in HEU (often derived from weapons-grade materials) is diluted with other materials so that the U^{235} concentration after blending is reduced to LEU levels that are suitable for use in commercial power plants. Both Russia and the United States are engaged in down-blending HEU. A major down-blending program instituted by Russia is called Megatons to Megawatts, a nonproliferation agreement between the United States and Russia signed on February 19, 1993 (the “HEU Agreement”).⁴⁴ Under the HEU Agreement, USEC, as the U.S. Executive Agent, purchases LEU from TENEX blended down in Russia from HEU derived from dismantled Russian nuclear warheads.

The first step in the down-blending program from nuclear warheads in Russia involves the removal of the warheads and their HEU metal components in several nuclear installations in Russia. At the Siberian Chemical Enterprise (“SChE”) and the Mayak Production Association, the HEU metal components are machined into metal shavings which are then purified and oxidized to form highly-enriched U_3O_8 . At SChE and the Electrochemical Plant (“ECP”) near Krasnoyarsk, the HEU oxide is fluorinated to form highly enriched uranium hexafluoride which is then transported to SChE, ECP and the Urals Electrochemical Integrated Plant where the HEU is vaporized and blended with slightly enriched uranium (about 1.5 percent U^{235}) to form a blended-down LEU suitable for generating electricity in a nuclear power plant. The product is then checked, transferred into cylinders, shipped to St. Petersburg where USEC takes possession of the cylinders, and then shipped to USEC’s facilities at Paducah, KY. Finally, the LEU is shipped to fabricators where the LEU is assembled into fuel assemblies suitable to be used by utilities.⁴⁵

Currently, USEC is the agent for U.S. supply of blended-down uranium from Russian weapons stockpiles, which supplies about half of U.S. LEU demand.⁴⁶ In March 2011, USEC signed a further contract with TENEX for supply of LEU from 2013 to 2022, increasing by up to about half the present levels from Russia, with an option to match present levels. The new

⁴³ WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

⁴⁴ The down-blending of 500 metric tons of HEU, the equivalent of approximately 20,000 nuclear warheads, is estimated to produce about 15,000 tons of LEU, enough to generate 6 trillion kilowatt hours of electricity.

⁴⁵ USEC, *Megatons to Megawatts* at <http://www.usec.com> and Center for Defense Information, “*Megatons to Megawatts*”, *The U.S.-Russia Highly Enriched Uranium Agreement*, at <http://www.cdi.org>.

⁴⁶ In this report, this agreement is termed the “HEU Agreement,” for more information see Part III, *The U.S.-Russia HEU Agreement (“Megatons to Megawatts Program”)*; WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

supplies will come from mined uranium enriched in Russia, rather than recycled weapons.⁴⁷ USEC will purchase the SWU contained in the LEU and deliver natural uranium to TENEX for the uranium component of the LEU. Since 2009, TENEX has signed a number of contracts with US utilities to supply enrichment services and enriched uranium product. To mid-2010 the contracts totaled some \$3 billion, covering supplies to 2020.⁴⁸

DOMESTIC LIKE PRODUCT ISSUES

In its original determinations and its first five-year review,⁴⁹ the Commission found that there was one domestic like product consisting of all LEU corresponding to Commerce's scope definition.⁵⁰ In its notice of institution in these current five-year reviews, the Commission solicited comments from interested parties regarding the appropriate definition of the domestic like product and domestic industry.⁵¹ The domestic interested party commented on the Commission's definition of the domestic like product and indicated that it agreed with the Commission's prior definition and that no information has presented itself since the Commission's last review to change those previous determinations.⁵² No respondent interested party commented on the definition of the domestic like product during the adequacy phase of this review. In addition, no party requested that the Commission collect data concerning other possible domestic like products in their comments on the Commission's draft questionnaires.⁵³

⁴⁷ In this report, this contract is termed the "U.S.-Russia transitional supply contract," for more information see Part III, *The U.S.-Russia transitional supply contract*; WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

⁴⁸ WNA, *Uranium Enrichment*, found at <http://www.world-nuclear.org/info/inf28.html>, retrieved on June 26, 2013.

⁴⁹ In the Commission's first five-year review, the respondent interested parties argued that the definition of the domestic like product should be revised to reflect Commerce's remand determination to exclude "LEU produced and imported pursuant to a SWU transaction." Respondent interested parties made this argument while the *Eurodif* litigation was ongoing. The Commission declined and the issue ultimately was resolved by the U.S. Supreme Court in *Eurodif S.A. v. United States*, 555 U.S. 305, 129 S.Ct. 878 (2009).

The Commission in its original and first five-year review investigations included both EUP and SWU transactions in its definition of the domestic like product. The Commission in both investigations defined the domestic like product coextensive with the scope as defined by Commerce, which included SWU transactions. See *Low Enriched Uranium From France*, Inv. No. 731-TA-909 (Review), Pub. No. 3967 (December 2007), pp. 7-11.

⁵⁰ *Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom*, Investigation No. 701-TA-409-412 (Final) and 731-TA-909 (Final), USITC Pub. 3486, February 2002, p. 5 and *Low Enriched Uranium from France*, 731-TA-909 (Final), USITC Pub. 3967, December 2007, p. 11.

⁵¹ *Low Enriched Uranium From France: Institution of a Five-Year Review Concerning the Antidumping Duty Order on Low Enriched Uranium From France*, 77 FR 71626, December 3, 2012.

⁵² *USEC's Response to the Commission's Notice of Institution*, January 2, 2013, p. 52.

⁵³ *USEC's Comments on Draft Questionnaires*, May 28, 2013 and *LES's Comments on Draft Questionnaires*, May 28, 2013.

U.S. MARKET PARTICIPANTS

U.S. producers

During the original investigation and first five-year review, one firm, USEC, supplied the Commission with information on their U.S. operations with respect to LEU. USEC accounted for 100 percent of U.S. production of LEU during those periods of investigation and review. In the current review, the Commission issued U.S. producer questionnaires to two firms, USEC and LES, both of which provided the Commission with information on their production operations. These firms accounted for 100 percent of U.S. production of LEU during the period of review. Presented in table I-5 is the list of domestic producers of LEU that produced during the period of review, each company's position on continuation of the antidumping order, production locations(s), related and/or affiliated firms, and share of reported production of LEU in 2012.

Table I-5

LEU: U.S. producers, positions on orders, U.S. production locations, related and/or affiliated firms, 2012 U.S. production, and shares of 2012 reported U.S. production

Firm	Position on orders	U.S. production location	Affiliated firms	2012 U.S. production (1,000 SWU)	Share of 2012 production (percent)
LES	***	Eunice, NM	Urenco	***	***
USEC	Support	Piketon, OH Paducah, KY	None	***	***
Total				***	100.0

Source: Compiled from data submitted in response to Commission questionnaires.

As indicated in table I-5, one U.S. producer, LES, is related to a foreign producer of the subject merchandise and purchases LEU from its foreign affiliates, located in nonsubject countries. USEC, directly imports LEU from Russia.

As discussed in greater detail below and in Part III, USEC argues that LES should be excluded from the U.S. industry as a related party because of its alleged affiliations with Areva. Also, Areva argues that USEC should not be considered a member of the U.S. industry because it does not currently produce LEU at commercial quantities and its projections for future production are, in Areva's view, highly speculative.⁵⁴

LES

LES is a wholly owned subsidiary of Urenco, Ltd., a consortium including the Government of the United Kingdom, the Government of the Netherlands, and utility companies

⁵⁴ Appendix C, table C-2 presents U.S. industry data excluding LES and table C-3 presents U.S. industry data excluding USEC.

located in Germany. LES constructed a new LEU enrichment facility near Eunice, New Mexico. This facility began commercial operations on June 11, 2010, using centrifuge enrichment technology to produce LEU.⁵⁵

USEC

Until the commencement of production in 2010 by LES, USEC was the only producer of LEU in the United States. The U.S. Government created USEC in 1992 as a step toward the privatization of its enrichment activities then under the control of the U.S. Department of Energy (“DOE”). Its enabling legislation, the USEC Privatization Act of 1996, intended USEC to operate independently as a market-oriented business, but it was not fully divested of government ownership until July 1998 at which time USEC became a publicly held corporation through an initial public offering. USEC has ceased production of LEU at its gaseous diffusion enrichment plants in Piketon, Ohio, in 2001, and Paducah, Kentucky, in 2013. USEC is in the process of testing LEU production based on centrifuge technology and plans to commence commercial production using this technology at its American Centrifuge Project (“ACP”) in Piketon, Ohio as early as 2016.⁵⁶ Presently, USEC is not commercially producing LEU in the United States.⁵⁷ It stated that it intends to supply its customers from 2013 to the commencement of production at ACP in 2016 with LEU purchased from Russia pursuant to the transitional supply agreement with TENEX⁵⁸ and with LEU it has in inventory.⁵⁹

U.S. importers

The Commission issued U.S. importer questionnaires to six firms believed to be importers of LEU, as well as to all U.S. producers of LEU. Usable questionnaire responses were received from three firms, Areva, Urenco, and USEC. Areva, which accounted for 100 percent

⁵⁵ ***; <http://www.urencoco.com/page/33/URENCO-USA.aspx>. retrieved on August 1, 2013; For more information regarding LES’s facility see Part III, “Developments in the Industry.”

⁵⁶ For more information regarding USEC’s ACP see Part III, “*Developments in the Industry*.”

⁵⁷ Areva argues that because USEC has ceased U.S. production of LEU and it is speculative when or even if it will recommence U.S. production with ACP, USEC should not be considered a U.S. producer of the domestic like product. Areva maintains that LES is the only current U.S. producer of LEU and it alone should be considered the U.S. domestic industry. Areva’s prehearing brief, pp. 8-31; Areva’s posthearing brief, pp. 2-9.

USEC argues that it should be included in the U.S. industry because it did produce LEU during the period of review (**% percent of total U.S. production of LEU in 2012) and continues to engage in sufficient production related activities to be deemed a domestic producer under the six factors generally considered by the Commission. See *Sebacic Acid from China*, Inv. No. 731-TA-653 (Second Review), USITC Publication No. 3775 (May 2005). USEC’s prehearing brief, pp. 26-34 and USEC’s posthearing brief, pp. 8-9 and exh. 5 (analysis under the six-factor test).

⁵⁸ The “transitional supply contract” with TENEX is a distinct private supply contract with TENEX and not related to the “HEU Agreement” with Russia, which was a government-to-government agreement. For more information, see Part III, “The U.S.-Russia transitional supply contract.”

⁵⁹ ***; USEC, SEC Form 10-Q, June 30, 2013, p. 61.

of total U.S. imports from France during the period of review, is currently the only importer of LEU from France. Areva is a wholly owned subsidiary of the Areva Group S.A. of Courbevoie, France, which is also the majority owner of the only French producer of LEU, Eurodif.⁶⁰ ***, Areva reported *** during the period of review. Urenco, an affiliate of LES, reported **. USEC reported **. Table I-6 lists all responding U.S. importers of LEU from France and other sources, their locations, and their shares of U.S. imports in 2012.

Table I-6
LEU: U.S. importers, source(s) of imports, U.S. headquarters, U.S. imports, and shares of imports in 2012

Firm	Location(s)	U.S. imports (1,000 SWU)			Share of imports (percent)		
		France	All other	Total	France	All other	Total
Areva	Charlotte, NC	***	***	***	***	***	***
Urenco	Buckinghamshire, UK Eunice, NM	***	***	***	***	***	***
USEC	Bethesda, MD	***	***	***	***	***	***
Total		***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. purchasers

In response to purchaser questionnaires issued by the Commission to 25 firms, 20 purchasers supplied usable data, accounting for 79.3 percent of the total U.S. consumption of LEU in 2012. Eighteen purchasers described themselves as electric utilities, one purchaser described itself as a merchant utility, and one purchaser described itself as a generating company. The majority of purchasers were located either in the Midwest or in the South, with the remainder in the West or the Northeast.

APPARENT U.S. CONSUMPTION

Data concerning apparent U.S. consumption of LEU during the period of review in are shown in table I-7. From 2007 to 2012, the quantity of apparent U.S. consumption of LEU increased by ** percent and was ** percent higher in January-March 2013 than in January-March 2012. From 2007 to 2012, the value of apparent U.S. consumption decreased by ** percent but was ** percent higher in January-March 2013 than in January-March 2012. Apparent U.S. consumption of LEU in 2012 was equivalent to ** percent of reported U.S. capacity.

⁶⁰ For purposes of clarity and consistency, this report will use “Eurodif” to refer to the sole producer of LEU in France and “Areva” to refer to its affiliates’ U.S. importing activities.

Table I-7**LEU: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, 2010-12, January-March 2012, and January-March 2013**

Item	Calendar year						January-March	
	2007	2008	2009	2010	2011	2012	2012	2013
	Quantity (1,000 SWU)							
U.S. producers' U.S. shipments	***	***	***	***	***	***	***	***
U.S. imports from--								
France	***	***	***	***	***	***	***	***
Russia	3,855	3,565	3,640	4,367	3,904	3,625	205	219
Other sources	6,096	7,643	6,324	7,192	6,618	6,549	1,417	1,365
Total imports	***	***	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***	***	***
	Quantity (1,000 kgs of enriched U)							
U.S. producers' U.S. shipments	***	***	***	***	***	***	***	***
U.S. imports from--								
France	***	***	***	***	***	***	***	***
Russia	950	879	897	1,076	962	893	51	54
Other sources	1,503	1,884	1,559	1,773	1,631	1,614	349	337
Total imports	***	***	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***	***	***
	Value (\$1,000)							
U.S. producers' U.S. shipments	***	***	***	***	***	***	***	***
U.S. imports from--								
France	***	***	***	***	***	***	***	***
Russia	909,877	835,252	855,824	1,049,038	949,837	854,372	81,145	49,221
Other sources	2,868,334	2,911,287	2,514,103	2,676,705	2,501,228	2,554,132	583,204	516,582
Total imports	***	***	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***	***	***

U.S. MARKET SHARES

U.S. market share data are presented in table I-8. From 2007 to 2012, U.S. producers' market share fluctuated but ended the period higher by *** percentage points based on quantity and *** percentage points based on value. U.S. producers' market share in January-March 2013 was *** percentage points higher than in January-March 2012 based on quantity and *** percentage points higher based on value. Market share of U.S. imports from France decreased by *** percentage points from 2007 to 2012 based on quantity and *** percentage points based on value. After 2007, market share of U.S. imports from France decreased to *** as in-scope U.S. imports from France ***. Market share of U.S. imports from Russia fluctuated but ended the period *** percentage points lower based on quantity and *** percentage points lower based on value. Market share of U.S. imports from Russia in January-March 2013 was *** percentage points lower than in January-March 2012 based on quantity and *** percentage points lower based on value. U.S. imports from nonsubject countries other than Russia also fluctuated between 2007 and 2012, ending the period *** percentage points higher based on quantity and *** percentage points lower based on value. Market share of U.S.

imports from nonsubject countries other than Russia in January-March 2013 was *** percentage points lower than in January-March 2012 based on quantity and *** percentage points lower based on value.

Table I-8

LEU: U.S. consumption and market shares, 2010-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from Official statistics of the Department of Commerce and data submitted in response to Commission questionnaires.

PART II: CONDITIONS OF COMPETITION IN THE U.S. MARKET

U.S. MARKET CHARACTERISTICS

Uranium is consumed commercially in the United States and throughout the world primarily in its low-enriched state as a fuel for nuclear reactors producing electricity. LEU is a fungible commodity product; LEU produced by one enricher is highly interchangeable with LEU produced by other enrichers. The production of LEU is one of several stages in the nuclear fuel cycle. During the nuclear fuel cycle, U.S. electric utilities typically purchase uranium concentrates and then contract with converters and enrichers to produce natural UF₆ and LEU, respectively. Electric utilities then contract with fuel fabricators to convert LEU to uranium oxide which is formed into small ceramic pellets and loaded into metal tubes that are bundled in fuel assemblies and then shipped to electric utilities' power plants.

Electric utilities purchase LEU from enrichers by two types of transactions: a "SWU" transaction" or an "Enriched Uranium Product" ("EUP") transaction. In a SWU transaction (the most common transaction), the electric utility owns and supplies the raw material input to a uranium enricher and pays for the conversion and enrichment.¹ In a EUP transaction, the electric utility purchases the LEU outright from the enricher, paying for both the SWU and the raw material input to produce the LEU. LEU is purchased typically through long-term enrichment contracts, but it is also purchased through EUP contracts, or less commonly, on the spot market.

Although the LEU fuel cycle remains the dominant process by which electric utilities obtain LEU, a significant alternative supply is LEU produced directly by blending down HEU, which in the U.S. market, is supplied by USEC pursuant to the HEU Agreement with Russia.^{2 3} The contract under the HEU Agreement will conclude by the end of 2013. Purchases under HEU Agreement constitute approximately one-half of USEC's current supply mix. Following completion of the contract under the agreement, USEC expects to have purchased a total of 92 million SWUs contained in LEU derived from 500 metric tons of highly enriched uranium, the equivalent of about 20,000 nuclear warheads. USEC sells only the SWU component of the LEU it imports through the HEU Agreement.^{4 5}

¹ In a SWU transaction, the enricher never takes title to either the raw material input (uranium concentrates and natural UF₆) or the resulting LEU.

² Under the agreement, USEC has been designated by the U.S. government to order LEU derived from dismantled Soviet nuclear weapons. In January 1994, USEC signed the HEU Agreement with a Russian government entity known as OAO Techsnabexport ("TENEX"), to implement the program.

³ For more information on the HEU Agreement, see *Part III, "The U.S.-Russia HEU Agreement (Megatons to Megawatts Program)."*

⁴ USEC pays TENEX for the enrichment component of the Russian LEU and transfers natural UF₆ from its inventory to TENEX for the natural feed component of the Russian product.

⁵ After the contract under this agreement is completed by the end of 2013, ***.

Two U.S. producers, USEC and LES, accounted for 100 percent of U.S. production of LEU during the period of review. In May 2013, USEC ceased production of LEU at the Paducah Gaseous Diffusion Plant (GDP) and is pursuing the American Centrifuge project (ACP).⁶ Until commercial production commences at its ACP, USEC will fulfill its obligations with customers through the utilization of its large inventories of domestically produced LEU and imported Russian LEU purchases. LES was issued a license by the NRC in 2006 and began construction of a new LEU enrichment facility in New Mexico. LES began commercial production of LEU in June 2010.

The 2011 accident at Japan's Fukushima Daiichi nuclear power station had a profound impact on nuclear power operations worldwide. A tsunami resulting from a major earthquake in March 2011 caused irreparable damage to four reactors in Japan and subsequently resulted in more than 50 reactors in Japan and Germany being off-line at the start of 2013. In the aftermath of the Fukushima accident, a few countries, including Belgium, Germany and Switzerland, indicated that they do not plan on further nuclear expansion.

These shutdowns have significantly affected the global supply and demand for LEU. However, in the United States, demand for nuclear energy is anticipated to grow. Nuclear electric utilities operate in 31 states and provide 20 percent of the electricity produced in the United States. These nuclear energy facilities generate nearly two-thirds of the electricity that comes from carbon-free sources.⁷ There are currently 104 licensed-to-operate nuclear power plants in the United States. Additionally, there are five nuclear plants currently under construction with another eleven plants in the planning stages, which are anticipated to be operational in less than 10 years.⁸

CHANNELS OF DISTRIBUTION

The vast majority of LEU is sold under enrichment contracts to electric utilities. U.S. producers reported that they sold ***. ***.⁹

⁶ In 2007, the U.S. Nuclear Regulatory Commission ("NRC") issued a license to construct and operate the ACP. USEC has completed construction of the demonstration cascade support system and will continue system testing in preparation for the formal integrated systems testing required. USEC still needs to secure the necessary funding in order to deploy the full scale commercial plant. See *Part III* of this report for more information.

⁷ "Nuclear Energy Industry Confident It Is Well Positioned to Expand as Economy Rebounds," *Nuclear Energy Institute*, May 14, 2013.

⁸ "Global Nuclear Power Development: Major Expansion Continues." *Nuclear Energy Institute*, July 2012.

⁹ ***.

GEOGRAPHIC DISTRIBUTION

Both U.S. producers and importer Areva reported selling LEU to all regions in the contiguous United States. For U.S. producers, *** percent of sales were within 100 miles of their production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Areva reported that it sold *** percent *** miles of its U.S. distribution facilities.

