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RELATED CORRESPONDENCE

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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**OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF**

In the Matter of

Docket No. 70-3103

Louisiana Energy Services, L.P.

ASLBP No. 04-826-01-ML

National Enrichment Facility

**REBUTTAL TESTIMONY OF MICHAEL F. SHEEHAN
ON BEHALF OF NUCLEAR INFORMATION AND RESOURCE
SERVICE
AND
PUBLIC CITIZEN
NIRS/PC CONTENTION EC-7**

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I. INTRODUCTION

A. Qualifications

- Q1. Please state your name and address for the record.
- A1. My name is Michael F. Sheehan. My address is 33126 Callahan Road, Scappoose, Oregon 97056.
- Q2. By whom are you employed and in what capacity?
- A2. I am a partner in the firm of Osterberg & Sheehan, Public Utility Economists, of Scappoose, Oregon and Mount Vernon, Iowa.
- Q3. Please describe your professional background.
- A3. I hold B.S., M.A. and Ph.D. degrees in economics from the University of California at Riverside. I have taught project analysis, quantitative economics, and operations research, as well as basic, intermediate, and graduate courses in economic theory and policy at the Graduate School of Administration at the University of California at Riverside; at California State College, San Bernardino; and in the Graduate Program at Chapman College. In 1979 I was hired into the Graduate Program in Urban and Regional Planning at the University of Iowa, where I taught courses in environmental policy and planning, public utility policy and planning, planning economics, local energy planning, and state and local development finance. I have published a substantial number of articles in scholarly journals and a number of chapters in books. I also hold a JD from the College of Law of the University of Iowa and I am admitted to practice in Oregon and Iowa. My legal practice focuses primarily on land use and related matters.
- Q4. Please describe your background on issues related to the nuclear fuel cycle,

environmental planning, and environmental and land use regulation.

A4. Much of my practice over the last twenty years has been involved with environmental planning and regulation, including geothermal development in California, surface mining in Oregon, high and low level radioactive waste issues in the west and midwest, and the economics and regulation of MSW. I have worked extensively on water quality issues, including reclamation of waste water in the Los Angeles basin, NPDES permits in the meatpacking and related contexts, and radium 226 problems in the midwest. I have published on the economics of water supply, and been involved in several studies and cases involving water supply economics. I have published a number of articles on public policy related to toxics. My dissertation was largely focused on the issues of infrastructure and mining development in the United States and Mexico.

Q5. Have you previously testified on issues related to finance or project planning?

A5. Yes. I have testified before the Indiana Commission in a number of Causes dealing with including incentives, utility planning, valuation, and rate of return. I have testified before the Oregon Commission on utility planning, rate design and cost allocation; before the Kentucky Commission on cost of service, rate design, credit and service, and conservation related issues. Before the Iowa Commission I have presented testimony on rate of return, rate design, excess capacity, issues involving municipalization, utility franchises, and utility planning in a series of electric, natural gas, and telephone cases; before the Massachusetts DPU on utility planning and rate design issues in the area of demand-side management and least cost planning; the South Dakota Commission on rate design and utility planning; the New York Commission on avoided costs in the allocation of preference power; and the Wisconsin Commission on rate of return. I have testified

before the Alaska Commission on investment planning in telecommunications, cross-subsidization, rate design, and the problems of the communications handicapped; before the Texas commission on economic development rates; and before the Hawaii commission on rate design and low-income conservation programs. In addition, I have testified before the Illinois Commission on utility planning issues in the nuclear context, and I have appeared before committees of the Nebraska, Missouri, Iowa, and Washington legislatures on various aspects of utility regulation and energy management, and valuation of service territories.

Q6. Have you examined environmental or planning issues in any other forum?