SUPPLY AND DEMAND CONSIDERATIONS

Both supply of and demand for LEU are frequently measured by the weight of uranium and the number of SWUs for enrichment. Future supply and demand measures are difficult to estimate. Long supply lead times, long-term purchase contracts, large inventories, and purchases of EUP have complicated efforts to estimate supply and demand. In addition, electric utilities' refueling cycles are generally 18 or 24 months in length, so annual data may show fluctuations, depending on when deliveries are scheduled during these refueling cycles.

U.S. supply

Domestic production

In May 2013, after this period of review, USEC closed its Paducah Gaseous Diffusion plant and is not currently producing LEU. USEC is in the process of constructing a new enrichment facility using new technology and it projects that commercial production from this new facility could commence as early as mid-2016.¹⁰ Therefore, the estimated domestic supply responsiveness to changes in demand is based primarily on the remaining U.S. producer, LES, as well as USEC's *** inventories.¹¹ Based on available information, the current U.S. producer of LEU has the ability to respond to changes in demand with small-to-moderate changes in the quantity of shipments of U.S.-produced LEU to the U.S. market. The main contributing factors to the small-to-moderate degree of responsiveness of supply are the lack of unused capacity, limited export shipments, and no production alternatives; supply responsiveness is somewhat increased by the high levels of inventories.

Industry capacity

LES reported that its capacity has steadily grown since it began production in 2010, increasing from *** SWU in 2010 to *** SWU in 2012.¹² LES's reported domestic capacity utilization *** percent during the period of review. This level of capacity utilization suggests

¹⁰ See *Part III* of this report for detailed information on USEC's changes in its operations.

¹¹ LES accounted for *** of U.S. production in 2012.

¹² LES reported that ***.

that the U.S. producer has little capacity to increase production of LEU in the short-term run in response to an increase in prices.

Alternative markets

LES reported that *** during the period of review. This level of exports indicates that LES has little ability to shift shipments between the U.S. market and other markets in response to price changes. Both U.S. producers reported that the ability to export is highly dependent on the existence of appropriate nuclear cooperation agreements. They also noted that sales to the former Soviet Union, including Russia and Ukraine, remain closed markets to non-Russian producers. *** reported that the EU imposes limits on imports of foreign-produced LEU. *** reported that Japan, a major U.S. export market, has restarted only 2 of its 56 nuclear reactors since the March 2011 tsunami that destroyed the Fukushima Daiichi nuclear power station.

Inventory levels

LES's inventories, as a share of total deliveries, was *** percent in 2012, and was *** percent in the January-March 2012 interim period and *** percent in the 2013 interim period.¹³ USEC's inventories, as a share of total deliveries, fluctuated from *** percent in 2007 to *** percent in 2012. *** U.S. producers' inventories were *** percent higher in January-March 2013 than in January-March 2012.¹⁴ These inventory levels suggest that U.S. producers may have some ability to respond to changes in demand with changes in the quantity shipped from inventories.¹⁵

Production alternatives

***.

Changes in supply

USEC's Paducah GDP shut down in May 2013. USEC reported that the plant produced LEU using the gaseous diffusion process which uses significant amounts of electric power to enrich uranium. ***.

In 2010, LES began enrichment operations in New Mexico using European centrifuge technology. ***. Offsetting the fall in supply resulting from USEC's closure of the Paducah GDP, LES reported that it is expanding its capacity to *** SWUs per year.

USEC is currently in the midst of its research, development and demonstration ("RD&D") program for the ACP and it projects that commercial production of LEU from its ACP facility

¹³ ***.

¹⁴ ***. ***. USEC's posthearing brief, exhibit 15.

¹⁵ U.S. producers' inventories increased by *** percent between the January-March 2012-13 interim periods.

could commence as early as mid-2016.¹⁶ In addition to the ACP, there are two more proposed enrichment plants. Areva has proposed to build a 3 million SWU enrichment facility, the Eagle Rock Centrifuge plant, in Idaho. In October 2011, the NRC issued the license to construct and operate the Eagle Rock Enrichment Facility. However, Areva has placed that plan on hold due to financing issues. In September 2012, General Electric-Hitachi Global Laser Enrichment Project (GLE) received its license to construct and operate an enrichment plant in North Carolina. GLE has reported plans to deploy a commercial enrichment facility in the near future.

The majority of purchasers (17 of 20) reported factors that have affected supply since 2007. The majority of purchasers identified USEC's closure of the Paducah GDP due to technology changes and the new enrichment capacity using centrifuge-based technology in New Mexico. Utilities also reported that the delayed completion of several facilities including the American Centrifuge Program, the Areva Eagle Rock centrifuge plant, and the GE Laser Enrichment facility have affected anticipated supply levels. *** reported "Fukushima impacts have left the market with substantial surpluses of enrichment supply and capacity. Extra capacity is reported to be used to underfeed¹⁷ and provide further supply into uranium/conversion market. Excess SWU supply has depressed the market conditions and thus the potential new enrichment plant projects have lost the incentive or business case to continue those projects. Therefore, previously expected new supply coming on line may not become reality." *** reported that prices of LEU have lowered dramatically in the last several months due to cheap natural gas prices and the lingering effects of Fukushima.

Subject imports from France

The Commission received one questionnaire response from French producer of LEU, Eurodif.^{18 19} Based on available information, Eurodif is likely to respond to changes in demand

¹⁶ See Part III of this report for detailed information on USEC's ACP facility.

¹⁷ The utilities which buy uranium from the mines need a fixed quantity of enriched uranium in order to fabricate the fuel to be loaded into their reactors. The quantity of uranium they must supply to the enrichment company is determined by the enrichment level required (product assay) and the tails assay. This is the contracted or transactional tails assay, and determines how much natural uranium must be supplied to create a quantity of Enriched Uranium Product (EUP) - a lower tails assay means that more enrichment services (notably energy) are to be applied. The enricher, however, has some flexibility with respect to the operational tails assay at the plant. If the operational tails assay is lower than the contracted/transactional product, the enricher can set aside some surplus natural uranium, which he is free to sell (either as natural uranium or as EUP) on his own account. This is known as underfeeding. The opposite situation, where the operational tails assay is higher, requires the enricher to supplement the natural uranium supplied by the utility with some of his own - this is called overfeeding. In either case, the enricher will base his decision on his plant economics together with uranium and energy prices. See <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Conversion-Enrichment-and-Fabrication/Uranium-Enrichment/#.UgIKRpLVC9w>, retrieved on August 12, 2013.

¹⁸ The one responding producer accounts for approximately *** percent of total LEU production in France.

with large changes in the quantity of shipments of LEU to the U.S. market. The main contributing factors to the high degree of responsiveness of supply are the availability of unused capacity, large export markets, and moderate inventories.

Industry capacity

Reported capacity *** during at 2007-11 and then *** when it closed the Eurodif Georges Besse I plant in June 2012.²⁰ Eurodif’s reported capacity utilization fluctuated during the period, increasing from *** percent in 2007 to *** percent in 2010 and then decreased irregularly to *** percent in 2011 and *** percent in 2012.

Alternative markets

Eurodif reported that approximately half of its products were shipped to ***²¹ during 2007-10; however, in 2011-12, Eurodif exported *** LEU under enrichment contracts to *** (figure II-1). Eurodif exported ***. Eurodif reported that it has *** in recent years. It reported that its three main export markets were ***.²²

Figure II-1

LEU: Shares of total deliveries of LEU by French producer Eurodif, by destination, 2007-12

* * * * *

Inventory levels

Eurodif’s inventories, relative to total deliveries, fluctuated during the period between *** percent in 2012 and *** percent in 2010.

Production alternatives

Eurodif reported that it *** on the same equipment and machinery used to produce LEU.

(...continued)

¹⁹ For purposes of clarity and consistency, this report will use “Eurodif” to refer to the sole producer of LEU in France and “Areva” to refer to its affiliates U.S. importing activities.

²⁰ Eurodif is replacing the Georges Besse I plant, a gaseous diffusion plant, with centrifuge technology used by the Georges Besse II plant that uses 50 times less electricity. The Georges Besse II plant is expected to reach its full capacity of *** SWUs by 2016. See *Part IV* of this report for detailed information on Eurodif’s changes in its operations.

²¹ In 2011, 77 percent of France’s energy portfolio came from nuclear power. Global Nuclear Power Development: Major Expansion Continues,” *Nuclear Energy Institute*, July 2012.

²² Eurodif reported ***. Areva’s posthearing brief, p. 28.

Nonsubject imports

Russia is the principal source of U.S. imports of LEU, followed by the United Kingdom, the Netherlands, and Germany (table II-1). According to EIA, 79.1 percent of enrichment services purchased by U.S. nuclear power reactors were from nonsubject countries.

Table II-1

Purchases of enrichment services by U.S. civilian nuclear power reactors by country of origin, 2007-12

Country of Enrichment Service (SWU-origin)	Year					
	2007	2008	2009	2010	2011	2012
	<i>In thousands of SWUs</i>					
China	0	0	0	0	(³)	(³)
France	613	556	895	(³)	(³)	0
Germany	681	468	1,059	681	1,539	1,075
Netherlands	1,703	1,038	1,345	2,292	1,506	1,496
Russia	6,176	4,793	5,478	5,055	5,308	6,560
United Kingdom	1,939	2,195	2,940	2,119	2,813	2,648
Europe ¹	(³)	(³)	(³)	(³)	670	(³)
Other ²	(³)	(³)	(³)	(³)	0	(³)
Foreign Total	12,729	10,709	13,115	11,526	12,395	12,330
United States	1,473	1,890	4,102	2,251	2,434	3,261
Total	14,202	12,599	17,217	13,776	14,829	15,590

¹ Specific country in Europe was not reported.

² Specific country was not reported.

³ Data withheld to avoid disclosure of individual company data.

Notes: Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2008-2012).

Both USEC and LES ***. ***. USEC reported that its purchases under the HEU Agreement constitute ***.²³ Once the contract under this agreement ends at the end of 2013, ***. ***.²⁴ ***.²⁵ ***.

***. *** reported an expansion of Chinese and European capacity since 2007. It also reported that since the accident at Fukushima, surpluses of LEU have risen. Total imports from nonsubject countries increased 2.2 percent from 10.0 million SWUs in 2007 to 10.2 million SWUs in 2012.

²³ ***.

²⁴ ***.

²⁵ Under the transitional supply contract, ***.

U.S. demand

Based on available information, the overall demand for LEU is likely to experience small-to-moderate changes in response to changes in price. The main contributing factor is the lack of commercially viable substitutes for LEU for nuclear power plants.

Demand characteristics

U.S. electric utilities typically obtain LEU through long-term contracts for enrichment, but they also may purchase LEU in the spot market and buy EUP. Electric utilities' annual reload requirements, expressed as the quantity of uranium and as the number of SWU required, are widely used measures of the demand for LEU. Purchases of uranium and enrichment services by owners and operators of U.S. nuclear plants, as reported by the EIA, fluctuated over the 2007-12 period, as shown in table II-2.

Table II-2

EIA: Purchases of uranium and enrichment services by owners and operators of U.S. nuclear power plants, 2007-2012

Item	Delivery year					
	2007	2008	2009	2010	2011	2012
Purchases of uranium (in million pounds U ₃ O ₈ equivalent)	50.983	53.353	49.83	46.582	54.831	57.52
Purchases of enrichment services (in thousands of SWUs)	14,202	12,599	17,217	13,776	14,829	15,590
Purchases of U.S. enrichment services (percent)	10.4	15.0	23.8	16.3	16.4	20.9
Purchases of foreign enrichment services (percent)	89.6	85.0	76.2	83.7	83.6	79.1

Source: 2012 Uranium Marketing Annual Report, EIA, published May 16, 2013.

Business cycles

One of two U.S. producers, 2 of 3 importers, and 8 of 20 purchasers indicated that the market was subject to distinctive business cycles or conditions of competition. Specifically, firms reported several factors that made the LEU market distinctive which included the relatively concentrated commercial market (5 major suppliers worldwide) and the significant importance of securing a diverse supply; the capital intensity of the enrichment business, with very high entry costs; LEU producers are either government-owned or closely allied with governments; and the highly regulated nature of the industry due to safety and proliferation concerns.²⁶ *** reported that because enrichers and utilities are focused on securing long-

²⁶ A country's decision to include nuclear energy in its portfolio can be more complex than other energy sectors because nuclear requires a regulatory and industry infrastructure to ensure safety, ongoing access to global nuclear trade through treaties and cooperation agreements, significant capital
(continued...)

terms contracts, a lost sale has long-term impact several years into the future. It reported that demand is affected by electricity markets, reactor operations, maintenance, and the timing for utilities' refueling outages. *** also noted that the components of nuclear fuel are generally contracted and purchased by utilities separately. *** also stated that the industry has been heavily influenced by the privatization of government entities and international agreements, such as the privatization of USEC and HEU Agreement, which have resulted in significant inventory liquidation.

One producer, 2 importers, and 6 purchasers indicated that there have been changes in the business cycle or conditions of competition for LEU since 2007. Specifically, firms reported that the nuclear reactor shutdowns after the Fukushima incident in 2011 have created an oversupply of LEU in the market. *** also reported that in the face of decreased demand, the gas centrifuge enrichers may underfeed in order to utilize enrichment capacity in the oversaturated market.

Electric utilities' reload cycles are generally anywhere between 18 to 24 months in length. Each reload typically refuels between one-quarter and one-half of the fuel assemblies and generally takes 20 to 40 days to complete. Because of varying reload schedules, the total amount of annual LEU deliveries varies from year to year based on utilities' refueling schedules.

Apparent consumption

Apparent U.S. consumption of LEU fluctuated during 2007-12. Overall, apparent U.S. consumption in 2012 was *** percent higher than in 2007.

Demand trends

Perceptions on demand trends for LEU varied greatly by responding firms (table II-3). *** reported that demand has increased due to electric utilities' load factors and uprates.²⁷ USEC stated that demand increased by possibly as much as 20 percent by uprates of existing reactors over the last ten years. However, recently many of these uprates that had been ordered have now been deferred because of the falling price of electricity which does not justify the additional capital to fund those uprates.²⁸ *** reported that demand for LEU has been stable over the past few years, averaging 15 million SWUs per year. Eight of 18 responding

(...continued)

for new plant construction, and public support for peaceful use of the technology. "Global Nuclear Power Development: Major Expansion Continues," *Nuclear Energy Institute*, July 2012.

²⁷ When the U.S. Nuclear Regulatory Commission ("NRC") issues a license for a commercial nuclear power plant, the agency sets limits on the maximum heat output, or power level, for the reactor core. Utilities have used power uprates since the 1970s as a way to generate more electricity from their nuclear plants. As of April 2011, the NRC has approved 139 uprates, resulting in a gain of approximately 18,063 MWt (megawatts thermal) or 6,020 MWe (megawatts electric) at existing plants. Collectively, these uprates have added generating capacity at existing plants that is equivalent to about six new reactors. See <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/power-uprates.html>, retrieved on August 12, 2013.

²⁸ Hearing transcript, p. 85 (Donelson).

purchasers reported that demand has decreased since 2007. Several purchasers noted the shutdown of several U.S. power plants including Kewanee, Crystal River, and SONGS; the delayed construction of planned upgrades; and the effect of the Fukushima accident. Purchaser *** noted that plants have made tails assay adjustments which have decreased overall demand. Five purchasers reported that demand fluctuated reflecting the shutdown of several power plants as well as the new construction and increased plant capacity. Purchaser *** reported that “U.S. utility purchases of SWU for LEU during 2007-12 have varied between approximately 14 million and 17 million SWU per year. Although demand is basically flat in this period, there has been a slight increase due to reactor power uprates in the United States. The annual fluctuations noted above are due to the variability in reactor refueling schedules.”

Table II-3

LEU: Firms’ perceptions regarding U.S. demand, by number of responding firms

Item	Increase	Decrease	Fluctuate	No change
Demand in the United States				
U.S. producers	***	***	***	***
Importers	***	***	***	***
Purchasers	1	8	5	4
Foreign producers	***	***	***	***
Anticipated future demand				
U.S. producers	***	***	***	***
Importers	***	***	***	***
Purchasers	3	4	0	8
Foreign producers	***	***	***	***
Demand for purchasers’ final LEUs since 2007				
Purchasers	3	0	5	10

Source: Compiled from data submitted in response to Commission questionnaires.

The majority of purchasers anticipate that a few more aging power plants will be shut down but that these closures will be offset by new build activities. *** also anticipates decreased demand for LEU due to reactor closures and an end to power uprates. *** reported that while U.S. enrichment requirements are expected to grow to 17 million SWUs by 2030, the abundance of cheap shale gas poses the biggest challenge to nuclear power plants. Additionally, it reported that some reactors may close earlier than expected if they need expensive retrofits to respond to concerns following the Fukushima accident.

The majority of utilities (13 of 17) reported that fluctuations in the demand for electricity have very little effect on their firms’ demand for LEU. Three utilities reported that their power plants produce “base load” power which means that they run continuously regardless of the overall demand for electricity.

Contracts

A majority of electric utilities’ purchases of LEU are based on long-term contracts (table II-4). Long-term contracts provide for a secure future supply of LEU and reflect the need to

accommodate long lead times in the fuel cycle and a concern to maintain reactor operations. Utilities typically sign long-term contracts to purchase enrichment services years in advance before the material is needed. The average delay between signature and delivery of LEU ranged from two to seven years.²⁹ Purchasers reported similar proportions of spot purchases and long-term contracts for LEU produced domestically as well as imported LEU.

Table II-4

LEU: Purchases of LEU, by category of enrichment purchase agreement, January 2007-June 2013

Category of enrichment purchase agreement	Purchases on an enrichment basis		Purchases of EUP	
	in SWUS	As percent of total purchases	in SWUS	As percent of total purchases
Spot purchases	2,495,782	3.4	901,505	34.2
Long-term contract purchases	68,916,781	93.7	1,731,640	65.8
Other types of purchases	2,143,857	2.9	0	0.0
Total	73,556,420	100.0	2,633,145	100.0

Source: Compiled from data submitted in response to Commission questionnaires.

Electric utility procurement strategies and contracting practices give rise to a future demand indicator known as “uncommitted demand.” The proportion of a utility’s future reactor requirements represented by the minimum deliveries which it has to take according to its contracts, plus any material which it plans to use from its inventory, is referred to as its committed demand. The remainder of the requirements forms the uncommitted demand, which approaches zero in the very short term and becomes progressively higher looking several years into the future. As shown in table II-5, purchasers reported their anticipated total purchases of LEU over the next 10 years, and included the total quantity of LEU that is filled by existing contracts (or committed demand) and the quantity that is open origin (or where the contract does not require LEU of a particular origin to be supplied). According to USEC, the shutdowns resulting from the Fukushima accident have led to an oversupply of available nuclear fuel for sale. This has resulted in significant downward pressure on market prices for LEU. USEC sees limited uncommitted demand for LEU prior to the end of the 2020, and therefore, fewer opportunities to make additional sales for delivery during that period.

²⁹ USEC’s posthearing brief, exhibit 12; and Areva’s posthearing brief, p. 58.

Table II-5

LEU: Annual expected demand, committed demand, and demand that is open origin, in kgs of U, 2013-22

Period of delivery	Total expected demand for LEU	Total quantity of expected demand that is committed		Total quantity of committed demand that is of open origin	
	<i>in kgs of enriched U</i>	<i>in kgs of enriched U</i>	<i>as percent of total expected demand</i>	<i>in kgs of enriched U</i>	<i>as percent of LEU currently committed</i>
2013	3,398,033	3,375,826	99.3	698,755	20.7
2014	3,999,927	3,963,001	99.1	1,319,264	33.3
2015	3,737,064	3,858,144	103.2	1,442,892	37.4
2016	3,789,013	3,742,496	98.8	1,421,472	38.0
2017	3,521,769	3,662,005	104.0	1,494,575	40.8
2018	4,205,635	3,787,443	90.1	1,489,251	39.3
2019	4,331,836	3,768,430	87.0	1,757,917	46.6
2020	4,136,113	2,858,896	69.1	1,759,211	61.5
2021	4,028,119	3,176,061	78.8	2,085,599	65.7
2022	4,335,045	2,541,981	58.6	1,626,040	64.0

Source: Compiled from data submitted in to response to Commission questionnaires.

Several purchasers noted that they have entered into supply contracts for LEU produced at enrichment facilities that have not been constructed, including USEC’s ACP and Areva’s Eagle Rock facility. Because diversity of supply is a primary concern for purchasers, many utilities elect to support enrichment facility projects through these contracts.³⁰ According to USEC, these contracts vary between firm commitments or as options to purchase if the project succeeds. USEC reported that it secured contracts with *** during 2008-11 to support financing of the ACP.³¹ The total annual quantities covered in these *** contracts are presented in the tabulation below.

* * * * *

Substitute products

Currently, there are effectively no substitutes for LEU as a final enriched product. One proposed substitute in making fuel for power plants is mixed oxide fuel (MOX), which contains plutonium oxide and depleted or natural uranium. Firms reported that MOX is not commercially available for nuclear reactors in the United States. *** reported that there are very serious technical, legal, and political barriers to the use of MOX; therefore, the industry’s interest in substituting LEU for MOX is limited.

³⁰ USEC reported that ***. USEC’s posthearing brief, exhibit 14.

³¹ ***. USEC’s posthearing brief, exhibits 2 and 12.

Demand outside the United States

There are 30 countries with existing nuclear programs; thirteen of these countries rely on nuclear power for over one-quarter of their electricity generation. In rapidly developing countries such as China and India, governments are planning a significant role for new nuclear power plants to keep up with the increased demand for electricity resulting from economic growth.³²

The majority of firms reported that global demand for LEU was relatively stable until the Fukushima incident in March 2011. Since then, demand has decreased due to reactor shutdowns in some countries including Japan and Germany. However, firms anticipate that demand will increase in the near future. A majority of firms anticipate that most of the demand increase will occur in Asia, and specifically in China and India.^{33 34} USEC also reported that South Korea is a large market with 23 nuclear reactors and additional 7 or 8 units under construction.³⁵ Additionally, firms reported that Japanese reactors are expected to return online.³⁶ *** reported that global requirements are expected to grow by approximately 60 percent between 2012 and 2030, according to the World Nuclear Association. This increase in demand will take place even with the expected declines in reactor requirements in countries such as Japan, Germany, Belgium, and Switzerland.

Eurodif reported that it has several large contracts with non-U.S. customers with committed deliveries through 2025. According to Eurodif, these contracts represent approximately 80 percent of its current and future capacity. Eurodif reported that it has signed contracts with ***. Additionally, Eurodif stated that it is developing new customers in emerging markets including ***. Eurodif reported that ***.³⁷

SUBSTITUTABILITY ISSUES

The degree of substitution between domestic and imported LEU depends upon such factors as relative prices, quality (e.g., grade standards, reliability of supply, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, payment terms, etc.). Based on available data, staff believes that there is a high degree of

³² Global Nuclear Power Development: Major Expansion Continues, "Nuclear Energy Institute, July 2012.

³³ According to Areva, China expects to have reached 59 nuclear reactor units by 2020 and 128 units by 2030. Areva's posthearing brief, p.60.

³⁴ According to USEC, China has planned significant growth and is expected to be the largest market by 2030. Hearing transcript, p. 86 (Donelson).

³⁵ Hearing transcript, p. 86 (Donelson).

³⁶ USEC reported that according to WNA's forecast, 60 percent of Japan's nuclear capacity (30 out of 50 reactors) will return to service by 2020. USEC believes that 6 reactors will be online by March 2014 and another 8 reactors will restart by then end of 2014. USEC's posthearing brief, exhibit 23.

³⁷ Areva's posthearing brief, pp. 28-29.

substitutability between LEU produced in the United States and France and between domestically produced LEU and that which is produced in nonsubject countries.

Lead times

LEU is primarily sold from inventory. U.S. producers reported that 100 percent of their commercial shipments were sold from inventory, with lead times averaging 180 days.

Knowledge of country sources

This section is based primarily on the responses of 20 purchasers that accounted for 77.4 percent of the total U.S. consumption of LEU in 2012. Eighteen purchasers described themselves as electric utilities, one purchaser (***) described itself as a merchant utility, and one purchaser (***) described itself as a generating company. All twenty purchasers reported that they bought LEU from more than one country since January 2007. Purchasers reported buying LEU, as both enrichment and EUP, from the United States, France, and nonsubject countries as shown in the following tabulation:

Country	Number of purchasers responding	
	Enrichment	EUP
United States	20	4
France	9	1
Russia	10	4
Nonsubject ¹	20	2

¹ Nonsubject countries noted by purchasers included China, Germany, the Netherlands, Russia, and the United Kingdom.

As shown in table II-6, the vast majority of purchasers reported that they sometimes or never make purchasing decisions involving LEU based on the country of origin of the product but, on the whole, they are more likely to make purchasing decisions based on the identity of the producer. The majority of electric utilities reported that it was important to have a diversity of suppliers to minimize potential supply risks. Electric utilities also noted that their customers purchase electricity based on price and do not get involved with the LEU purchasing process.

Table II-6
Purchasing decisions based on producer and country of origin

Purchaser/Customer Decision	Always	Usually	Sometimes	Never
Purchaser makes decision based on producer	5	2	6	5
Purchaser's customers make decision based on producer	0	0	0	10
Purchaser makes decision based on country	3	1	7	7
Purchaser's customers make decision based on country	0	0	0	10

Source: Compiled from data submitted in response to Commission questionnaires.

Factors affecting purchasing decisions

Purchasers were asked to describe their firm’s process of selecting a supplier of LEU and the factors that it considers. Many purchasers reported that they considered price, security of supply, lead times, and a supplier’s performance history. Many purchasers reported that they issue requests for proposals or contact suppliers, use a competitive bid process, and use multiple rounds of negotiations to improve the offers. None of the purchasers reported mentioning competing prices to other suppliers, and none reported that suppliers distribute price lists.³⁸ With regard to the role of published LEU prices,³⁹ purchasers were divided; some reported that published prices were used as a benchmark and others reported that published prices are not very helpful in negotiations.⁴⁰

The most often cited top three factors firms consider in their purchasing decisions for LEU were price (16 firms), reliability of supply (12 firms), diversity of supply (5 firms), and contract terms (5 firms) as shown in table II-7. Price was the most frequently cited first-most important factor (cited by 8 firms), followed by reliability of supply (6 firms); reliability of supply was the most frequently reported second-most important factor (5 firms); and price was the most frequently reported third-most important factor (5 firms).

Table II-7
LEU: Ranking of factors used in purchasing decisions as reported by U.S. purchasers, by number of reporting firms

Factor	First	Second	Third	Total
Price	8	3	5	16
Reliability/security of supply	6	5	1	12
Diversity of supply	2	2	1	5
Contract terms and conditions	0	2	3	5
Other ¹	2	5	7	14

¹ Other factors include credit quality of supplier (1), and availability (1) for the first factor; available quantities (2), supplier’s past performance (1), delivery terms and feed lead times (1), and tails flexibility (1) for the second factor; and availability (2), delivery time (1), flexible quantities (2), and financial stability of supplier for the third factor.

Source: Compiled from data submitted in response to Commission questionnaires.

The majority of purchasers (17 of 20) reported that they always or usually purchase the lowest-priced LEU. Three purchasers reported that they sometimes purchased the lowest-priced LEU. Seven purchasers reported having purchased LEU from one source although a comparable product was available from another source at a lower price. Reasons provided

³⁸ Although one purchaser reported that some suppliers offer a price list for services not included in the base price, such as shipping, packaging, and handling.

³⁹ Purchasers reported that spot and/or long-term prices are published by TradeTech, Ux Weekly, and Nukem.

⁴⁰ Two purchasers reported that published prices were “too thin” to form a dependable basis for negotiation in long-term contracts.

included supply diversity, reliability of supply, to support the construction of a new enrichment facility, lead times for feed material, domestic preferences, and financial stability of supplier.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 19 factors in their purchasing decisions (table II-8). The factors rates as “very important” by more than half of responding purchasers were price (19 firms), reliability of supply (19), availability (15), quality meets industry standards (15), diverse source of supply (12), and product consistency (12).

Table II-8

LEU: Importance of purchase factors, as reported by U.S. purchasers, by number of responding firms

Factor	Very important	Somewhat important	Not important
Availability	15	4	0
Delivery terms (for feed)	8	11	1
Delivery terms (for LEU)	9	11	0
Delivery time	10	7	2
Discounts offered	7	9	3
Diverse source of supply	12	5	3
Escalation provisions	10	9	0
Extension of credit	3	3	13
Minimum quantity requirements	5	11	3
Packaging	2	5	11
Price	19	1	0
Product consistency	12	3	4
Product range	4	13	2
Quality exceeds industry standards	2	8	9
Quality meets industry standards	15	4	1
Reliability of supply	19	1	0
Tails assay option	10	10	0
Technical support/service	3	10	6
U.S. transportation costs	5	9	6

Source: Compiled from data submitted in response to Commission questionnaires.

Supplier certification

The majority of purchasers do not require that their suppliers become qualified or certified. However, four of 19 responding purchasers require that all of the LEU they purchase be certified. Two purchasers reported that while they do not individually certify suppliers, they do ensure that all vendors have been certified by the regulatory bodies (e.g., the NRC for U.S. suppliers). *** reported that “There are only five major enrichers and all are government subsidiaries or are closely associated with the applicable governments. These firms (or their

parent firms) have been doing business for decades and the industry is very familiar with them. Because utilities have been dealing with these firms for decades, vendor qualification is not an issue for existing SWU suppliers. For a new SWU supplier, barriers to entry are significant (e.g., high capital requirements, complex technology, government regulations and security/non-proliferations restrictions). Therefore, due to the long and rigorous project development process for a new supplier, *** will be very familiar with a new supplier (and aware of its risks) before becoming a customer.”

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2007 (table II-9); reasons reported for changes in sourcing included the opening of LES’s U.S. enrichment plant in New Mexico and the open source (either U.S. or Russian origin) of USEC’s contracts. Fifteen of 20 responding purchasers reported that they had changed suppliers since 2007. Specifically, two firms reported replacing USEC with LES based on competitive bid evaluation. *** reported that “USEC was replaced by LES as a supplier when they notified us they might go out of business. All current contracts are long term, 10 or more years.” Six firms added purchases from TENEX from Russia. Two firms reported adding Areva Eagle Rock in 2009-10 to support the building of a new facility in the United States, with its completion date set for 2018; however, construction at Eagle Rock is currently on hold.⁴¹ One firm reported adding China Nuclear Energy Industry Corporation (“CNEIC”) in 2010 based on competitive bidding.

Table II-9

LEU: Changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	0	2	9	3	7
France	10	8	0	0	2
Other	0	4	5	4	7

Source: Compiled from data submitted in response to Commission questionnaires.

Purchasers’ annual LEU deliveries and anticipated deliveries based on contracted-for requirements formulated on reload schedules are shown in table II-10. Twenty of 21 purchasers provided SWU quantities for their annual deliveries of LEU during the POR as well as their anticipated deliveries for years 2014-16. Purchasers did not report deliveries for each consecutive year. Because of varying reload schedules, the total amount of annual deliveries from all sources varies from year to year based on utilities’ refueling schedules, and fluctuation in annual totals should not be interpreted as growth or shrinkage in overall LEU consumption.

⁴¹ One purchaser reported that lead times for enrichment contracts typically range between 4-5 years before the contract start date.

Table II-10

LEU: Annual deliveries and expected deliveries of LEU, by supplier,¹ 2007-16

Year	USEC and LES		Areva		All other suppliers		Total ²
	Quantity	Market share	Quantity	Market share	Quantity	Market share	Quantity
	(1,000s of SWUs)	(percent)	(1,000s of SWUs)	(percent)	(1,000s of SWUs)	(percent)	(1,000s of SWUs)
2007	6,035	54.0	1,941	17.4	3,191	28.6	11,167
2008	4,798	49.9	1,854	19.3	2,967	30.8	9,620
2009	7,897	56.5	2,161	15.4	3,931	28.1	13,988
2010	6,096	58.1	1,505	14.3	2,892	27.6	10,493
2011	8,249	62.0	1,563	11.7	3,501	26.3	13,312
2012	7,769	67.0	1,254	10.8	2,578	22.2	11,601
2013	4,929	58.0	487	5.7	3,080	36.3	8,496
2014	3,614	46.2	873	11.2	3,337	42.7	7,824
2015	4,404	52.8	533	6.4	3,408	40.8	8,345
2016	4,087	51.9	450	5.7	3,345	42.4	7,883

¹ These data reflect deliveries by supplier and do not reflect the country of origin of the LEU delivered.

² The total annual quantities reported by purchasers accounted for approximately 89.6 percent of apparent U.S. consumption.

Source: Compiled from data submitted in response to Commission questionnaires.

Importance of purchasing domestic LEU

Fifteen of 19 purchasers reported that purchasing U.S.-produced LEU was not an important factor in their purchasing decisions. ***. Three purchasers reported other preferences for domestic LEU (averaging approximately 30 to 40 percent of their purchases). Reasons cited for preferring domestic LEU included: reducing supply risks, reducing exchange rate fluctuations, and supply diversification.

Comparisons of domestic LEU, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing LEU produced in the United States, France, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 19 factors (table II-11) for which they were asked to rate the importance. The majority of purchasers reported that domestic and French products were comparable in all categories. The majority of purchasers reported that product from the United States and product produced in nonsubject countries were comparable in all categories.

Table II-11**LEU: Purchasers' comparisons between U.S.-produced and imported LEU**

Factor	U.S. vs. France			U.S. vs. nonsubject			France vs. nonsubject		
	S	C	I	S	C	I	S	C	I
Availability	2	13	0	1	17	0	0	12	2
Delivery terms (for feed)	1	14	1	0	17	1	0	13	1
Delivery terms (for LEU)	0	15	0	0	18	0	0	14	0
Delivery time	0	15	0	0	18	0	0	14	0
Discounts offered	0	14	1	0	17	1	0	13	1
Diverse source of supply	0	15	0	0	16	2	0	11	3
Escalation provisions	1	12	2	0	15	3	0	12	2
Extension of credit	0	14	0	2	15	0	1	11	1
Minimum quantity requirements	0	15	0	0	17	1	0	13	1
Packaging	0	14	1	0	18	0	0	14	0
Price ¹	1	13	1	0	16	2	0	13	1
Product consistency	0	15	0	0	18	0	0	14	0
Product range	1	14	0	1	17	0	1	13	0
Quality exceeds industry standards	0	15	0	0	18	0	0	14	0
Quality meets industry standards	0	15	0	0	18	0	0	14	0
Reliability of supply	2	12	1	1	17	0	1	13	1
Tails assay option	1	11	3	1	14	3	0	13	1
Technical support/service	0	15	0	0	18	0	0	14	0
U.S. transportation costs	1	12	1	2	16	0	0	13	1

¹ A rating of superior means that price/U.S. transportation costs is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. LEU was generally priced lower than the imported LEU.

Note: S=first listed France's LEU is superior; C=both countries' LEUs are comparable; I=first list France's LEU is inferior.

Source: Compiled from data submitted in response to Commission questionnaires.

Comparison of U.S.-produced and imported LEU

In order to determine whether U.S.-produced LEU can generally be used in the same applications as imports from France and nonsubject countries, U.S. producers, importers, and purchasers were asked whether the LEUs can "always," "frequently," "sometimes," or "never" be used interchangeably. As shown in table II-12, the majority of firms reported that LEU from the United States and from other countries is always interchangeable.

Table II-12

LEU: Perceived interchangeability between LEU produced in the United States, France, and nonsubject countries, by country pairs

France pair	Number of U.S. producers reporting				Number of U.S. importers reporting				Number of purchasers reporting			
	A	F	S	N	A	F	S	N	A	F	S	N
U.S. vs. France	***	***	***	***	***	***	***	***	17	0	1	0
U.S. vs. nonsubject countries	***	***	***	***	***	***	***	***	17	2	1	0
France vs. nonsubject countries	***	***	***	***	***	***	***	***	14	0	1	0

Note.—A=Always, F=Frequently, S=Sometimes, N=Never.

Source: Compiled from data submitted in response to Commission questionnaires.

As seen in table II-13, 19 responding purchasers reported that domestically produced LEU “always” met minimum quality specifications. Fifteen responding purchasers reported that the LEU from France “always” met minimum quality specifications.

Table II-13

LEU: Ability to meet minimum quality specifications, by source and number of reporting firms¹

Source	Always	Usually	Sometimes	Rarely or never	No knowledge
United States	19	0	0	0	1
France	15	0	0	0	3
Russia	14	0	0	0	6
Other	14	0	0	0	0

¹ Purchasers were asked how often domestically produced or imported LEU meets minimum quality specifications for their own or their customers’ uses.

Source: Compiled from data submitted in response to Commission questionnaires.

In addition, producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of LEU from the United States, France, and nonsubject countries. As seen in table II-14, the majority of firms reported that differences other than price were “sometimes” or “never” significant factor in their sales of LEU.

Table II-14

LEU: Significance of differences other than price between LEU produced in the United States, France, and nonsubject countries, by country pairs

France pair	Number of U.S. producers reporting				Number of U.S. importers reporting				Number of purchasers reporting				
	A	F	S	N	A	F	S	N	A	F	S	N	
U.S. vs. France	***	***	***	***	***	***	***	***	***	1	1	7	6
U.S. vs. nonsubject countries	***	***	***	***	***	***	***	***	***	1	1	9	7
France vs. nonsubject countries	***	***	***	***	***	***	***	***	***	1	1	7	4

Note.--A = Always, F = Frequently, S = Sometimes, N = Never.

Source: Compiled from data submitted in response to Commission questionnaires.

ELASTICITY ESTIMATES

This section discusses elasticity estimates based on the conditions of competition.

U.S. supply elasticity

The domestic supply elasticity⁴² for LEU measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of LEU. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced LEU. Earlier analysis of these factors indicates that the U.S. industry is likely to be able to somewhat increase or decrease shipments of LEU to the U.S. market; an estimate in the range of 3 to 6 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for LEU measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of LEU. This estimate depends on factors discussed earlier such as the existence, availability, and commercial viability of substitute products. Based on the available information, the aggregate demand for LEU is likely to be inelastic; a range of -0.5 to -1.0 is suggested.

⁴² A supply function is not defined in the case of a non-competitive market.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.⁴³ Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, et cetera) and conditions of sale (e.g., availability, sales terms/ discounts/ promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced LEU and imported LEU is likely to be in the range of 3 to 5.

⁴³ The substitution elasticity measures the responsiveness of the relative U.S. consumption levels of the subject imports and the domestic like products to changes in their relative prices. This reflects how easily purchasers switch from the U.S. product to the subject products (or vice versa) when prices change.

PART III: CONDITION OF THE U.S. INDUSTRY

OVERVIEW

The information in this section of the report was compiled from responses to the Commission's questionnaires. Two firms, USEC and LES, which accounted for 100 percent of U.S. production of LEU during the period of review, supplied information on their operations.

Developments in the industry

Domestic producers were asked to indicate whether their firm had experienced any change in the character of their operations or organization relating to the production of LEU since 2007. Both domestic producers indicated that they had experienced such changes. Developments in the U.S. industry, by firm, are summarized below.

USEC

The gaseous diffusion enrichment plant in Piketon, Ohio

In May 2001, USEC ceased production of LEU at the Piketon, Ohio facility which had commenced enrichment operations in 1954.¹ Under a contract with the DOE, the Piketon gaseous diffusion enrichment plant remained in a state of operational readiness, or "cold standby" from 2001 to 2006. In 2006, the cold standby status of the facility ceased and the facility was decommissioned. In September 2011, USEC's lease expired and transferred ownership of the facility back to DOE.²

The gaseous diffusion enrichment plant in Paducah, Kentucky

USEC reported that LEU production at its Paducah, Kentucky plant ceased on May 31, 2013. The facility began uranium enrichment operations in 1952. USEC stated that a number of operations will still occur on the site until 2014 such as inventory management and meeting the turnover requirements of its lease with DOE.³ The Paducah plant was the last U.S.-owned and operated gaseous diffusion uranium enrichment facility in the United States.

USEC stated in a press release:

"We will continue to meet our customers' orders from our existing inventory, purchases from Russia under the historic Megatons to

¹ The gaseous diffusion enrichment facility in Piketon, Ohio is also called the Portsmouth facility.

² ***; <http://www.usec.com/gaseous-diffusion/portsmouth-gdp/portsmouth-history> retrieved August 1, 2013.

³ GE-Hitachi subsidiary, GLE, is reported to have expressed an interest in a non-binding proposal to the DOE in developing the Paducah, Kentucky nuclear enrichment site using its laser enrichment technology (see *infra*, *General Electric-Hitachi Global Laser Enrichment Project*, in Part III). "Proposal for Paducah Laser Enrichment Plant," World Nuclear News, February 26, 2013.