A6. Yes, I worked on contract to Economic Research Associates to provide several chapters of a detailed study of energy planning in Missouri, including the impact of the Clean Air Act Amendments. Together with Skip Laitner I prepared a report on low income weatherization as a stimulus to economic development in Washington. From about 1982 I have been involved in several studies involving problems of utility franchises. I was a member of the Iowa City Franchise Review Committee in 1983-4, and I am co-author of an article in the *Urban Lawyer* on utility franchise fees. I have also provided services on contract to the Vermont Commission staff on utility planning issues, the Nebraska Energy Office, and the Iowa Energy Policy Council in the areas of local energy planning and the relationship of energy pricing to local economic development. I have served on the Rate Advisory Committee and the Resource Acquisition Council of the Columbia River PUD, the Research Advisory Committee of NRRI and the National Consumer Advisory Panel to AT&T. I have been economic consultant on issues related to municipal solid waste disposal to METRO the regional government for the three counties

around Portland, Oregon, and I am a member of the Solid Waste Advisory Committee for Columbia County, Oregon. I have worked on costing and valuation issues for various cities and organizations. And I have consulted on issues related to radioactive materials in the low level waste context, the LES case, and in other proceedings.

Q7. Have you previously testified before this commission?

A7. Yes. I submitted testimony in the following cases:

Hydro Resources Inc. Application to Construct and Operate the Crownpoint Uranium Solution Mining Project at Crownpoint, NM, Docket No. 40-8968. 1997. Expert written testimony on the economics of the proposal (issues related to financial capability, cost benefit analysis and need). On behalf of ENDAUM and the Southwest Research and Information Center.

In the Matter of Private Fuel Storage, LLC for a License for an Independent Spent Fuel Storage Installation Docket 72-22-ISFSI, ASLBP No. 97-732-02-ISFSI. Expert written testimony on the issues of financial assurance, alternatives, no action, and NEPA. On behalf of the State of Utah. 1999-2001.

In the Matter of Pacific Gas & Electric (Diablo Canyon Nuclear Power Plant Nos. 1 and 2). Declaration and assistance with preparation of Contentions relating to the application to establish a high level nuclear waste facility at Diablo Canyon. On behalf various local groups. July 2002.

My partner David Osterberg was also a testifying expert in the LES Homer, Louisiana, case and I was involved in some aspects of the case preparation there.

Q8. Have you testified previously in this case?

A8. Yes, I provided direct testimony on the issue of need.

B. Purpose of this Testimony

Q9. What is the purpose of your testimony?

A9. The purpose of my testimony is to provide rebuttal to the testimony presented by Schwartz and Krich and Schnoebelen on behalf of LES/Urenco and Rick Nevin on behalf of the Staff on this issue of need for this plant.

Q10. Please briefly describe the materials you reviewed for this testimony.

A10. I have reviewed the testimony provided by Schwartz and Krich, Schnoebelen, and Nevin as filed on January 7, 2005. In addition, I have reviewed the following documents and classes of documents among others in support of this testimony: The ER and DEIS, pertinent parts of NRC and EPA rules and related materials, discovery materials, and publicly available data on the enrichment industry, much of it supplied by LES in the discovery process. I would like to note for the record that research for and preparation of this testimony was seriously hindered and interfered with by the closing of ADAMS and the unwillingness to make a reasonable adjustment to the schedule to compensate for the associated delays. These delays differentially impacted the preparation of this testimony when compared to the data available to the applicant and staff at the time they were preparing their cases.

C. Summary of Conclusions

Q11. Please summarize your conclusions.

A11. I reach four conclusions:

1. The Staff and LES analyses are defective in that they reach conclusions about the adequacy of enrichment supply over time without dealing explicitly with cost and

price while making critical assumptions based on costs and prices.

2. The Staff and LES analyses refuse to consider the possibility that the construction of the NEF plant would seriously jeopardize the ability of USEC to construct its American Centrifuge plant with its up-to-date technology. If the construction of the NEF effectively prevents the construction of the USEC plant which would otherwise be constructed, the NEF plant would fail to meet its need justification as set forth in the ER and be counterproductive in its own terms.
3. The replacement of USEC by Urenco as the dominant or single producer in the United States would sharply worsen and not improve the security of United States supply.
4. The presentation of data on contracts signed by the NEF is not evidence of the ability of the NEF plant to provide net "benefits to the public."

D. Organization of the Testimony

Q12. How is your testimony organized?

A12. I will review the Nevin testimony first, then Schnoebelen, and last Schwartz and Krich.

II. NEVIN

Q13. What is the purpose of Mr. Nevin's testimony?

A13. As set forth on pages 2-3 of his testimony Mr. Nevin is concerned with determining the adequacy of the discussion of need in the ER and DEIS. This determination of adequacy includes Basis C of Contention EC-7.

Q14. What does Nevin tell us about the assumptions underlying the conclusions of the ER?