Megawatts program and our transitional supply contract with Russia that runs through 2022. In addition, our work to commercialize the American Centrifuge technology continues through our research, development and demonstration program with DOE, which remains on schedule and within budget, as we remain on a path to deploy this critical technology.”⁴

Thus, as stated above, after the closure of its last gaseous diffusion facility and until commercial production commences at its American Centrifuge Project, USEC will supply existing customers from inventory,⁵ and U.S. imports from Russia, both from what remains of the HEU agreement and the recently agreed upon transitional supply contract.⁶

The American Centrifuge Project

In October 2001, USEC announced plans to demonstrate and deploy a U.S. enrichment plant that would employ advanced gas centrifuge technology. The plant, known as the ACP, would utilize an upgraded existing DOE technology, which has been available since the 1980s. In June 2002, USEC and the DOE entered into a memorandum of agreement (“MOA”) committing USEC to deploy a 1 million SWU enrichment facility at Paducah, Kentucky, or Piketon, Ohio, which was to be expanded to a 3.5 million SWU facility within two years, with stated time frames to achieve these goals.⁷ In late 2002, USEC selected the Piketon plant as the site for the ACP test facility, and leased what became known as the Centrifuge Technology Center from DOE in Oak Ridge, Tennessee.⁸ USEC applied to the NRC to license the Piketon facility in 2003, and the license was issued in February 2004. In mid-2006, USEC announced that it was delaying the building of its Lead Cascade of centrifuges to allow for additional testing of individual machines at its Oak Ridge facility. At the time, the Lead Cascade consisted of fewer than 20 full-size prototype machines that served as the basic building block of a commercial plant, and were used for testing and demonstration purposes. In October 2006, USEC announced that it was unable to meet the DOE-USEC MOA milestone for satisfactory reliability and performance data from the Lead Cascade, and for a financing commitment secured for a 1 million SWU centrifuge plant in January 2007. In March 2007, DOE accepted USEC’s proposal that these two milestones be rescheduled.

⁴ “USEC to Cease Enrichment at Paducah Plant,” USEC Press Release, May 24, 2013.

⁵ USEC reported that its present inventory levels of U.S.-produced LEU will run out in *** based on its year-by-year analysis. USEC’s posthearing brief, exh. 15.

⁶ ***; USEC, SEC Form 10-Q, June 30, 2013, p. 61.

USEC stated that it presently could restart operations and produce commercial quantities of LEU at the Paducah enrichment facility if conditions changed that made it economically viable. USEC’s posthearing brief, exh. 5, p. 5.

⁷ The 2002 MOA, as amended in 2012, sets forth long term milestones for USEC. The six remaining milestones and required dates of completion are as follows: ***.

⁸ The Centrifuge Technology Center in Oak Ridge, Tennessee is a joint venture between USEC and Babcock & Wilcox where advanced manufacturing equipment is produced and tested to be used in the ACP.

In April 2007, NRC issued a license to USEC to build and operate the ACP in Piketon, Ohio with an initial capacity of 3.8 million SWU. In May 2007, USEC began construction of the plant and began the Lead Cascade testing program in August 2007 to test prototype centrifuge machines in a closed-loop cascade configuration under various operating conditions. In September 2009, USEC reported that it demobilized most construction activities related to ACP due to “project funding uncertainty.” In June 2011, several Lead Cascade machines failed as a result of a power interruption caused by an electrical fault in the Lead Cascade support systems.

On June 12, 2012, USEC and DOE entered into the Research, Development, and Demonstration (“RD&D”) program, which was a cost sharing agreement whereby the DOE agreed to incrementally fund 80 percent and USEC 20 percent of the costs of further developing the demonstration cascade for the ACP project.⁹ RD&D objectives were: (1) to demonstrate the ACP technology by constructing and testing a cascade of centrifuges and (2) to sustain U.S. centrifuge technology and its industrial base for national security reasons.¹⁰ The RD&D listed the milestones necessary for USEC to procure incremental funding from DOE which would cover development costs from June 1, 2012 through December 31, 2013.¹¹ USEC reported that

⁹ With a projected cost of \$350 million, the DOE’s contribution to the RD&D program would be up to \$280 million and USEC’s \$70 million. ***. <http://www.usec.com/news/usec-provides-american-centrifuge-update-0> retrieved on August 1, 2013; USEC’s prehearing brief, pp. 23-26.

¹⁰ See “Preservation of USEC LEU production for reasons of national security” *infra*

¹¹ The RD&D milestones, as listed by USEC, are as follows:

(1) Milestone 1 (Completed): DOE and USEC jointly agreed upon a test program for the remaining milestones and for full system reliability and plant availability that takes into account human factors, upgraded Lower Suspension Drive Assembly (“LSDA”) and overall AC100 reliability, and full cascade separative performance, so as to achieve an overall plant availability and confidence level needed to support commercial plant operations.

(2) Milestone 2 (Completed): Confirmed the reliability of the LSDA by accumulating 20 machine years of operation at target speed using AC100 centrifuges with upgraded LSDAs with no more than the projected number of LSDA failures.

(3) Milestone 3 (Completed): DOE and USEC jointly agreed to revise and further define the test program plan to include agreed parameters and success criteria for tests and such other modifications as the parties agree, such as the inclusion of additional milestones .

(4) Milestone 4 (Completed): Successfully completed “Extended Feed Rate Range Survey, Machine” test.

(5) Milestone 5 (Completed): Successfully complete “Machine Performance Parameter Test” test.

(6) Milestone 6 (Completed): DOE certification pending): Successfully complete “Power Outage Testing, Machine Response” test.

(7) Milestone 7 (by December 31, 2013): Demonstrate AC100 manufacturing quality by operating the commercial demonstration cascade for a minimum of 20 machine years to provide the confidence level needed to support commercial plant operations.

(8) Milestone 8 (by December 31, 2013): Demonstrate AC100 reliability by accumulating 20 machine years at target speed and design condition with no more than the expected number of infant, steady-state and electronic recycles.

(9) Milestone 9 (by December 31, 2013): Demonstrate sustained production from a commercially staged, 120-centrifuge demonstration cascade configuration for 60 days (approximately 20 machine

(continued...)

the RD&D program with its nine total milestones is on schedule and within budget. Only three milestones remain, which USEC projects will be completed by December 31, 2013.¹² One of the milestones of the RD&D program was for USEC to construct the Demonstration Cascade, a cascade¹³ of 120 centrifuges capable of commercial production by December 31, 2013.¹⁴ USEC reported that as of July 1, 2013, it had completed construction and installation of all 120 centrifuges into the Demonstration Cascade and that the testing of the cascade is ongoing.¹⁵

On July 29, 2013, USEC announced that it reached the sixth RD&D milestone and that it and DOE signed an amendment to the RD&D agreement that would provide an additional \$29.9 million in government cost-sharing, bringing total DOE funding to \$227.7 million, sufficient to fund the program through September 30, 2013.¹⁶

USEC reported that after the completion of the RD&D program, additional financing and capital investment in the amount of \$4 billion must be secured before construction of the facility capable of commercial production could be completed.^{17 18} As of June 2013, USEC reported that it had invested approximately \$2.5 billion in ACP, including plant manufacturing, machine research & development, and machine production.¹⁹ USEC projected that commercial production of LEU from ACP could commence as early as mid-2016.²⁰

The following tabulation provides a timeline of the progress of USEC's ACP.

(...continued)

years) in cascade recycle mode with production availability needed during commercial plant operations using an average AC100 centrifuge production of 340 SWU per centrifuge year.

<http://www.usec.com/american-centrifuge/what-american-centrifuge/rdd-program>.

¹² USEC's posthearing brief, exh. 18.

¹³ A "cascade" is numerous centrifuge machines aligned in a pattern to maximize enrichment efficiency.

¹⁴ USEC reported that ***.

¹⁵ <http://www.usec.com/american-centrifuge/what-american-centrifuge/rdd-program> retrieved August 1, 2013; ***.

¹⁶ The sixth milestone required testing the effects of power loss to the centrifuges. "American Centrifuge RD&D Program Advances," USEC Press Release, July 29, 2013.

¹⁷ USEC claimed that in order to secure additional capital for the completion of the ACP project it would: (1) seek to update its application for \$2 billion in DOE loan guarantees; (2) secure \$1 billion from the Japanese Export Credit Agencies, an agency of the Government of Japan; and (3) seek out an additional \$1 billion in private capital. <http://www.usec.com/american-centrifuge/what-american-centrifuge/plant/funding> retrieved August 1, 2013; ***.

¹⁸ Areva argues that the likelihood of USEC obtaining the necessary \$4 billion in additional financing is doubtful. It cites the following factors: (1) USEC market capitalization and stock price and threats of delisting on the New York Stock Exchange; (2) USEC has no assurances from Japanese investors; (3) USEC has not secured the DOE loan guarantee, a portion of the financing that it admits is mandatory to continue the project; (4) USEC names no source for its "additional \$1 billion in financing" that supposedly will come from private investors; and (5) USEC shows no internal source of revenue that would be sufficient to fund the project. Areva's prehearing report, pp. 20-23; Areva's posthearing brief, "Responses to Questions," pp. 8-14.

¹⁹ USEC's prehearing brief, p. 29 and 55-56.

²⁰ Areva observes that since the inception of the ACP in 2001, USEC, in its SEC filings, has continually pushed back the completion date of the project from the original 2010 to presently a projected commencement of optimal capacity in 2020. Areva prehearing brief, p. 16.

Date	Event
September 2000	USEC, UT-Battelle ¹ , and DOE sign an initial cooperative agreement on the feasibility and possible development of U.S. centrifuge technology. Cooperative research is conducted in three key areas: (1) design of key centrifuge components, (2) refurbishment and restart of facilities to manufacture and test centrifuge components, and (3) planning for the potential deployment and operation of a centrifuge enrichment plant.
June 2002	USEC and the DOE sign a memorandum (“DOE-USEC Agreement”) establishing a framework and setting milestones for USEC to demonstrate and deploy U.S. centrifuge technology. USEC commits to deploy an advanced uranium enrichment plant in the 2010-2011 timeframe.
September 2002	USEC, UT-Battelle, and DOE agree to a \$121 million extension of the cooperative research and development agreement (“CRADA”) through 2007. The agreement is to be financed by USEC.
December 2002	USEC announced that it would site its “Lead Cascade” centrifuge enrichment test facility at its Portsmouth plant in Piketon, Ohio.
September 2003	USEC announced reaching a milestone in the “Lead Cascade” project, the manufacture of the first centrifuge rotor tube, which is a long, fast-spinning component of a centrifuge machine. The rotor tube, constructed of a lightweight, high-strength material, was manufactured at USEC’s state-of-the-art Centrifuge Technology Center in Oak Ridge, Tennessee more than two months ahead of schedule.
February 2004	The NRC issued a license that authorized USEC to construct and operate its American Centrifuge “Lead Cascade” Demonstration Facility in Piketon, Ohio. USEC expects to have the “Lead Cascade” constructed and operating by mid-2007.
January 2005	USEC began testing a full-size centrifuge machine at its K-1600 facility in Oak Ridge.
December 2006	USEC signed agreements with DOE for the long-term use of the ACP facilities in Piketon, Ohio and for the gas centrifuge technology license for the ACP technology.
April 2007	The NRC issued a construction and operating license for the American Centrifuge Plant. The license is good for 30 years.
May 2007	USEC and Fluor began construction on the commercial plant infrastructure for the ACP.
August 2007	USEC began the “Lead Cascade” testing program to test prototype centrifuge machines in a closed-loop cascade configuration under various operating conditions.
November 2007	USEC announced that milestones were being met at its “Lead Cascade” demonstration facility and that test results achieved the October 2007 milestone under an agreement with DOE.
December 2007	A DOE loan guarantee program is included in omnibus appropriations legislation and includes the authority to guarantee loans for \$38.5 billion in energy projects, including \$18.5 billion of loan guarantees for nuclear power facilities and \$2 billion for advanced nuclear facilities for the “front-end” of the nuclear fuel cycle. USEC states its intention to pursue a DOE loan guarantee for construction of its American Centrifuge Plant in Piketon, Ohio.
February 2008	USEC announces that the impact of significant price pressure on labor, commodities and construction materials is increasing management’s anticipated cost for completing ACP now under construction. A comprehensive review of the budget is currently underway.
April 2008	USEC announces that it has finalized the initial design for its technologically advanced AC100 centrifuge machine, that its Lead Cascade testing program is demonstrating reliable and consistent operations, and that its ongoing budget

Date	Event
	review continues to indicate a \$3.5 billion cost for the American Centrifuge Plant which is now under construction.
July 2008	USEC submitted part I of its application to DOE for \$2 billion for ACP from the loan guarantee program.
September 2008	USEC submitted part 2 of its application to DOE for \$2 billion for ACP from the loan
November 2008	USEC announces that it is preparing to install a cascade of 40 to 50 AC100 centrifuge machines to provide additional data on operation and reliability. The improved AC100 components and design features are also being tested in Oak Ridge, Tennessee and expected to be the machines deployed in the commercial plant.
January 2009	USEC and DOE agree to amend the 2002 DOE-USEC Agreement and revise the final milestones regarding completion of ACP. The amendment alters the final four milestones out of 15 included in original agreement and provides schedule flexibility in the deployment of the ACP. USEC announces that this does not change its announced schedule for completion the ACP plant by the end of 2012.
February 2009	USEC announces that it must conserve cash by slowing construction activities on ACP until a funding decision is made by the DOE Loan Guarantee Program.
March 2009	USEC announces that it has received commitments to purchase more than half of the planned, initial sales of the ACP. The commitments, valued at \$3.3 billion, are from 10 customers including leading utilities in the United States, Europe and Asia.
August 2009	DOE announces that it will not proceed with USEC's loan guarantee application. Soon thereafter, DOE and USEC announce an agreement to defer a decision on USEC's loan guarantee application until 2010. As a result of the funding uncertainty, USEC initiates steps to demobilize the American Centrifuge project until greater certainty regarding financing to finish the project could be obtained. Plant construction work is suspended and manufacturing was curtailed. Development and testing continue.
March 2010	USEC began operations of a cascade of approximately two dozen production-ready AC100 centrifuge machines in cascade configuration simulating commercial plant conditions and assay levels.
March 2010	USEC and DOE announce an agreement under which DOE will provide \$45 million to USEC to fund on-going ACP demonstration and manufacturing activities. USEC agrees to match the DOE funding on a 50-50 cost-share basis.
May 2010	Toshiba Corporation and Babcock & Wilcox sign a definitive agreement to make a \$200 million investment in USEC.
August 2010	USEC announces that it submitted to DOE an update to its loan guarantee application which addresses the technical and financial concerns raised by DOE.
February 2011	USEC and DOE agree to again amend their 2002 agreement and extend by one year to November 2011 the milestone for USEC to secure firm financing commitments for the construction of ACP.
April 2011	USEC announces that DOE has completed the due diligence and negotiation stage of its \$2 billion loan guarantee application and has advanced the ACP loan application to the next phase.
October 2011	USEC and DOE announce that they are engaged in high level discussions regarding the future of the ACP. Raised in these discussions is a potential cost-sharing agreement named the Research, Development and Demonstration (RD&D) program. DOE Loan Guarantee Application put on hold.
June 2012	DOE and USEC signed an agreement creating the Research, Development, and Demonstration ("RD&D") program that requires confirmation of the completion of technical milestones as a condition for the receipt of incremental funding be DOE.

Date	Event
	The RD&D program supports building, installing, operating, and testing commercial plant support systems and a 120-machine cascade (“Demonstration Cascade”) that would be incorporated in the full commercial plant in Piketon, Ohio. The total investment in the program will be up to \$350 million, with DOE providing 80 percent, or \$280 million, and USEC providing 20 percent, or \$70 million, of the total.
July 2012	Construction of the Demonstration Cascade begins with the commencement of production of additional AC100 centrifuge machines.
September 2012	USEC announces that it reached the second of five technical milestones in the RD&D program by the successful completion of 20 years of centrifuge run-time on the commercial plant AC100 centrifuge machine.
March 2013	The USEC-DOE cooperative agreement was amended to provide for additional incremental funding. As part of that amendment, four new milestones related to specific testing requirements were added.
April 2013	USEC announces the completed construction of its ACP “Demonstration Cascade,” a 120-machine cascade integral to the RD&D program.
May 2013	USEC announces that it has achieved two important technical milestones under its RD&D. Thus, to date, four milestones have been achieved and five remain.
July 2013	USEC announces that five of the RD&D programs nine milestones have been completed and certified DOE. USEC successfully completed the sixth milestone to test the effects of a power loss to the uranium centrifuge machines earlier this month and DOE certification is pending. The three remaining milestones are scheduled for completion by the end of the program in December. USEC expects the milestones to be met on time and within budget.
<p>¹ UT-Battelle, LLC is a private, non-profit, partnership between the University of Tennessee and Battelle Memorial Institute that was established in 2000 for the sole purpose of managing and operating the Oak Ridge National Laboratory for DOE. Battelle Memorial Institute is a 7,500-person research and development facility, founded in 1929 in Columbus, Ohio, as a non-profit charitable trust with annual revenues of more than \$3 billion. http://www.ut-battelle.org/about.shtml.</p>	
<p>Source: http://www.usec.com/company/history; http://www.usec.com/media/news.</p>	

LES

LES is a wholly owned subsidiary of Urenco, Ltd., a consortium including the Government of the United Kingdom,²¹ the Government of the Netherlands, and utility companies located in Germany. In 2006, LES was issued a license by the NRC and began construction of a new LEU enrichment facility near Eunice, New Mexico. This facility, named the “National Enrichment Facility” (“NEF”) began commercial operations on June 11, 2010 using centrifuge enrichment technology to produce LEU.²² LES reported that its capacity has steadily increased over the period of review from *** SWU in 2010 to *** SWU in 2012.²³

²¹ On April 22, 2013, the British Government announced that it would sell some or all of its 33 percent stake in Urenco. One of the potential buyers is reported to be the Areva Group of France. *“UK Launches Sale of Uranium Enrichment Firm, Urenco,”* Reuters, April 22, 2013.

²²The National Enrichment Facility is the first uranium enrichment facility to be constructed in the United States in the last 30 years and the first to use centrifuge technology. The centrifuge technology is
(continued...)

Areva's Eagle Rock Enrichment Project

In May 2007, Areva submitted proposals to the NRC to build a \$2 billion centrifuge enrichment plant in the United States with the initial capacity of 3 million SWU. The enrichment plant would use the same technology that is used by Urenco affiliate, LES, at its National Enrichment Center in New Mexico and Areva at its Georges Besse II centrifuge enrichment plant in France.²⁴ On December 30, 2008, Areva submitted an application to the NRC, seeking a license to construct and operate a gas centrifuge uranium enrichment facility in Bonneville County, Idaho, which the company named the "Eagle Rock Enrichment Facility." On April 24, 2009, Areva resubmitted the application to request an enrichment capacity increase from 3.3 million SWU per year to 6.6 million SWU per year. The NRC issued the license to construct and operate the Eagle Rock Enrichment Facility on October 12, 2011.²⁵ At present, Areva reported that construction has not yet commenced on the Eagle Rock Enrichment Facility and that the entire project is on hold due to Areva's reluctance to take on more debt, but will proceed with the project when suitable outside investors are secured.²⁶

General Electric-Hitachi Global Laser Enrichment Project

Silex Systems, Ltd., an Australian high technology company, partnered with General Electric Co. ("GE") in 2006²⁷ to develop and commercialize a technology to produce LEU using laser technology.²⁸ The project is being conducted by the GE subsidiary, Global Laser

(...continued)

owned by the Enrichment Technology Company ("ETC"), a joint venture between Urenco and Areva. <http://www.urencocom/page/33/URENCO-USA.aspx> retrieved August 1, 2013.

²³ LES's initial license application for the National Enrichment Facility requested a maximum enrichment capacity of 5.7 million SWU. In 2012, LES submitted a request to the NRC to amend its license in order to increase maximum capacity at the facility to 10 million SWU by 2020. "Urenco Applies to Increase U.S. Enrichment Capacity," World Nuclear News, November 28, 2012.

²⁴ The centrifuge technology is owned by the Enrichment Technology Company ("ETC"), a joint venture between Urenco and Areva.

²⁵ <http://www.nrc.gov/materials/fuel-cycle-fac/arevanc.html>. retrieved on August 1, 2013.

²⁶ ***; <http://www.aveva.com/EN/operations-779/the-eagle-rock-project-construction-of-an-enrichment-plant-in-the-united-states.html>, retrieved on August 1, 2013; Hearing transcript, pp. 187-188 (McMurphy); Areva's posthearing brief, "Responses to Questions," p. 26.

²⁷ From 1996 to 2003, USEC funded SILEX research under an exclusive agreement with Silex Systems, Ltd. In 2003, USEC concluded that it was unlikely that the SILEX technology could be used in an economical commercial process and discontinued funding. USEC stated that it believed the technology faced numerous technological and engineering hurdles. USEC's posthearing brief, exh. 9.