A14. He tells us:

The ER supply forecast included supply through 2020 from the

proposed NEF, the ACP that USEC proposed to build in Ohio, other existing and planned facilities using centrifuge technology, the gradual loss of supply from old diffusion technology facilities, and the continuation of enrichment services obtained by blending down Russian weapons grade highly enriched uranium (HEU)(ER, pp. 1.1-8 through 1.1-15, Table 1.1-5, and figure 1.1-7). USEC has proposed building the ACP to fulfill terms of an agreement with the U.S. Department of Energy (DOE) that calls for USEC to deploy an advanced technology enrichment plant by 2011 (DOE Press Release, "DOE Inks Agreement to Ensure Domestic Uranium Enrichment Capacity is Maintained", June 18, 2002, attached as Staff Exhibit 2). The LES ER supply forecast anticipates that USEC proceeds with its announced plans to replace the Paducah facility with the ACP. The LES ER supply forecast anticipates that Eurodif proceeds with its announced plans to replace its aging diffusion technology facility in France with a new centrifuge facility. The ER supply forecast also anticipates that the Russian HEU agreement, which expires in 2013, will be extended to provide the same annual supply through 2020 (ER, pp.1.1-8 through 1.1-15, Table 1.1-5, and Figure 1.1-7).

Q15. What does Mr. Nevin have to say about supply and demand and "competitiveness" in evaluating the need for the NEF?

A15. Based on "current indicators" (p.5) Mr. Nevin says,

The ER supply forecast is reasonable based on announced plans to build new centrifuge facilities and to close old diffusion facilities that are not cost-competitive with centrifuge technology (ER, Table 1.1-5 and Figure 1.1-7).

Q16. What do you understand Nevin to mean by these two statements?

A16. Two things. The first is that LES's forecast is adequate to, and only to, the extent that the old diffusion plants close and the new centrifuge plants open. And second, that the old diffusion facilities are not "cost-competitive" with the newer plants with their centrifuge technology.

Q17. With respect to the anticipated new centrifuge plants and the closing of the old plants, is

Mr. Nevin correct in his determination that the LES supply forecast is "reasonable"?

A17. In my view he is not. He has failed to evaluate the reasonableness of the assumptions underlying the forecasts. If you assume that $2 + 2 = 6$, you may then say that it is reasonable to conclude that $4 + 4 = 12$, but this type of tautological approach is inconsistent with NEPA and parallel NRC requirements.

Q18. What is the problem with assuming that the U.S. and Western European diffusion plants will close and both the USEC and NEF plants will be built?

A18. The problem is that whether the new plants are built and the old ones closed depends on the economics of the market. Mr. Nevin talks about the economics of the market when he talks about the "cost-competitiveness" of centrifuge plants relative to the large amount of current capacity in gas diffusion plants both in the U.S. and Western Europe. If we assume for a moment that the enrichment supply market is competitive in structure (as opposed to monopolistic), then whether the diffusion plants depart and the various new plants come on, depends on the relationship of the cost of production of those plants to the demand for enrichment. If the price of enrichment is high then (other things equal) the likelihood of more new plants being built is enhanced, but also enhanced is the likelihood that the diffusion plants will continue to produce.¹ All the LES analysis, and the Staff's uncritical review of that analysis, is based on a circular choice of assumptions designed to justify the construction of the NEF plant. Yet if you refuse to look at costs, and you refuse to look at price, then you are ignoring the forces that underlie the

¹ Think of economy dispatch. When demand is at level X the dispatcher dispatches power plants based on the principle of cheapest first, then next cheapest, etc. until the demand is met. If demand is at peak then "more expensive to operate" plants are "cost-competitive."

determination of whether supply is inadequate and, if so, how the market will react.

Q19. Dr. Sheehan, without looking at price or cost is supply adequate?

A19. If we ignore, per instructions, cost of production and price in the marketplace, and just count physical enrichment capacity and the number of NPPs, then supply is adequate.

Q20. Do Nevin and the LES witnesses ignore cost of production?

A20. They do and they don't. They deal with it under the term "cost-competitive." They then assume a certain pattern of closures and new plants based on a labeling of plant technology as either "cost-competitive" or not. Having engaged in this labeling routine, they then refuse to allow any investigation into that determination. Based on this logic 4 + 4 might well = 12.