²⁸ GLE calls this "third-generation enrichment technology," whereby the uranium hexafluoride is vaporized into a gaseous form and exposed to a laser beam that excites the 235-UF₆ isotope, thereby enabling separation of natural uranium into enriched and depleted uranium. GLE claims that this process is potentially more efficient with lower operating and capital costs compared to second-generation centrifuge enrichment technology. http://www.ge-energy.com/products_and_services/products/nuclear_fuel_cycle/Global_Laser_Enrichment.jsp retrieved on August 1, 2013.

Enrichment (“GLE”).²⁹ In July 2007, GLE submitted a license application to the NRC, seeking approval for research and development associated with laser enrichment technology and to construct a commercial laser enrichment plant at its Global Nuclear Fuels-Americas, LLC, facility in Wilmington, North Carolina. The NRC approved the application for research and development on May 12, 2008. On September 25, 2012, the NRC issued a license to GLE to construct and operate a uranium enrichment plant using laser technology in Wilmington, North Carolina. GLE has reported plans to deploy a commercial enrichment facility in the near future, with a projected capacity of 3.5 to 6 million SWU per year by 2020.³⁰

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

U.S. producers’ LEU production, capacity, and capacity utilization data are presented in table III-1. From 2007 to 2009 total U.S. capacity of LEU remained steady. Beginning in 2010, as LES brought its capacity online at the National Enrichment Center, U.S. capacity increased. From 2011 to 2012, capacity increased by *** percent. Total U.S. production of LEU, although fluctuating during the period of review, increased from 2007 to 2012 by *** percent and was *** percent higher in January-March 2013 than in January-March 2012. Annual capacity utilization rates for LEU, again fluctuated during the period of review, but declined from *** percent in 2007 to *** percent in 2012 and was *** percent in January-March 2013. The U.S. producers’ production capacity was below apparent U.S. consumption of LEU in each year during the review period and was equivalent to *** percent of U.S. apparent consumption in 2012.

Table III-1
LEU: U.S. producers’ production, capacity, and capacity utilization, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Preservation of USEC’s LEU production for reasons of national security

USEC argues that regardless of new LEU enrichment facilities being licensed and built in the United States by Urenco, Areva, and GLE, its ACP must be completed and begin producing LEU because only it can supply the Department of Defense (“DOD”) with certain nuclear

²⁹ GLE is 51 percent owned by GE, 25 percent owned by Hitachi, and 24 percent owned by Cameco Corp., a Canadian based miner of Uranium ore. <http://www.silex.com.au/businesses/silex> retrieved on August 1, 2013.

³⁰ “NRC Issues License to GE-Hitachi for Laser Uranium Enrichment Plant in North Carolina,” U.S. Nuclear Regulatory Commission, Press Release, September 25, 2012; “Environmental OK for Laser Enrichment Plant,” World Nuclear News, March 1, 2012.

products needed for reasons of national security.³¹ These nuclear products include: (1) tritium, which is used to maintain the U.S. nuclear arsenal,³² and (2) mixed oxide fuel (“MOX fuel”) which is a nuclear fuel used in U.S. nuclear submarines and aircraft carriers that consists of plutonium blended with natural uranium, reprocessed uranium, or depleted uranium. USEC states that tritium and/or MOX fuel may not be supplied by foreign companies or created with foreign technology because of “peaceful use” obligations required by international agreements.³³ Therefore, it argues that without production of LEU from its ACP facility, DOD will have no source for these vital products, jeopardizing the national security of the United States.³⁴ USEC also argues that having a U.S.-based enrichment technology and production ensures that the United States will have “a seat at the table” in influencing future global nuclear non-proliferation policies.³⁵

U.S. PRODUCERS’ U.S. SHIPMENTS AND EXPORTS

Table III-2 presents U.S. producers’ U.S. shipments, export shipments, and total shipments. The quantity of U.S. producers’ U.S. shipments of LEU fluctuated over the 2007 to

³¹ USEC’s prehearing brief, pp. 16-22; USEC’s posthearing brief, exh. 7. Although at the hearing, USEC’s counsel did state that “I would submit that it is not appropriate for this Commission to make a determination as to what is in the U.S. national security.” Hearing transcript, p. 73 (Cunningham). Areva argued that the Commission may not base its determination on what it believes is in the U.S. national security because the statute restricts the Commission to evaluate volume, price, and impact effects of revocation of the antidumping order on the U.S. industry. Areva posthearing brief, “Responses to Questions,” p. 63.

³² USEC reported that DOE has a supply of qualifying LEU to produce tritium for approximately 10 years. Hearing transcript, p. 21 (Sewell). On May 15, 2012, DOE announced that an enrichment project at the USEC’s Paducah Gaseous Diffusion Plant would ensure a supply of U.S.-origin unobligated uranium to support tritium production for up to 15 years. <http://energy.gov/articles/doe-announces-transfer-depleted-uranium-advance-us-national-security-interests-extend>. Areva’s posthearing brief, “Responses to Questions,” p. 63.

³³ Specifically, three international agreements address non-proliferation issues in this area. They are: (1) the U.S.-Australia Agreement for Cooperation for the Transfer of Silex Technology; (2) the U.S.-Euratom Agreement for Nuclear Cooperation, and (3) the Washington Agreement between the United States and the Urenco Governments (Germany, the Netherlands, and the United Kingdom). These agreements provide government assurances that any LEU enrichment facility built in the United States by a foreign government or firm: (1) will only be used for peaceful purposes and not military purposes; (2) material produced in these facilities will only be used for peaceful purposes; and (3) the material will not be used to produce secondary material for use in a nuclear explosive device.

³⁴ During the Senate confirmation hearing of the current Secretary of Energy, Dr. Ernest Moniz, he was asked directly whether he believed a “fully domestic” source of enriched uranium was required under our international obligations to supply our military needs. He responded in the affirmative and stated that he believed that international treaties prevented us from purchasing enriched uranium from foreign owned companies for military purposes. USEC’s posthearing brief, exh. 7, attachment (Partial transcript of confirmation hearing).

³⁵ USEC’s posthearing brief, exh. 7; Hearing transcript, p. 21 (Sewell).

2012 period, but ended higher by *** percent in 2012 than in 2007 and was *** percent higher in January-March 2013 than in January-March 2012. The value of U.S. shipments also fluctuated over the 2007 to 2012 period, ending the period *** percent higher in 2007 than 2012 and was *** percent higher in January-March 2013 than in January-March 2012. The vast majority of reported U.S. shipments of LEU are pursuant to SWU transactions as opposed to EUP transactions.³⁶ ***.

Table III-2

LEU: U.S. producers' U.S. shipments, exports shipments, and total shipments, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. PRODUCERS' INVENTORIES

Data provided on end-of-period inventories by U.S. producers are presented in table III-3. Inventories of LEU, the ***, fluctuated over the 2007 to 2012 period, but were *** percent higher in 2012 than in 2007 and were *** percent higher in January-March 2013 than in January-March 2012, as ***.

Table III-3

LEU: U.S. producers' inventories, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. PRODUCERS' IMPORTS AND PURCHASES

*** reported direct imports or purchases of LEU from France. ***.³⁷ USEC, as the U.S. Executive Agent of the U.S.-Russia HEU Agreement, reported directly importing large quantities of Russian LEU.

³⁶ In 2007, U.S. producers reported that *** percent of U.S. shipments were through EUP transactions. In 2008, 2009, and 2010, EUP transactions accounted for *** percent, *** percent, and *** percent, respectively, of U.S. shipments. U.S. producers reported *** U.S. shipments via EUP transaction after 2010.

³⁷ LES reported that its purchases from***.

USEC argues that ***. USEC prehearing brief, p. 36.

Areva stated that product "swap" arrangements are very common in this industry and all market participants engage in the practice. It reported ***. Areva's Posthearing Brief, p. 10 & "Response to Questions," pp. 70-72.

Although LES did not report direct U.S. imports or purchases of LEU from France, USEC nonetheless argues that they are affiliated with Areva, and thus, should be considered a related party and excluded from the U.S. industry. USEC points to two reasons that it believes that LES and Areva are affiliated. First, LES's parent corporation, Urenco, and Areva are joint venture partners in the Enrichment Technology Company, Ltd. ("ETC"), which was formed in October 2003, and supplies the European centrifuge technology and equipment.³⁸ Second, USEC claims that Areva and Urenco have been operating under a long term purchase contract whereby Urenco supplies Areva's U.S. utility customers with LEU not sourced from France, and therefore, not subject to the antidumping duty.³⁹

In addressing USEC's first allegation, Areva stated that although it and Urenco are joint venture partners in ETC for the development and production of European centrifuge enrichment machines, each partner is very competitive in the sales of enrichment services. It added that the EU Commission as well as inter-governmental agreements between the Governments of Germany, France, the Netherlands, and the United Kingdom addressed the competition issues and approved the joint venture.⁴⁰ Moreover, LES, as a U.S. subsidiary of Urenco, is only tangentially related to ETC⁴¹ and has invested substantial capital in the United States so that its primary interest lies in domestic production.⁴² In addressing the second allegation, Areva stated that ***.⁴³ It argues that ***.⁴⁴

The U.S.-Russia HEU Agreement ("Megatons to Megawatts Program")

The Agreement between the Government of the United States and the Government of the Russian Federation Concerning the Disposition of Highly Enriched Uranium Extracted from Nuclear Weapons ("HEU Agreement") was signed on February 19, 1993. The HEU Agreement facilitates the conversion of HEU extracted from Russia's nuclear weapons into LEU for use as fuel in commercial nuclear reactors. This Agreement was reached to further the objectives of broader arms control agreements, in particular the Treaty on the Non-Proliferation on Nuclear Weapons of July 1, 1968. The HEU Agreement provided that the United States would purchase from Russia 500 metric tons of HEU converted to LEU over 20 years (1994-2013). These purchases were made by USEC as the executive agent of the U.S. Government under a 1994 HEU contract with the Russian state-owned corporation, OAO Techsnabexport ("TENEX"). In each purchase, USEC traded natural uranium for TENEX's down-blended HEU. TENEX then sold

³⁸ See Part IV, *"Enrichment Technology Company, Ltd."*; USEC's prehearing brief, pp. 34-35; USEC's posthearing brief, p. 11 and exh. 8; Hearing transcript, pp. 78-79 (Cunningham).

³⁹ USEC's prehearing brief, pp. 36-37; USEC's posthearing brief, p. 11 and exh. 8; Hearing transcript, pp. 78-79 (Cunningham).

⁴⁰ Hearing transcript, p. 156 (Husisian).

⁴¹ Areva observes that LES is not the joint venture partner, but rather Urenco, Ltd. Therefore, LES has no stake nor exerts any control over ETC. Hearing transcript, p. 154 (Husisian).

⁴² Areva's posthearing brief, "Responses to Questions," pp. 35-39; Hearing transcript, p. 138 (McMurphy).

⁴³ Areva's posthearing brief, "Responses to Questions," pp. 70-71.

⁴⁴ Areva's posthearing brief, p. 10 and "Responses to Questions," pp. 70-71.

the natural uranium to three western uranium suppliers (Areva/Cogema, Cameco, RWE Nukem) and retained a portion for itself. The USEC Privatization Act imposed a quota on the total quantity of natural uranium delivered to TENEX that could be sold each year for consumption in the United States, either directly by TENEX or through one of its customers.⁴⁵ USEC stated that ***.⁴⁶

As of June 2013, the Megatons to Megawatts program was 95 percent completed. Through the program, USEC has completed the down-blending of 475 metric tons of weapons-grade uranium into 13,723 metric tons of LEU for commercial nuclear power plants, the equivalent of 19,008 nuclear warheads. USEC is scheduled to take delivery of the final material for the program in November 2013. After completion of the program, USEC estimated that it will have converted 500 metric tons of highly enriched uranium (or the equivalent of approximately 20,000 nuclear warheads) into LEU. Its total purchases from the program will have been 92 million SWU.⁴⁷

The Russian Suspension Agreement

As mentioned in *Part I* on this report, there currently exists a suspension agreement with regard to U.S. imports of LEU from Russia (hereafter, the "RSA").⁴⁸ On February 1, 2008, as the expiration of the HEU agreement approached, Commerce and the Government of Russia signed an amendment to the existing RSA instituting new import quotas through 2020 for commercial Russian uranium exports sold directly or indirectly to U.S. utilities or otherwise. The 2008 Amendment included the following provisions:

(1) Small amounts of commercial LEU from Russia were allowed into the United States between 2008 through 2013.

(2) During 2014-20, following the expiration of the HEU Agreement, the import quota will be raised to approximate 20 percent of the U.S. enrichment market.

(3) After 2020, the RSA will expire.

(4) In contrast to the HEU Agreement, the enriched uranium allowed into the United States from Russia after 2013 but before 2021 can be from LEU produced directly through the nuclear fuel cycle, i.e., the LEU does not have to be produced from downblended HEU. Additionally, also in contrast to the terms of the HEU Agreement, the LEU can be sold directly to U.S. utilities without requiring the services of an executive agent.⁴⁹

⁴⁵ See *Uranium from Russia*, Inv. No. 731-TA-539-C (Third Review), USITC Publication No. 4307 (February 2012), p. I-10.

⁴⁶ U.S. importer questionnaire response of USEC, question III-3.

⁴⁷ ***; <http://www.usec.com/russian-contracts/megatons-megawatts> retrieved August 1, 2013; USEC's prehearing brief, pp. 45-47.

⁴⁸ *Uranium from Russia*, Inv. No. 731-TA-539-C (Third Review), USITC Publication No. 4307 (February 2012), p. I-12.

⁴⁹ Ibid.

USEC stated that as a result of import quotas imposed by the RSA, the primary market for its Russian-sourced LEU will be foreign markets whereas it will supply its U.S. customers primarily with its U.S. inventories.⁵⁰

The U.S.-Russia transitional supply contract

In March 2011, USEC entered into a 10 year supply contract with TENEX to purchase approximately 21 million SWU through 2022 with an option to purchase up to another 25 million SWU during that period. Pursuant to the agreement, unlike the Megatons for Megawatts program, the LEU supplied by TENEX will come from Russia's commercial enrichment activities rather than from down-blending of excess Russian highly enriched uranium. Specifically, USEC will purchase the SWU contained in the LEU and deliver natural uranium to TENEX for the LEU's uranium component. The contract provides for supply to commence in second quarter of 2013.⁵¹

USEC stated that it intends to supply its customers from 2013 (the date of the Paducah, Kentucky plant closure) to 2016 (the projected earliest commencement of production at ACP) with the LEU purchased from Russia pursuant to this agreement and with LEU it has in existing inventory.⁵²

Data provided by USEC concerning the direct imports of Russian LEU pursuant to the U.S.-Russia HEU Agreement are presented in table III-4.

Table III-4

LEU: USEC's direct imports of Russian LEU, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-5 shows U.S. producers' employment-related data during the period of review.⁵³

⁵⁰ Hearing transcript, pp. 51-52 (Cunningham) and pp. 99-100 (Sewell).

⁵¹ ***; <http://www.usec.com/russian-contracts/transitional-supply-contract> retrieved on August 8, 2013.

⁵² ***; USEC, SEC Form 10-Q, June 30, 2013, p. 61; USEC's prehearing brief, pp. 46-47.

⁵³ USEC stated that as of July 31, 2013, the ACP employed approximately 430 employees located at facilities in Piketon, Ohio; Oak Ridge, Tennessee; and Bethesda, Maryland out of a total workforce of approximately 1660 employees. USEC's prehearing brief, p. 31.

Table III-5

LEU: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

FINANCIAL EXPERIENCE OF U.S. PRODUCERS

Background

Both USEC and LES reported their LEU financial and operations results on calendar year basis. The following operations results are presented in this section of the report: financial results on combined U.S. and Russian-produced LEU (table III-6), financial results on U.S.-produced LEU (table III-7), and financial results on Russian-produced LEU (table III-8). In addition to LEU country of origin, LEU is divided into aggregate SWU and EUP transactions and designated as either domestic or export sales.

Combined operations on U.S. and Russian-produced LEU

Table III-6 presents the combined financial results on U.S. and Russian-produced LEU operations.⁵⁴ As shown in table III-6, USEC reported both domestic and export sales of enrichment as well as domestic sales of EUP (between 2007 and 2010) for the period of review.

⁵⁴ Based on USEC's Form 10-K submitted to the Securities and Exchange Commission ("SEC") for the fiscal year ended December 31, 2012, USEC has revenues from production and sales of LEU (revenue is derived primarily from sales of SWU and uranium) and from contract services. During 2012, income from SWU was approximately \$1.8 billion (approximately 95 percent of total revenue) and income from uranium sales was about \$26 million (1.3 percent) while income from contract services was approximately \$70 million (3.7 percent). Loss from operations for 2012 was \$1.15 billion (which reflected \$1.33 billion of special charges and advanced technology costs, as well as other income of \$92 million which was charged to the operations result). If those amounts were charged after operations result, operating income for 2012 would be \$81.9 million before these charges (USEC 2012, 10-K, pages 8, 9, 71). In its 2012 10-K, p. 72, USEC noted that special charges in 2012 related to workforce reductions and advisory charges as it took efforts to align the organization with its evolving business environment. Special charges in 2009 related to workforce reductions and contract terminations in connection with reduced American Centrifuge project ("ACP") activities; in 2012, USEC expensed \$1.1 billion of previously capitalized costs related to the ACP. Although USEC continues to make progress in the deployment of the ACP, USEC does not expect to recover the full amount of this prior capital investment. These expenses of previously capitalized costs do not affect any future capital investment in the ACP. USEC would anticipate that capitalization of amounts related to the ACP could resume if and when commercial plant deployment resumes. In 2011, USEC expensed \$146.6 million of previously capitalized construction work in progress related to damaged centrifuge machines, earlier machines that were determined to no longer be compatible with the commercial plant design for the ACP, and previously capitalized amounts related to prepayments made to a supplier for the ACP; Other income in 2012, 2011, and 2010 consists primarily of pro-rata cost sharing support from DOE for partial funding of ACP activities. In its consolidated income statements (audited by the independent auditor, PricewaterhouseCoopers LLP and based on the report of independent registered public accounting firm dated March 18, 2013, USEC 2012 10-K, page 123), USEC classifies advanced technology costs, special charges, and other income (pro-rata cost sharing support from DOE) as operating items. In order to be consistent with the Commission's previous review, these items are included in the other income and expense section of table III-6, table III-7, and table III-8.

USEC's domestic average unit SWU values were generally higher (except 2010) than export average unit SWU values while USEC's Russian-produced export sales of average unit SWU values were higher than domestic sales values between 2007 and 2011, but lower in 2012 and the two interim (January-March) periods of 2012 and 2013. LES reported domestic sales of enrichment in 2012 and interim 2013 (LES started ***). While the overall trend reflects rising average unit SWU values from 2007 through 2012 and net sales quantity and value fluctuated during this period, operating income continuously decreased from 2007 to 2012 and changed to an operating loss in 2011 and again in 2012.⁵⁵ The industry's operating income of \$*** in 2007 became an operating loss of \$*** in 2012. The domestic producers (data combined) incurred operating losses in 2011 and 2012, but a small amount of operating income was reported both interim periods, January-March 2012, and January-March 2013.⁵⁶ Average unit value ("AUV") and average unit total costs increased during the period. Per-unit total costs, *i.e.*, cost of goods sold ("COGS") and selling, general, and administrative ("SG&A") expenses combined, was not presented because volumes associated with SWU and EUP are measured differently.⁵⁷ However, the average unit costs of manufacture ("COM") of U.S.-produced LEU and average acquisition costs of Russian-produced are presented in table III-11 based on the production and acquisition costs for the period.

The operating income margin of a *** percent in 2007 changed to a *** percent in 2012. The ratio of the domestic industry's operating income to net sales in interim 2013 was a *** percent, while its operating income ratio in interim 2012 was a *** percent. Comparing the two interim periods, all three financial measures deteriorated, both net sales quantity and value decreased while an operating income also decreased.⁵⁸ For USEC, operations on U.S. and Russian-produced LEU accounted for the majority of USEC's overall establishment operations and LEU segment operations. The combined operations result may not provide an insight on overall operations of domestic producers because the operations results of U.S. produced and

⁵⁵ The U.S. government contracts segment represent work performed for DOE and DOE contractors, as well as activity of USEC's subsidiary, NAC. USEC 2012 10-K, p. 8. DOE-related work includes maintaining the Portsmouth, OH plant. However, USEC's contracts for DOE at Portsmouth expired in September 2011 even though it continues to provide some limited services. Revenues from USEC's contract services segment has declined significantly compared with the prior period. NAC designs, fabricates, and implements spent nuclear fuel technologies, as well as provides nuclear materials transportation, and nuclear fuel cycle consulting services.