Q21. Where did Nevin go wrong?

A21. Since his job is to determine whether the ER's analysis is reasonable, he should have investigated, for example, whether it is reasonable to assume (as he has) that if the NEF is built the American Centrifuge Plant will also be built.

Q22. Is it reasonable?

A22. It is not.

Q23. What's the basis for your conclusion that if NEF is built that it is unreasonable to assume that the American Centrifuge Plant will be built?

A23. If I am permitted to render it, my answer to that question is as follows. USEC has the

following disadvantages that will impair its ability to finance and build the ACP:

1. It has only one producing plant and that is a diffusion plant and relatively expensive to operate compared to Urenco's centrifuge plants.
2. USEC's licensing effort for its American Centrifuge plant is about a year behind that of Urenco.
3. USEC does not appear to have any obviously sympathetic or captive market, whereas Urenco claims to have contracts with a substantial share of the U.S. market and very deep pockets. In fact according to Schnoebelen's testimony Urenco has already signed or is about to sign contracts with companies operating 42 of 104 (40%) of the operating NPPs in the United States. (Schnoebelen, A13), and even the DEIS estimates that by 2008 NEF would have roughly 25% of the U.S. market. DEIS 1-5 (NIRS/PC Exhibit 41).
4. USEC is going to have a difficult time getting reasonably priced financing for the \$1.5 billion cost of bring the plant on line. It has a large debt that it hasn't been paying off. Its credit rating is lower than investment grade and falling,² and it's been losing money.³
5. If the NEF is built, potential USEC investors will see a major new source of potentially low-production cost supply as a competitor for the same customers.

Q24. What do you conclude?

A24. I conclude on this point that Nevin went wrong when he refused to investigate or

² USEC 10-Q for September 30, 2004, p.25 (1440) (NIRS/PC Exhibit 72).

³ USEC 10-Q for September 30, 2004, Income Statement, p.4 (1419) (NIRS/PC Exhibit 72).

consider these factors when making his determination of the reasonableness of LES's assumptions underlying its conclusion that the NEF was needed. If the construction of the NEF means the loss of the American Centrifuge Plant, then there is a net loss in capacity (NEF = 3m vs. ACP = 3.5m) overall. Refusal to even consider this possibility is a violation of NEPA principles and ineffective analysis.

Q25. What about the assumption that the NEF is "needed" based on the assumption that the diffusion plants will close?

A25. Whether the diffusion plants remain open or not depends upon market factors, including price and market structure. Studied refusal to allow one side to respond to implicit and controlling assumptions in the Staff analysis of the LES forecast about economic viability and "cost-competitiveness" protects defective assumptions from review. The diffusion capacity exists and will continue to be available to the extent that its product is saleable at a price that will cover marginal cost. An assumption that there will be a shortage of capacity if the NEF is not built (even putting aside the NEF v. ACP issue discussed above) ignores the availability of the diffusion plant capacity. The reason the diffusion plant capacity is assumed to be removed from production, is that price will not justify its continued operation. This assumption depends on—please excuse the expression—price and demand. If there is a shortage, price will rise. It begs the relevant question to argue that there may be a shortage (see the Schwartz/Krich testimony about the impact of the rising price of uranium), but that the diffusion plants will be uneconomical to operate. If price and cost are not to be considered as relevant variables, then the diffusion plants have to be counted as available.

Q26. Does Nevin conclude that a continuation of the Russian HEU agreement past 2013 is reasonable to assume?

A26. Yes he does and I agree with him.

Q27. In his answer to Q13 Nevin concludes that “domestic demand for enrichment services exceeds domestic supply, indicating a need for additional domestic supply, especially in the context of the balance of global supply and demand . . .” He says in A18 (2nd paragraph) “an exclusive focus on domestic supply and demand projections clearly supports the conclusion that there is a need for the NEF facility. . .” And he continues, “the DES indicates that the domestic market would be especially vulnerable to any unforeseen global supply shortfall.” A18. (Emphasis added). What is your view of this?