⁵⁶ LES ***. ***.

⁵⁷ The average unit value of COGS, SG&A, and operating income (loss) are not presented because volumes associated with SWU and EUP production and sales are measured differently and USEC explained that *** (Letter from Steptoe and Johnson on behalf of USEC, May 28, 2013).

⁵⁸ USEC 2012 10-K, p. 4. A tsunami resulting from a major earthquake in March 2011, caused irreparable damage to four reactors in Japan and subsequently resulted in more than 50 reactors in Japan and Germany being off-line at the start of 2013. These shutdowns have significantly affected the global supply and demand for LEU. An oversupply of nuclear fuel available for sale has increased over time and has resulted in significant downward pressure on market prices for LEU. USEC sees limited uncommitted demand for LEU prior to the end of the decade, and therefore fewer opportunities to make additional sales for delivery during that period.

Russian-produced were quite different and the limited data of LES were combined while it was in the start-up period. The operating income, net loss, operating income margin, and net loss margin of ***.⁵⁹

**Table III-6
LEU (U.S. and Russian-produced): Results of operations of U.S. producers, fiscal years 2007-12, January-March 2012, and January-March 2013**

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on U.S.-produced LEU

Table III-7 presents the financial results on USEC’s U.S.-produced LEU including LES’s data for 2012 and interim 2013. As shown in table III-7, USEC reported both domestic and export sales of enrichment as well as domestic sales of EUP (between 2007 and 2010) for the period of review. USEC’s domestic average unit SWU values were generally ***. LES reported domestic sales of enrichment in 2012 and interim 2013 (LES started ***). While the overall trend reflects rising average unit SWU values from 2007 through 2012 and net sales quantity and value fluctuated during this period, the domestic producers’ (data combined) operating income continuously decreased from 2007 to 2009 and changed to an operating loss in 2009, 2011 and again in 2012. The industry’s operating income of \$*** in 2007 became an operating loss of \$*** in 2012. Energy costs, i.e., electricity costs, which represent the single largest component of USEC’s production costs, increased during the period. As shown in table III-11 (average unit costs were ***.⁶⁰ Even though USEC reported ***.

The operating income margin of a *** percent in 2007 changed to a *** percent in 2012. The ratio of the domestic industry’s operating income to net sales in interim 2013 was a *** percent, while its operating income ratio in interim 2012 was a *** percent. Comparing the two interim periods, all three financial measures improved, both net sales quantity and value increased while both operating and net losses decreased.

USEC’s *** on its U.S.-produced LEU operations largely reflect unallocated advanced technology costs and special charges, as previously described.⁶¹ While it appears generally reasonable to attribute these costs entirely to U.S.-produced LEU operations (e.g., on the

⁵⁹ The inclusion of LES’s limited data ***.

⁶⁰ USEC 2012 10-K, p.4 and 50. USEC enriches uranium at the Paducah gaseous diffusion plant (“Paducah GDP”) that it leases from DOE and continued enrichment at the GDP supported by a multi-party arrangement that expired on May 31, 2013. Once USEC ceased enrichment at the Paducah GDP, it is dependent on purchases of Russian LEU and its existing inventory to meet its obligations to customers. A significant delay or stoppage of deliveries of Russian LEU could affect its ability to meet customer orders and could pose a significant risk to its continued operations and profitability.

⁶¹As noted previously, ***. The amounts reported for these items match the amounts reported in USEC’s consolidated income statements.

grounds that they are related directly to prospective U.S. LEU operations), USEC's *** are substantially higher as a result.⁶²

The operating income, net loss, operating income margin, and net loss margin of ***.

Table III-7
LEU (U.S.-produced): Results of operations of U.S. producers, fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on Russian-produced LEU

Table III-8 presents the financial results on USEC's Russian-produced LEU operations only. LES did not have any sales from Russian-produced LEU. The SWU component of LEU purchased under the Russian Contract is recorded at ***.⁶³ The average unit sales values and costs of Russian-produced SWU ***. Russian-produced LEU operations were *** throughout the period. In addition to generally ***. The result of this favorable combination was *** gross and operating income margins for Russian-produced LEU throughout the period. In contrast with U.S.-produced LEU operations, Russian-produced LEU sales ***.

⁶² USEC 2012 10-K, p. 5, 16, 17, and 47. USEC works to deploy the American Centrifuge technology ("ACT"), a highly efficient uranium enrichment gas centrifuge technology. The ACT requires 95 percent less electricity to produce LEU on a per SWU unit basis than its existing gaseous diffusion technology. It works to deploy this technology in the ACP in Piketon, OH. This is the only domestic enrichment facility using U.S. technology. As of the end of 2012, USEC has spent approximately \$2.3 billion on the ACP and it began construction on the ACP in May 2007. However, construction activities were significantly demobilized in 2009 and are expected to be remobilized after financing for the project is in place.

⁶³ USEC 2012 10-K, p. 14-15. USEC signed a commercial agreement ("Russian Contract") with a Russian government entity known as TENEX to order LEU derived from dismantled Soviet nuclear weapons in January 1994 for 20 years and it expects the Russian Contract to be completed by the end of 2013. Prices under the Russian Contract are determined using a discount from an index of published price points, including both long-term and spot prices, as well as other pricing elements. This pricing methodology, which includes a multi-year retrospective view of market-based price points, is intended to enhance the stability of pricing and minimize the disruptive effect of short-term market price swings. The average price per SWU under this contract for 2013 is 6% higher compared to 2012, and in 2012 was 2% higher compared to 2011. Under the terms of 2011 supply agreement with TENEX (the "Russian Supply Agreement"), USEC will purchase Russian LEU over a 10-year period commencing in 2013.

Table III-8
LEU (Russian-produced): Results of operations of U.S. producers, fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Selected company-by-company data (for both U.S. and Russian-produced LEU) are presented in table III-9. Total net sales (quantities and values), per-unit values (sales and COGS), operating income (loss), and the ratio of operating income (loss) to net sales are presented in this table on a firm-by-firm basis. ***. For both firms combined, operating income and net loss decreased from interim 2012 to interim 2013.

Selected company-by-company data (for U.S.-produced LEU only) are presented in table III-10. ***.

Table III-9
LEU (U.S. and Russian-produced): Results of operations of U.S. producers (by firm), fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-10
LEU (U.S.-produced only): Results of operations of U.S. producers (by firm), fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-11 presents average unit cost of manufacture (“COM”)⁶⁴ of U.S.-produced LEU and average unit acquisition cost of Russian-produced LEU purchased by USEC. The average unit COM between 2010 and interim 2013 reflects LES’s COM as well. Average unit raw material costs were ***.⁶⁵ Average unit COM of *** compared to the previous periods. As indicated in this table, ***.⁶⁶

⁶⁴ COM is based on cost of production (not based on COGS), but does not reflect any SG&A expenses. Since volumes associated with SWU and EUP revenue and costs are measured differently and USEC was not able to separate production costs with respect to SWU and EUP contracts, unit values of SG&A expenses and unit operating income (loss) were not calculated.

⁶⁵ E-mail from ***, August 22, 2013 and e-mails from ***, August 26 and September 5, 2013.

⁶⁶ A traditional variance analysis relies on unitized values. Because volumes associated with EUP and SWU revenue and costs are measured differently, a variance analysis is not presented in this section of the report.

Table III-11

LEU: Average unit cost of manufacture of U.S. producers, fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Capital expenditures and research and development expenses

The U.S. producers’ capital expenditures and research and development (“R&D”) expenses are presented in table III-12. USEC’s capital expenditures ***. The majority of USEC’s capital expenditures and R&D expenses were ***. According to USEC, ***.⁶⁷ Due to the advanced technology costs charged over \$1.3 billion in 2012, capital expenditures in 2012 were substantially lower compared to the previous years while R&D expenses increased substantially that year (refer to the earlier discussion of ACP). LES reported ***. USEC reported *** capital expenditures related to Russian-produced LEU operations.

USEC’s R&D expenses ***. As shown in table III-12, the majority of R&D expenses was attributed to ***. LES reported R&D expenses in ***.

Table III-12

LEU: Capital expenditures and R&D expenses by U.S. producers, fiscal years 2007-12, January-March 2012, and January-March 2013

* * * * *

¹ E-mails from ***, July 22, 23, 24, 2013.

² E-mails from ***, August 2, 2013.

Source: Compiled from data submitted in response to Commission questionnaires.

Assets and return on assets

U.S. producers were requested to provide data on their assets used in the production and sale of LEU during the period for which data were collected to assess their return on assets (“ROA”). Data on the U.S. producers’ total net assets and their ROA are presented in table III-13. Total assets utilized by the U.S. producers in their operations to produce and sell LEU ***. However, total assets ***, primarily because ***.⁶⁸ Since the U.S. producers’ operating income ***, their ROA also changed from a ratio of *** percent in 2007 to a ratio of *** percent in 2012. The trend of ROA over the period was similar to the trend of the operating income margin shown in table III-6.

Table III-13

LEU: Value of assets and return on assets of U.S. producers, fiscal years 2007-12

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

⁶⁷ E-mails from ***, July 22, 23, 24, 2013.

⁶⁸ E-mails from ***, July 22, 23, 24, 2013.

PART IV: U.S. IMPORTS AND THE FOREIGN INDUSTRIES

U.S. IMPORTS

Overview

The Commission issued questionnaires to six firms believed to have imported LEU during the period of review as well as to all U.S. producers.¹ Three firms, Areva, Urenco, and USEC, provided data and information in response to the questionnaires. U.S. import data from France are compiled using the questionnaire response of the sole U.S. importer of French LEU, Areva.² U.S. import data from nonsubject countries are compiled from adjusted official import statistics of the Department of Commerce.³ Official statistics are presented in this report for U.S. imports from nonsubject sources because they are believed to be the most accurate measure of imports of LEU, as limited information was received in response to the Commission's questionnaires. Although some subject merchandise may be imported under other HTS subheadings, it is believed that the vast majority of imports of subject product are reported under the HTS subheading 2844.20.0020. Official import statistics include imports under both SWU and EUP contracts.

Imports from subject and nonsubject countries

Table IV-1 presents information on U.S. imports of LEU from France and all other sources over the period of review. As shown, aside from those reported for 2007, there were no other reported U.S. imports from France.⁴ U.S. imports of LEU from Russia, pursuant to the U.S.-Russia HEU agreement, fluctuated over the 2007 to 2012 period, and were *** percent lower in 2012 than in 2007. They were *** percent higher in January-March 2013 than in January-March 2012. U.S. imports of LEU from nonsubject countries other than Russia were *** percent higher in 2012 than in 2007, but were *** percent lower in January-March 2013

¹ The Commission sent U.S. importer questionnaires to the following firms: ***.

***.

² Official Commerce statistics, under statistical reporting number HTS 2844.20.0020, report the following quantity and value of U.S. imports of LEU from France throughout the period of review.

U.S. imports from France	2007	2008	2009	2010	2011	2012
	Quantity (1,000 kgs); Value (\$1,000)					
Quantity	275	242	166	179	34	116
Value	507,274	426,678	349,365	372,992	73,688	166,169

***.

³ U.S. import data from nonsubject countries compiled using HTS subheading 2844.20.0020. Commerce statistics are compiled by weight (kilogram) therefore the conversion factor of: SWU= kg*0.67618*6 was used to convert the quantity data into SWU.

⁴ Areva reported that ***.

than in January-March 2012. According to Official Commerce statistics, U.S. imports of LEU from nonsubject countries originated, in order of descending 2012 volume, from: (1) Russia, (2) the United Kingdom, (3) the Netherlands, (4) Germany, and (5) Kazakhstan.

Table IV-1
LEU: U.S. imports by source, 2007-12, January-March 2012, and January-March 2013

Item	Calendar year						January-March	
	2007	2008	2009	2010	2011	2012	2012	2013
	Quantity (1,000 SWU)							
France	***	***	***	***	***	***	***	***
Russia	3,855	3,565	3,640	4,367	3,904	3,625	205	219
Germany	1,000	1,766	1,655	1,234	1,482	1,319	469	490
Netherlands	2,216	2,213	1,819	1,915	2,158	1,975	465	430
United Kingdom	2,341	2,729	2,796	3,988	2,097	2,997	484	445
Other sources	539	935	54	55	880	258	0	0
Subtotal, nonsubject	9,951	11,207	9,964	11,559	10,522	10,174	1,623	1,585
Total imports	***	***	***	***	***	***	***	***
	Quantity (1,000 kgs of enriched U)							
France	***	***	***	***	***	***	***	***
Russia	950	879	897	1,076	962	893	51	54
Germany	246	435	408	304	365	325	116	121
Netherlands	546	545	448	472	532	487	115	106
United Kingdom	577	673	689	983	517	739	119	110
Other sources	133	230	13	14	217	64	0	0
Subtotal, nonsubject	2,453	2,762	2,456	2,849	2,593	2,508	400	391
Total imports	***	***	***	***	***	***	***	***
	Value (\$1,000)							
France	***	***	***	***	***	***	***	***
Russia	909,877	835,252	855,824	1,049,038	949,837	854,372	81,145	49,221
Germany	418,402	476,401	613,667	410,453	486,250	493,125	177,497	176,548
Netherlands	1,034,300	1,036,522	679,377	722,013	775,613	733,915	199,808	159,420
United Kingdom	1,135,650	1,348,435	1,209,525	1,526,140	949,376	1,232,023	205,899	180,613
Other sources	279,982	49,930	11,534	18,100	289,990	95,070	0	0
Subtotal, nonsubject	3,778,212	3,746,539	3,369,927	3,725,743	3,451,065	3,408,504	664,349	565,802
Total imports	***	***	***	***	***	***	***	***
	Unit value (per SWU)							
France	***	***	***	***	***	***	***	***
Russia	236	234	235	240	243	236	396	225
Germany	419	270	371	333	328	374	378	361
Netherlands	467	468	373	377	359	372	430	370
United Kingdom	485	494	433	383	453	411	426	405
Other sources	520	53	213	330	330	369	(¹)	(¹)
Subtotal, nonsubject	380	334	338	322	328	335	409	357
Total imports	***	***	***	***	***	***	***	***

Table IV-1--Continued

LEU: U.S. imports by source, 2007-12, January-March 2012, and January-March 2013

	Share of quantity in SWUs (percent)								
France	***	***	***	***	***	***	***	***	***
Russia	***	***	***	***	***	***	***	***	***
Germany	***	***	***	***	***	***	***	***	***
Netherlands	***	***	***	***	***	***	***	***	***
United Kingdom	***	***	***	***	***	***	***	***	***
Other sources	***	***	***	***	***	***	***	***	***
Subtotal, nonsubject	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***
	Share of quantity in 1,000 kgs of enriched U (percent)								
France	***	***	***	***	***	***	***	***	***
Russia	***	***	***	***	***	***	***	***	***
Germany	***	***	***	***	***	***	***	***	***
Netherlands	***	***	***	***	***	***	***	***	***
United Kingdom	***	***	***	***	***	***	***	***	***
Other sources	***	***	***	***	***	***	***	***	***
Subtotal, nonsubject	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***
	Share of value (percent)								
France	***	***	***	***	***	***	***	***	***
Russia	***	***	***	***	***	***	***	***	***
Germany	***	***	***	***	***	***	***	***	***
Netherlands	***	***	***	***	***	***	***	***	***
United Kingdom	***	***	***	***	***	***	***	***	***
Other sources	***	***	***	***	***	***	***	***	***
Subtotal, nonsubject	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***

¹ Undefined.

Source: Compiled from Commerce import statistics and data submitted in response to Commission questionnaires.

U.S. IMPORTERS' IMPORTS SUBSEQUENT TO MARCH 31, 2013

The Commission requested importers to indicate whether they had imported or arranged for the importation of LEU from France for delivery after March 31, 2013. *** reported arranging for U.S. imports from France for delivery after March 31, 2013.

U.S. IMPORTERS' INVENTORIES

Table IV-2 presents data for inventories of U.S. imports of LEU from France, Russia, and all other sources held in the United States.

Table IV-2

LEU: U.S. importers' end-of-period inventories of imports, by source, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

THE INDUSTRY IN FRANCE

Overview

Eurodif, the sole producer of LEU in France, is a large, well established global competitor in the LEU market.⁵ Eurodif is majority owned by Areva NC, which is a wholly owned subsidiary of the Areva Group. Prior to March 2006, Areva NC was known as COGEMA. The Areva Group, which was established in September 2001, is a global leader in nuclear power and ranks number three worldwide for electricity transmission and distribution. It is the only international group to be entirely vertically integrated, with operations that address every stage of the nuclear cycle. Areva estimates that it has 25 percent of the world's available enrichment capacity, and has the largest share of the Western European enrichment market. The French public sector owns 87 percent of Areva, of which the Commissariat à l'Énergie Atomique (CEA) (French Atomic Energy Commission) owns 79 percent. Of the 13 percent not owned by the public sector, 2.42 percent is owned by the French utility, EDF.

Georges Besse I enrichment facility

Eurodif's gaseous diffusion enrichment plant, named the Georges Besse I, is located on the Tricastin nuclear site in southern France. The enrichment facility started commercial operations in 1979, and had a capacity of 10.8 million SWU per year. The Georges Besse I plant was initially designed for a useful life of 20 years, though through additional investments and maintenance, the plant's useful life was extended. However, due to economic reasons, primarily the price of electricity, the plant's main cost component, Areva decommissioned the plant and ceased production of LEU there in June 2012.⁶ Areva replaced it with a new facility

⁵ Eurodif was the Areva Group subsidiary that ran the Georges Besse I enrichment facility. The Société d'Enrichissement du Tricastin ("SET") is the Areva Group subsidiary that will run the Georges Besse II enrichment facility. For purposes of clarity and consistency, this report will use "Eurodif" to refer to the sole producer of LEU in France and Areva to refer to the U.S. importer.

⁶ Areva reported that ***. The following tabulation shows those purchases:

Purchases from--	2007	2008	2009	2010	2011	2012	2013	Total
	<i>1,000 SWU</i>							
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

(continued...)

using centrifuge technology. Areva claims that the new facility will consume 50 times less electricity.

Georges Besse II enrichment facility

The construction of the replacement plant, named the Georges Besse II, a centrifuge enrichment technology-based enrichment plant, began in September 2006. In April 2007, the Georges Besse II plant was granted a nuclear license to produce 8.2 million SWU per year at a maximum assay level of 6 percent. The facility commenced commercial operations in April 2011. Its total capacity is reported to be *** SWU per year in 2013⁷ and is projected to be *** SWU in 2014 with optimal capacity of 7.5 million SWU⁸ projected to be reached in 2016.⁹ The total overall cost of the Georges Besse II plant is approximately 3 billion euros.¹⁰

Enrichment Technology Company, Ltd.

The centrifuge technology utilized in the Georges Besse II plant and LES’s National Enrichment Facility in New Mexico is provided by the Enrichment Technology Company, Ltd. (“ETC”), which was formed in October 2003 as a result of a reorganization of Urenco during which ETC was established as a stand-alone subsidiary of Urenco to supply the firm with centrifuge technology and equipment. ETC licenses the centrifuge technology and manufacturers centrifuge enrichment equipment. In July 2006, Areva and Urenco signed an agreement that established ETC as a joint venture between the two companies. This agreement was subject to competition clearance from the European Commission, as well as intergovernmental agreements between the Governments of Germany, the Netherlands, the United Kingdom, and France. Under the agreement, Urenco and Areva will continue to compete in the provision and marketing of uranium enrichment services.¹¹

(...continued)

***	***	***	***	***	***	***	***	***	***
Source: Areva’s Posthearing brief, “Responses to Questions,” p. 71.									

⁷ Areva’s reported that subsequent to the transition from Georges Besse I to Georges Besse II, its annual capacity has significantly decreased. George Besse I had an annual capacity of 10.8 SWU whereas 2013 George Besse II capacity was 3.8, a decrease of 7 million SWU annually. Even at its optimal capacity of 7.5 SWU projected to occur in 2016, the George Besse II’s capacity is 3.3 million SWU lower. Areva’s posthearing brief, “Responses to Questions,” p. 27; Hearing transcript, pp. 142-143 (Chevrel).

⁸ Areva reported that ***. Areva’s posthearing brief, p. 11.

⁹ USEC argues that Areva’s capacity could exceed 7.5 million SWU because of the modular nature of the centrifuge equipment used at the facility, which allows for relatively quick installation of additional cascades that could increase capacity quickly. USEC’s posthearing brief, exh. 11.

¹⁰ <http://www.areva.com/EN/operations-887/tricastin-site-the-georges-besse-ii-enrichment-plant.html> retrieved on August 1, 2013.; ***.

¹¹ <http://www.enritec.com/#/about/1.5> retrieved on August 1, 2013; ***.

Global LEU “Swap” or Exchange Transactions

In the more common “SWU transaction,” utility companies, procure LEU from enrichers by supplying the raw material input, namely, uranium concentrates and natural UF₆, and contract for the enrichment of the uranium into LEU by paying for the “separative work units,” the international unit of measure for enrichment services. The enricher never takes title to either the natural uranium or the resulting LEU. Because of the fungibility of LEU, the market participants may exchange or “swap” LEU enriched at one facility for LEU at another facility. This process, considered by Areva to be common in the industry, is generally done contractually and for a variety of reasons including, according to Areva, “to minimize transportation costs, the payment of customs duties, or other costs of doing business.”¹²

In the context of the RSA, Commerce identified a number of types of exchange transactions and defined them as follows: “(1) *Ownership swaps*--involve the exchange of ownership of any type of uranium product, without physical transfer. These may include exchange of ownership of uranium products in different countries, so that the parties obtain ownership of products located in different countries; or exchange of ownership of uranium products produced in different countries, so that the parties obtain ownership of products of different national origin; (2) *Flag swaps*--involve the exchange of indicia of national origin of uranium products, without any exchange of ownership; and (3) *Displacement swaps*--involve the sale or delivery of any type of uranium product(s) from one country to an intermediary country (or countries) which can be shown to have resulted in the ultimate delivery or sale into the United States of displaced uranium products of any type, regardless of the sequence of the transactions.”¹³

Areva stated that ***.¹⁴ Areva reported that ***.¹⁵

¹² Hearing transcript, pp. 137-138 (McMurphy); USEC’s posthearing brief, exh. 8; Areva’s prehearing brief, pp. 37-38; Areva’s posthearing brief, “Responses to Questions,” pp. 70-72.

¹³ *Antidumping; Uranium from Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Ukraine, and Uzbekistan; Suspension of Investigations and Amendment of Preliminary Determinations*, 57 FR 49220, October 30, 1992.

The “swaps” definitions were part of the anti-circumvention provisions of the RSA whereby Commerce directed Customs to “require all importers of uranium into the United States, regardless of stated country of origin, to submit at the time of entry a written statement certifying that the uranium being imported was not obtained under any arrangement, swap, or other exchange designed to circumvent the export limits.” *Ibid.*

¹⁴ Areva’s posthearing brief, “Responses to Questions,” pp. 70-71. Areva argues that the small amount of the exchange transactions directly with Urenco further shows that the two firms are not affiliated and should not be deemed related parties for purposes of this review.

¹⁵ Areva prehearing brief, pp. 37-38; Hearing transcript, p. 135 (McMurphy)(“when USEC brought its antidumping petition 12 years ago we were placed in a difficult position under our long term contracts, but rather than abandon our U.S. customers we decided that we had to continue to participate in the market and to honor our commitment to fulfill our contracts.”).

The 1994 Corfu Declaration

Since 1994, the European Union (“EU”) has maintained quantitative restrictions on imports of enriched uranium in accordance with the terms of the Corfu Declaration, a joint European Council and European Commission policy statement that has never been made public or notified to the WTO. The Corfu Declaration appears to impose explicit quotas on imports of enriched uranium insuring that the share for European uranium enrichers be maintained at 80 percent of the European market.¹⁶

Data submitted by Eurodif

Table IV-3 presents the data of the LEU industry in France, based on the information provided by Eurodif in its responses to the Commission’s questionnaire. Eurodif reported that *** percent of its total sales in the most recent fiscal year were sales of LEU.¹⁷ In 2007, Eurodif exported *** percent of its total shipments of LEU or *** SWU to the United States. ***. In 2012, *** percent of its total shipments were to other export markets such as ***. Eurodif’s reported capacity remained steady from 2007 to 2011 and then decreased by *** percent from 2011 to 2012 as the George Besse I enrichment facility went offline and the George Besse II enrichment facility went online. Capacity is projected to increase in 2014 through 2016 as the George Besse II facility reaches its optimal capacity. Its production fluctuated from 2007 to 2011 but then decreased by *** percent from 2010 to 2011 as the George Besse I enrichment facility went offline and the George Besse II enrichment facility had not yet commenced commercial production. Eurodif reported that it is related to *** during the period of review, ***.

Table IV-3:
France’s capacity, production, shipments, and inventories, 2007-12, January-March 2012, and January-March 2013

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

¹⁶ http://www.ustr.gov/sites/default/files/European%20Union_0.pdf; *Communication from the Commission to the Council and the European Parliament - Nuclear safety in the European Union*, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52002DC0605:EN:HTML>; USEC’s posthearing brief, exh. 17; Areva’s posthearing brief, “Responses to Questions,” p. 68 (stating that ***).

¹⁷ Eurodif reported that ***.

THE WORLD MARKET

There are currently 435 nuclear reactors operating in 31 countries with a combined capacity of more than 370 gigawatts of electricity (GWe). These reactors provide about 2.518 trillion kilowatt hours (kWh) (13 percent) of the world's electricity.¹⁸ The United States has the most reactors, 100, followed by France with 58, Japan with 50, and Russia with 33.¹⁹ About 20 percent of U.S. electricity is generated by nuclear fuel.

Over 95 percent of the world's uranium enrichment capacity is controlled by four entities: USEC in the United States; Eurodif/Areva in France; TENEX in Russia; and Urenco with facilities in Germany, the Netherlands, the United States, and the United Kingdom. The nameplate capacity for the primary suppliers of uranium enrichment for 2012, consisting of facilities employing both gaseous centrifuge and gaseous diffusion technology, is presented in the following tabulation:²⁰

Location	Diffusion	Centrifuge
Quantity (1,000 SWU)		
China (CNNC)	(1)	1,500
France (Eurodif/Areva)	(2)	2,500
Germany-Netherlands-UK (Urenco)	(1)	12,800
Japan (JNFL)	(1)	150
Russia (TENEX)	(1)	25,000
USA (USEC)	5,000	(1)
USA (Urenco)	(1)	2,000
Others ³	(1)	100
Totals		44,050
¹ Not applicable. ² Eurodif's gaseous diffusion plant is closing down in favor of centrifuge. ³ Includes Brazil, Iran, and Pakistan.		

Source: Official statistics of the World Nuclear Organization.

While gaseous diffusion plants have the advantage of being less capital intensive than gaseous centrifuge plants, there appear to be a number of important advantages of the

¹⁸ See <http://www.world-nuclear.org/info/Current-and-Future-Generation/Plans-For-New-Reactors-Worldwide.html>, retrieved on July 29, 2013.

¹⁹ See <http://www.iaea.org/PRIS/WorldStatistics/OperationalReactorsByCountry.aspx> retrieved on July 23, 2013.

²⁰ See <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Conversion-Enrichment-and-Fabrication/Uranium-Enrichment/#.Ue59421cnz8> retrieved on July 23, 2013.

gaseous centrifuge facilities that render them technologically superior to the gas diffusion facilities, especially the more up-to-date centrifuge technologies. These include lower electrical costs, higher capacity utilization rates, and the ability to incrementally add gaseous centrifuge capacity based on market needs. Currently, nearly 90 percent of global commercial uranium enrichment is done via the centrifuge method.

Global producers that had employed gaseous diffusion technology have closed their gaseous diffusion plants in favor of centrifuge technology.²¹ Energy security concerns and greenhouse gas emissions associated with coal powered plants have combined to put nuclear power back on the agenda for projected new capacity in many countries, despite the aftermath of Fukushima.²² More than 60 nuclear power reactors are currently being constructed in 13 countries, notably China, India, South Korea and Russia.²³ Reactors are being planned in the Asian region as a result of fast-growing economies and rapidly-rising electricity demand. The future of nuclear power is less certain in the United States where the emphasis for electricity production has moved more toward natural gas from fracking.

Many countries with existing nuclear power have plans to build new power reactors (beyond those now under construction). In all, about 160 power reactors with a total net capacity of some 177,000 MWe are planned and over 320 more are proposed. Following proposals from the International Atomic Energy Agency (IAEA) and Russia, and in connection with the US-led Global Nuclear Energy Partnership (GNEP), there are moves to establish international uranium enrichment centers that are new enrichment capacity under international control as a non-proliferation measure. The first of these international centers is the International Uranium Enrichment Centre (IUEC) at Angarsk in Siberia, and is a joint venture with Kazakhstan. Russia will maintain majority ownership, and IUEC will sell both enrichment services and enriched uranium product.²⁴

Eurodif owns 60 percent of an enrichment plant in France along with Italy, Spain, Belgium, and Iran that operated under IAEA safeguards by the host country without giving participants any access to the technology. The French Atomic Energy Commission proposed that the new Georges Besse II plant should be open to international partnerships on a similar basis, and minor shares in the Areva subsidiary operating company Societe d'Enrichissement du Tricastin (SET) have so far been sold to GDF Suez, a Japanese partnership, and Korea Hydro and Nuclear Power (KHNP).²⁵

²¹ See <http://www.world-nuclear.org/info/Conversion-Enrichment-and-Fabrication;html.Current-and-Future-Generation/Plans-For-New-Reactors-Worldwide.html>, retrieved on July 29, 2013.

²² See <http://www.world-nuclear.org/info/Current-and-Future-Generation/Plans-For-New-Reactors-Worldwide.html>. Retrieved on July 29, 2013.

²³ See <http://www.world-nuclear.org/info/Current-and-Future-Generation/Plans-For-New-Reactors-Worldwide.html>, retrieved on July 29, 2013.

²⁴ See <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Conversion-Enrichment-and-Fabrication/Uranium-Enrichment/>, retrieved August 5, 2013.

²⁵ See <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Conversion-Enrichment-and-Fabrication/Uranium-Enrichment/>, retrieved August 5, 2013.

The following tabulation provides information on LEU production facilities, by country, company, and plant, with enrichment capacity in 2012 and planned enrichment capacity in 2015 and 2020.²⁶

Country	Company and plant	2012		2015		2020	
		(1,000 SWU per year)	%	(1,000 SWU per year)	%	(1,000 SWU per year)	%
EU:							
France	Areva & Eurodif: Georges Besse I & II	2,500	5	7,000	10	11000	13
Germany	Urenco: Gronau, Germanu	4,200	8	4,200	6	4200	5
Netherlands	Urenco: Almeio	5,500	11	5,500	8	5500	7
United Kingdom	Urenco: Capenhurst	5,000	10	5,000	7	5000	6
Total EU		17,200	34	21,700	32	18700	22
Japan	JNFL: Rokkaasho	150	(^a)	150	(^a)	1500	2
United States	U.S. Enrichment Corp; Paducah, KY & Portsmouth, OH	5,000	10	3,800	6	3800	5
United States	Urenco: New Mexico	2,000	4	5,700	9	5700	7
United States	Areva: Idaho Falls	0	0	1,500	2	3300	4
United States	Global Laser Enrichment	0	0	1,000	2	6000	7
Russia	TENEX	25,000	49	30,000	44	35000	42
China	CNNC	1,500	3	3,000	5	8000	10
Other	Various companies	100	(^a)	500	1	1000	1
Total world		50,950	100	67,350	100	84,000	100

^a Less than 0.5 percent.

²⁶ See <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Conversion-Enrichment-and-Fabrication/Uranium-Enrichment/>, retrieved August 5, 2013.

PART V: PRICING DATA

FACTORS AFFECTING PRICES

U.S. electric utilities are the primary end users of LEU, and they typically purchase uranium concentrates and processing services at each successive stage of the uranium fuel cycle. Some utilities also buy EUP for part of their requirements. The total cost of LEU purchased via the uranium fuel cycle is the sum of the prices utilities pay for uranium concentrates, conversion of uranium concentrates to natural UF₆, and enrichment, which is based on the number of SWUs required to enrich the natural UF₆.¹ There are a number of factors that can impact the price of enrichment services, such as enriched product assays, tail assay, redirecting enrichment to support tails re-enrichment, monetary exchange rates, shipping costs, and diversity of supply. Evaluated prices result from the individual electric utility's quantitative evaluations of the terms offered by a competing bidder. The number of SWUs associated with a given quantity of LEU depends on the product and tails assays,² as specified by the contracting electric utility. The higher the product assay and/or the lower the tails assay, the greater the number of SWUs required, and thus the greater the cost of enrichment.

During the nuclear fuel cycle, the enricher never takes title to either the raw material input or the resulting LEU. Due to the fungibility of LEU, market participants may exchange or "swap" LEU enriched at one facility for LEU at another facility. Swaps and loans of LEU are less frequent than those for natural uranium products. Swaps are used by market participants to minimize transportation costs, to ensure product availability to a customer in a timely matter at contract-specified quantities, to meet unexpected demand requirements, to optimize inventories, and to change the country of origin of the uranium products.³ USEC reported that the use of swaps has ***.⁴ According to Areva, swaps are a common industry practice and ***.⁵ All 15 responding purchasers reported that the use of swaps in the LEU market has remained unchanged and that they have not participated in any LEU swaps.

¹ SWU is an international unit of measure for enrichment service and sales. The electric utility pays for conversion and enrichment; the utility owns and supplies the material input, uranium concentrates, and natural UF₆, respectively, to the converter and enricher. For EUP, the utility does not supply any natural UF₆ to the enricher.

² Product assays refer to the increased level of concentration of the U²³⁵ isotope required in LEU, and the tails assays refer to the depleted level of concentration of this isotope on the waste product. It takes 9 kilograms of UF₆ and 5 SWUs to produce 1 kilogram of enriched uranium at a 4 percent enrichment level with 8 kilograms of depleted uranium with a tails assay of 0.3 percent.

³ *Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom, Inv. 701-TA-409-412 and 731-TA-909 (Final)*, USITC staff report, January 4, 2002, p. V-2.

⁴ ***. Areva's posthearing brief, pp. 70-71.

⁵ Hearing transcript, p. 137 (McMurphy); Areva's posthearing brief, pp. 70-71. See *Part IV* of this report for detailed information on Areva's use of swap transactions.

Raw material costs

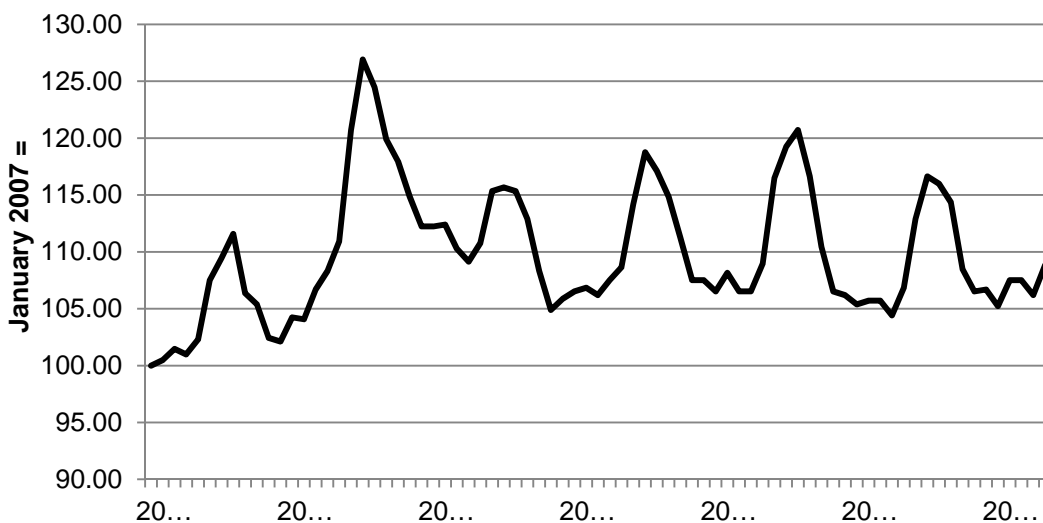
Natural UF₆ is the primary material input used to produce LEU in the United States. Electric utilities typically purchase UF₆ and provide the raw material to the producers for enrichment. According to Ux Consulting Company, monthly spot prices for UF₆ have fluctuated since 2007, with peaks in mid-2007 and early 2011. The highest monthly spot prices were approximately \$360/kg in mid-2007. Prices then fell to approximately \$120/kg in 2010 before rising to \$200/kg in 2011. Mid-2013 prices were below \$100/kg.⁶

*** reported that prices of UF₆ do not impact the price of their enrichment services. *** reported that there are ample uranium inventories held by utilities, producers, and other market participants for a variety of reasons, such as government policy, minimizing supply disruptions, guaranteeing delivery schedules, or simply taking advantage of favorable price situations. *** reported that during the period of review, ***.

Electricity is the single most important cost factor for the production of LEU using the gaseous diffusion process. Electricity costs represented the single largest component of USEC's production costs (see *Part III* of this report). *** reported that the greatest impact on its input costs has been the shift from gaseous diffusion, which requires significant amounts of electricity, to production using the centrifuge process which uses significantly less amounts of electricity. As seen in figure V-1, despite the seasonal peaks, the price of electricity has trended upwards during the period of review.

Figure V-1

Industrial price of electricity: Monthly prices for January 2007-June 2013



Source: U.S. Energy Information Administration, <http://www.eia.doe.gov>, accessed on August 7, 2013.

⁶ The Ux Consulting Company, LLC, found at <http://www.uxc.com/>, retrieved on August 7, 2013.

U.S. inland transportation costs

U.S. inland transportation costs typically account for a very small percentage of the total delivered price of LEU. *** reported that they typically arrange transportation to their customers; *** reported that its purchasers generally arrange for the transportation.

PRICING PRACTICES

Pricing methods

LEU is sold predominantly through contract sales. Negotiations for these contracts begin two to seven years before the actual contract period. While purchasers consider diversification of supply an important factor, they usually award each contract to a single bidder. Contract prices for enrichment services are generally based on considerations of market conditions and production costs. The terms of long-term contracts may include a price reopener which is negotiated when a contract is signed. Due to the long duration of the average contract, some contracts allow for price renegotiations in the middle of the contract ensuring that neither the enricher nor the purchaser is significantly away from the market price at the time of delivery.⁷

*** reported selling *** in 2012. *** reported selling *** in 2012. However, ***.

*** reported that the average duration of its short-term contract was one year. ***.

Long-term contract provision varied among the two U.S. producers and Areva. ***. ***. ***.

As discussed in *Part II* of this report, electric utilities reported that 93.7 percent of their purchases of LEU were via long-term contracts during the period of review. Purchasers reported that two-thirds of these long-term contracts (based on contract quantity) fixed prices or were subject to escalator clauses. Approximately one-third of purchasers' contracts set prices partially based on market prices at the time of delivery.

Producers and importers were asked to identify and explain the typical factors discussed between their firm and their U.S. purchasers when arriving at an enrichment fee and/or EUP price in multi-year contracts. ***. ***. ***. ***.⁸ ***.⁹ ***.¹⁰ ***.¹¹ ***. ***.

*** reported that both storage and disposal costs for depleted tails are included in the price of the SWUs. *** reported that tails disposal accounted for *** percent of the total SWU price and freight costs to U.S. fabricators accounted for *** percent of the total SWU price. *** reported that prices for SWUs are quoted ***.

⁷ Hearing transcript, p. 90 (Donelson).

⁸ *** reported that the tails assay in many of *** were fixed at 0.30 percent. Other contracts allowed a tails assay range of *** percent.

⁹ *** reported that tails assay range subject to mutual agreement.

¹⁰ *** noted that product assay typically ranged between *** percent and tails assay typically ranged between *** percent.

¹¹ ***.

Sales terms and discounts

U.S. producers and importers typically quote prices on a delivered basis. ***. ***. ***.

Price leadership

The majority of purchasers (13 of 20) reported that there is no price leader in the LEU market. Purchasers noted that overall market conditions determine pricing. *** also noted that regardless of price, utilities are unlikely to buy one hundred percent of its LEU requirements from any one supplier. Purchasers reported that LES (7 purchasers), USEC (4), TENEX (3) and Areva (2) were price leaders.

PRICE DATA

The Commission requested U.S. producers and importers of LEU from France to provide quarterly data for the total quantity and f.o.b. value of LEU, on both an enrichment basis and as EUP, shipped to unrelated U.S. customers during January 2007 to June 2013. The product for which price data were requested is as follows:

Low enriched uranium hexafluoride.—Uranium hexafluoride enriched in the U235 isotope, usually in the range of 3-5 percent enrichment, but always less than 20 percent.

Because of the importance of long-term contracts in this industry, separate price data were requested for three categories of transactions.

- Enrichment Agreement Category 1: spot contracts and those long-term contracts for LEU where the prices are based on market prices at the time of production and the contracts do not specify a fee/cost-based floor or a price ceiling.
- Enrichment Agreement Category 2: long-term contract sales where prices are based on market prices at the time of production but the contracts do specify a fee/cost-based floor, a price ceiling, a discount from the market price, or some combination of these.
- Enrichment Agreement Category 3: long-term contract sales where prices are fixed or subject to escalator clauses specified in the contract.

In addition, producers and importers were asked to report quarterly price and quantity data separately for each contract year in multi-year contracts. Two U.S. producers and one importer provided usable pricing data for sales of the requested product.¹² No pricing data were reported for contracts under Enrichment Agreement Category 1. The bulk of LEU sales were

¹² ***.

enrichment contracts under Enrichment Agreement Category 3. Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' shipments of LEU and *** percent of U.S. shipments of subject imports from France. Price data for LEU by transaction type are presented in tables V-1 to V-4 and figure V-2 to V-3.

Table V-1

LEU: U.S. producers net delivered selling prices and quantities of restricted market-related contract sales to U.S. electric utilities of U.S. enrichment services (Category 2), measured in SWUs of enrichment, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2005-10

* * * * *

Table V-2

LEU: U.S. producers' net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of U.S. enrichment services (Category 3), measured in SWUs of enrichment, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2003-2010

* * * * *

Table V-3

LEU: Areva's net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of French enrichment services (Category 3), measured in SWUs of enrichment, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2002 and 2004-06

* * * * *

Table V-4

LEU: USEC's net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of EUP (Category 3), measured in kilograms of U, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2006 and 2008-09

* * * * *

Figure V-2

LEU: Weighted-average prices and quantities of domestic and imported LEU sold to U.S. electric utilities of enrichment services, by enrichment agreement category and by contract year. 2002-2010

* * * * *

Figure V-3

LEU: U.S. producers' weighted-average prices and quantities of LEU sold to U.S. electric utilities of EUP, by contract year. 2002-2010

* * * * *

Price trends

Trends in the price data should be used with caution because of the existence of long-term contracts of differing contract periods, differences in contract volumes, and a myriad of contract terms and conditions. In general, the price of LEU sold to electric utilities increased throughout the period of review. The weighted-average price of U.S.-produced LEU in Enrichment Agreement Category 2 increased from *** per SWU for 2005 contracts to *** per SWU for 2008 contracts before declining to *** per SWU for 2010 contracts. The weighted-average price of U.S.-produced LEU in Enrichment Agreement Category 3 fluctuated during the period of review but generally increased from *** per SWU for 2003 contracts to *** per SWU for 2010 contracts. The weighted-average price of LEU produced in France in Enrichment Agreement Category 3 increased from *** per SWU for 2002 contracts to *** per SWU for 2006 contracts. With few contracts for U.S.-produced EUP sales in Enrichment Agreement Category 3, the weighted-average price increased from *** per SWU for 2006 contracts to *** per SWU for 2009 contracts.

USEC stated that prior to the Fukushima incident, there had been strong gains in price for both the natural uranium component and the enrichment component. However, since the accident, prices for those two key commodities for nuclear fuel have fallen. USEC anticipates that the price will recover once the reactors in Japan return online.¹³ USEC also anticipates that the expected growth in China and South Korea will also absorb the substantial surpluses of LEU and prices will recover.¹⁴

Price comparisons

Because of the varying long-term contracts terms and condition, price comparisons should be used with caution. French-produced LEU was sold under enrichment contracts in Enrichment Agreement Category 3 only. For the three comparable contract years of data, France undersold in two instances, with an average underselling margin of ***. For contract year 2004, LEU from France undersold domestic product by *** percent for LEU delivered in the third quarter of 2007. Again in contract year 2004, LEU from France undersold domestic product by *** percent for LEU delivered in the fourth quarter of 2007.¹⁵ In contract year 2005, U.S.-produced LEU and subject LEU ***.

¹³ USEC reported that according to WNA's forecast, 60 percent of Japan's nuclear capacity (30 out of 50 reactors) will return to service by 2020. USEC believes that 6 reactors will be online by March 2014 and another 8 reactors will restart by then end of 2014. USEC's posthearing brief, exhibit 23.

¹⁴ Hearing transcript, pp. 87-88 (Donelson).

¹⁵ In the original investigation, French-produced LEU undersold domestic product in *** possible comparisons based on contract years. In the last review, French-produced LEU undersold domestic product in *** possible comparison based on contract years. *Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom, Inv. Nos. 701-TA-409-412 and 731-TA-909 (Final)*, USITC staff report, January 4, 2002, p. V-34; and *Low Enriched Uranium from France, Inv. No. 731-TA-909 (Review)*, USITC staff report, November 7, 2007, p. V-20.

Thirteen of 16 purchasers reported that the price of U.S.-produced LEU has changed by the same amount as the price of imported LEU from France. Two purchasers reported that the price of domestically produced LEU is higher than the price of LEU from France; one purchaser reported that price of LEU has not changed since 2007.

Public price data

According to U.S. Energy Information Administration, the price for enrichment services sold to U.S. electric utilities increased by 23.4 percent during the period from \$114 per SWU in 2007 to \$141 per SWU in 2012 (table V-5).

Table V-5

EIA: Average price of enrichment services sold to U.S. power reactors, 2007-12

Item	Year					
	2007	2008	2009	2010	2011	2012
Average price per SWU	114.58	121.33	130.78	136.14	136.12	141.36

Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2008-2012).

APPENDIX A

FEDERAL REGISTER NOTICES

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, *Federal Register* notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
77 FR 71684 December 3, 2012	<i>Initiation of Five-Year (“Sunset”) Review</i>	http://www.gpo.gov/fdsys/pkg/FR-2012-12-03/pdf/2012-29368.pdf
77 FR 71626 December 3, 2012	<i>Low Enriched Uranium From France; Institution of a Five-Year Review Concerning the Antidumping Duty Order on Low Enriched Uranium From France</i>	http://www.gpo.gov/fdsys/pkg/FR-2012-12-03/pdf/2012-28992.pdf
78 FR 19311 March 29, 2013	<i>Low Enriched Uranium From France; Notice of Commission Determination to Conduct a Full Five-Year Review</i>	http://www.gpo.gov/fdsys/pkg/FR-2013-03-29/pdf/2013-07326.pdf
78 FR 21100 April 9, 2013	<i>Low Enriched Uranium From France: Final Results of the Expedited Second Sunset Review of the Antidumping Duty Order</i>	http://www.gpo.gov/fdsys/pkg/FR-2013-04-09/pdf/2013-08239.pdf
78 FR 21416 April 10, 2013	<i>Low Enriched Uranium From France; Scheduling of a Full Five-year Review Concerning the Antidumping Duty Order on Low Enriched Uranium from France</i>	http://www.gpo.gov/fdsys/pkg/FR-2013-04-10/pdf/2013-08389.pdf
<p>Note.—The press release announcing the Commission’s determinations concerning adequacy and the conduct of a full or expedited review can be found at http://usitc.gov/press_room/news_release/2012/er0409kk1.htm. A summary of the Commission’s votes concerning adequacy and the conduct of a full or expedited review can be found at http://pubapps2.usitc.gov/sunset/caseProfSuppAttmnt/download/11452. The Commission’s explanation of its determinations can be found at http://pubapps2.usitc.gov/sunset/caseProfSuppAttmnt/download/11453.</p>		

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission’s hearing:

Subject: Low Enriched Uranium from France
Inv. No.: 731-TA-909 (Second Review)
Date and Time: September 10, 2013 - 9:30 a.m.

Sessions were held in connection with this investigation in the Main Hearing Room (room 101), 500 E Street, SW, Washington, DC.

OPENING REMARKS:

In Support of Continuation (**Richard O. Cunningham**, Steptoe & Johnson LLP)
In Opposition to Continuation (**Stuart M. Rosen**, Stuart M. Rosen)

**In Support of the Continuation of the
Antidumping Duty Order:**

Steptoe & Johnson LLP
Washington, DC
on behalf of

USEC, Inc.
United States Enrichment Corporation (collectively “USEC”)

Philip G. Sewell, Senior Vice President *and* Chief Development Officer, USEC

John M.A. Donelson, Vice President, Marketing, Sales & Power, USEC

Daniel W. Rogers, General Manager, American Centrifuge Plant, USEC

James A. Schoettler, Assistant General Counsel, USEC

Daniel Klett, Principal, Capital Trade Inc.

Richard O. Cunningham)
Thomas J. Trendl)
) -- OF COUNSEL
Henry N. Smith)
Alexandra E.P. Baj)

**In Opposition of the Continuation of the
Antidumping Duty Order:**

Stuart M. Rosen
New York, NY
on behalf of

and

Foley & Lardner LLP
Washington, DC
on behalf of

AREVA

Michael McMurphy, Chairman, Board of Directors,
AREVA NC, Inc.

Marc Chevrel, Executive Vice President, Chemistry
and Enrichment, AREVA NC

Gregory Husisian)
) -- OF COUNSEL
Stuart M. Rosen)

REBUTTAL/CLOSING REMARKS:

In Support of Continuation of Order (**Richard O. Cunningham**, Steptoe & Johnson LLP)
In Opposition to Continuation of Order (**Stuart M. Rosen**, Stuart M. Rosen)

APPENDIX C
SUMMARY DATA

Table C-1

LEU: Summary data concerning the U.S. market, 2007-12, January to March 2012, and January to March 2013

(Quantity=1,000 SWUs; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per SWU--exceptions noted)

Item	Report data							
	2007	2008	Calendar year			January to March		2013
			2009	2010	2011	2012	2012	
U.S. consumption quantity:								
Amount.....	***	***	***	***	***	***	***	***
Producers' share (note 1).....	***	***	***	***	***	***	***	***
Importers' share (note 1):								
France.....	***	***	***	***	***	***	***	***
Russia.....	***	***	***	***	***	***	***	***
All other sources.....	***	***	***	***	***	***	***	***
Total imports.....	***	***	***	***	***	***	***	***
U.S. consumption value:								
Amount.....	***	***	***	***	***	***	***	***
Producers' share (note 1).....	***	***	***	***	***	***	***	***
Importers' share (note 1):								
France.....	***	***	***	***	***	***	***	***
Russia.....	***	***	***	***	***	***	***	***
All other sources.....	***	***	***	***	***	***	***	***
Total imports.....	***	***	***	***	***	***	***	***
U.S. imports from:								
France:								
Quantity.....	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***
Russia:								
Quantity.....	3,855	3,565	3,640	4,367	3,904	3,625	205	219
Value.....	909,877	835,252	855,824	1,049,038	949,837	854,372	81,145	49,221
Unit value.....	\$236	\$234	\$235	\$240	\$243	\$236	\$396	\$225
Ending inventory quantity.....	***	***	***	***	***	***	***	***
All other sources:								
Quantity.....	6,096	7,643	6,324	7,192	6,618	6,549	1,417	1,365
Value.....	2,868,334	2,911,287	2,514,103	2,676,705	2,501,228	2,554,132	583,204	516,582
Unit value.....	\$471	\$381	\$398	\$372	\$378	\$390	\$411	\$378
Ending inventory quantity.....	***	***	***	***	***	***	***	***
Total imports:								
Quantity.....	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***
U.S. producers':								
Average capacity quantity.....	***	***	***	***	***	***	***	***
Production quantity.....	***	***	***	***	***	***	***	***
Capacity utilization (note 1).....	***	***	***	***	***	***	***	***
U.S. shipments:								
Quantity.....	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***
Export shipments:								
Quantity.....	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***
Inventories/total shipments (note 1).....	***	***	***	***	***	***	***	***
Production workers.....	***	***	***	***	***	***	***	***
Hours worked (1,000s).....	***	***	***	***	***	***	***	***
Wages paid (\$1,000).....	***	***	***	***	***	***	***	***
Hourly wages.....	***	***	***	***	***	***	***	***
Productivity (SWUs per hour).....	***	***	***	***	***	***	***	***
Unit labor costs (per SWU).....	***	***	***	***	***	***	***	***

Table continued next page.

Table C-1--Continued

LEU: Summary data concerning the U.S. market, 2007-12, January to March 2012, and January to March 2013

(Period changes in percentage change, exceptions for percentage point change as noted)

Item	Period changes						Jan-Mar 2012-13
	2007-12	2007-08	Calendar year		2010-11	2011-12	
			2008-09	2009-10			
U.S. consumption quantity:							
Amount.....	***	***	***	***	***	***	***
Producers' share (note 1).....	***	***	***	***	***	***	***
Importers' share (note 1):							
France.....	***	***	***	***	***	***	***
Russia.....	***	***	***	***	***	***	***
All others sources.....	***	***	***	***	***	***	***
Total imports.....	***	***	***	***	***	***	***
U.S. consumption value:							
Amount.....	***	***	***	***	***	***	***
Producers' share (note 1).....	***	***	***	***	***	***	***
Importers' share (note 1):							
France.....	***	***	***	***	***	***	***
Russia.....	***	***	***	***	***	***	***
All others sources.....	***	***	***	***	***	***	***
Total imports.....	***	***	***	***	***	***	***
U.S. imports from:							
France:							
Quantity.....	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***
Russia:							
Quantity.....	(6.0)	(7.5)	2.1	20.0	(10.6)	(7.1)	6.8
Value.....	(6.1)	(8.2)	2.5	22.6	(9.5)	(10.1)	(39.3)
Unit value.....	(0.1)	(0.7)	0.3	2.2	1.3	(3.1)	(43.2)
Ending inventory quantity.....	***	***	***	***	***	***	***
All other sources:							
Quantity.....	7.4	25.4	(17.2)	13.7	(8.0)	(1.0)	(3.7)
Value.....	(11.0)	1.5	(13.6)	6.5	(6.6)	2.1	(11.4)
Unit value.....	(17.1)	(19.0)	4.4	(6.4)	1.6	3.2	(8.0)
Ending inventory quantity.....	***	***	***	***	***	***	***
Total imports:							
Quantity.....	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***
U.S. producers':							
Average capacity quantity.....	***	***	***	***	***	***	***
Production quantity.....	***	***	***	***	***	***	***
Capacity utilization (note 1).....	***	***	***	***	***	***	***
U.S. shipments:							
Quantity.....	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***
Export shipments:							
Quantity.....	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***
Inventories/total shipments (note 1).....	***	***	***	***	***	***	***
Production workers.....	***	***	***	***	***	***	***
Hours worked (1,000s).....	***	***	***	***	***	***	***
Wages paid (\$1,000).....	***	***	***	***	***	***	***
Hourly wages.....	***	***	***	***	***	***	***
Productivity (SWUs per hour).....	***	***	***	***	***	***	***
Unit labor costs (per SWU).....	***	***	***	***	***	***	***

Table continued next page.

Table C-1--Continued

LEU: Summary data concerning the U.S. market, 2007-12, January to March 2012, and January to March 2013

(Quantity=1,000 SWUs or 1,000 kgU as noted; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per SWU)

Item	Report data							
	2007	2008	Calendar year				January to March	
			2009	2010	2011	2012	2012	2013
U.S. producers' combined (i.e., U.S. and Russia) LEU operations:								
Net sales quantity:								
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***	***
EUP (1,000 kgU).....	***	***	***	***	***	***	***	***
Net sales value:								
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***	***
EUP (where 1,000 kgU).....	***	***	***	***	***	***	***	***
Total net sales value:.....	***	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***	***
Gross profit or (loss).....	***	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***	***
Operating income or (loss) (note 3).....	***	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***	***
Unit EUP sales (per kgU).....	***	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***	***
U.S. producers' U.S.-produced LEU operations:								
Net sales quantity:								
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***	***
EUP (1,000 kgU).....	***	***	***	***	***	***	***	***
Net sales value:								
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***	***
EUP (where 1,000 kgU).....	***	***	***	***	***	***	***	***
Total net sales value:.....	***	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***	***
Gross profit or (loss) (note 3).....	***	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***	***
Operating income or (loss) (note 3).....	***	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***	***
Unit EUP sales (per kgU).....	***	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***	***
U.S. producers' Russia-import LEU operations:								
Net sales quantity:								
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***	***
Net sales value:								
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***	***
Gross profit or (loss).....	***	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***	***
Operating income or (loss).....	***	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***	***

Table continued next page.

Table C-1--Continued

LEU: Summary data concerning the U.S. market, 2007-12, January to March 2012, and January to March 2013

(Period changes in percentage change, exceptions for percentage point change as noted)

Item	Period changes						Jan-Mar 2012-13
	2007-12	2007-08	Calendar year		2010-11	2011-12	
			2008-09	2009-10			
U.S. producers' combined (i.e., U.S. and Russia) LEU operations:							
Net sales quantity:							
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***
EUP (1,000 kgU).....	***	***	***	***	***	***	***
Net sales value:							
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***
EUP (where 1,000 kgU).....	***	***	***	***	***	***	***
Total net sales value:.....	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***
Gross profit or (loss).....	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***
Operating income or (loss) (note 3).....	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***
Unit EUP sales (per kgU).....	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***
U.S. producers' U.S.-produced LEU operations:							
Net sales quantity:							
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***
EUP (1,000 kgU).....	***	***	***	***	***	***	***
Net sales value:							
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***
EUP (where 1,000 kgU).....	***	***	***	***	***	***	***
Total net sales value:.....	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***
Gross profit or (loss) (note 3).....	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***
Operating income or (loss) (note 3).....	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***
Unit EUP sales (per kgU).....	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***
U.S. producers' Russia-import LEU operations:							
Net sales quantity:							
Enrichment (1,000 SWUs).....	***	***	***	***	***	***	***
Net sales value:							
Enrichment (where 1,000 SWUs).....	***	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***	***
Gross profit or (loss).....	***	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***	***
Operating income or (loss).....	***	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***	***
Unit enrichment sales (per SWU).....	***	***	***	***	***	***	***
COGS/sales.....	***	***	***	***	***	***	***
Operating income or (loss)/ sales.....	***	***	***	***	***	***	***

End of table

Notes:

(¹) Report data are in percent and period changes are in percentage points.

(²) Undefined.

(³) Whether positive (negative) percentage change indicates improving (worsening) financials depends on the sign of numerator and denominator.

Source: Compiled from data submitted in response to Commission questionnaires and from official Commerce statistics.

Table C-2

LEU: Summary data concerning the U.S. market excluding LES, 2007-12, January to March 2012, and January to March 2013

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Table C-3

LEU: Summary data concerning the U.S. market excluding USEC, 2007-12, January to March 2012, and January to March 2013

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APPENDIX D

**U.S. PRODUCERS, U.S. IMPORTERS, AND PURCHASERS COMMENTS ON THE
EFFECTS OF THE ANTIDUMPING ORDER**

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APPENDIX E

REPORTED PRICING DATA INCLUDING RUSSIAN LEU SOLD BY USEC

Contains Business Proprietary Information

Table E-1

LEU: U.S. producers' net delivered selling prices and quantities of spot sales and certain contract sales to U.S. electric utilities of U.S. enrichment services, measured in SWUs of enrichment (Category 1), by quarters, January 2007-March 2013, for contracts by the year negotiated, 2003 and 2008-11

* * * * *

Table E-2

LEU: U.S. producers net delivered selling prices and quantities of restricted market-related contract sales to U.S. electric utilities of U.S. enrichment services (Category 2), measured in SWUs of enrichment, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2005-11

* * * * *

Table E-3

LEU: U.S. producers' net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of U.S. enrichment services, measured in SWUs of enrichment (Category 3), by quarters, January 2007-March 2013, for contracts by the year negotiated, 2003-2011

* * * * *

Table E-4

LEU: Areva's net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of French enrichment services (Category 3), measured in SWUs of enrichment, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2002 and 2004-06

* * * * *

Table E-5

LEU: U.S. producers' net delivered selling prices and quantities of restricted market-related contract sales to U.S. electric utilities of EUP (Category 2), measured in kilograms of U, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2007-08

* * * * *

Table E-6

LEU: USEC's net delivered selling prices and quantities of fixed or escalated price contract sales to U.S. electric utilities of EUP (Category 3), measured in kilograms of U, by quarters, January 2007-March 2013, for contracts by the year negotiated, 2006 and 2008-10

* * * * *

Contains Business Proprietary Information

Figure E-1

LEU: Weighted-average prices and quantities of domestic and imported LEU sold to U.S. electric utilities of enrichment services, by enrichment agreement category and by contract year. 2002-2011

* * * * *

Figure E-2

LEU: U.S. producers' weighted-average prices and quantities of LEU sold to U.S. electric utilities of EUP, by enrichment agreement category and by contract year. 2002-2011