A27. First, it is not quite clear what Nevin understands as a “global supply shortfall.” Urenco and Areva are expanding enrichment capacity sharply, along with the manufacturing capacity to produce centrifuges. At its European plants Urenco is rapidly increasing capacity. For the last several years Urenco has been sharply increasing both the capacity of its three European enrichment plants and its market share. Enrichment capacity has increased from 4.8 mSWUs in 2000 to 6.5 m in 2003, an increase of 35 percent. Market share has increased from 13 percent in 2000 to 18 percent in 2003, an increase of 38 percent in three years. These figures do not include the LES plant. Urenco plans to continue to expand its business worldwide:

The expansion of Urenco’s enrichment plant capacity to meet the demands of the Group’s future order book continues at all three sites. Commissioning of cascades in the third assay unit of the E23 enrichment plant in Capenhurst, UK, and in the first tranche in Almelo (Netherlands) were both completed ahead of schedule in September of [2002]. A further three cascades were also commissioned in one of the two new cascade halls of the UTA-1 enrichment plant in Gronau (Germany). With centrifuge failure rates remaining low and no major tranche of capacity

decommissioned, Group enrichment plant capacity consequently increased by around 11% over the year to a nominal 5.85 tSWU, a third in Almelo, a quarter in Gronau, and the remainder [42%] at Capenhurst.

The roll continues:

A license for a third hall to the . . . plant in Almelo was received and an application submitted for a license to increase enrichment capacity at that site to 2,800 SWU. The licensing procedure for the second enrichment plant at Gronau has continued through the public hearing . . .

And,

Investment in manufacturing facilities has increased capacity by 25 per cent and further investment coming on line in the next year to remove bottlenecks will raise the capacity by a further 25 per cent.⁴

The 2003 Annual Report shows similar aggressive investment in growth. The Urenco/Areva Enrichment Technology Company (ETC) reported, "commissioning of new capacity increased by 55% in 2003. The manufacturing rate for production of centrifuges increased by 25% in 2003."⁵ Finally, Urenco reported that it had invested over \$310 million in capacity expansion in 2003 alone and intended that its European enrichment capacity will have expanded to 7.5 mSWU by the end of 2005. This will mean an increase of 56% in enrichment capacity between 2001 and 2005. This does not count the LES proposal.

As Schwartz and Krich tell us in their testimony there is a substantial surplus of marketable Russian capacity that is being kept out of western markets by trade barriers.

⁴ *Urenco Limited Annual Report and Accounts: Year to 31 December 2002*, p.15 (NIRS/PC Exhibit 70).

⁵ *Urenco Limited Annual Report and Accounts: Year to 31 December 2003*, p.17 (NIRS/PC Exhibit 69).

Q28. What does all this tell you?

A28. This tells me that a “need” for the NEF based upon “vulnerability” to a “global supply shortfall” is misleading. The implication is that “vulnerability” means that one day there may be a physical non-availability of SWUs, i.e. the necessary SWUs will not be available at any price. But such an assertion is clearly unreasonable. In reality “vulnerability” is missing its adjective and that adjective can only be “price.” Yet as Schwartz and Krich point out, prices in these markets vary, with the price of uranium being quite volatile (for example) with a substantial impact on the demand for SWU. So if “vulnerability” means only that prices may be higher in some undetermined amount for the duration of some undetermined period, then I suggest that this is far too vague to be credited as a major source of “need” for the NEF, especially when, as we have seen above, the creation of the NEF may well foreclose the construction of a larger domestic plant of the same technology.

Q29. Does Mr. Nevin’s testimony rely on the industry knowledge, status, stature and experience of Urenco in Europe and its partners here and abroad as evidence of the ability of these same entities to successfully enter the U.S. market?

A29. Yes it does, see his response as set forth in A20.

Q30. Does your evaluation of Urenco and its allies’ experience in Europe lead you to conclude that Urenco has the “knowledge and experience” to “effectively enter this market in the face of existing and anticipated competitors and contribute some public benefit”?
(Emphasis added).

A30. Contrary to Mr. Nevin’s testimony I believe that Urenco is moving to monopolize the

Western European and U.S. enrichment supply market. Monopoly or oligopoly control of that market would have substantial adverse affects on U.S. power supply consumers which certainly would not be counted as a "public benefit."

Q31. What are the factors that lead you to this conclusion?

A31. Consider, if I may be permitted to say it, that Urenco has the following advantages:

1. A deep pocket based on a variety of low cost, new technology, profitable plants in a number of other locations.
2. Timing: the Urenco plant will be fully operational before the USEC plant, and so will be competing with the expensive to operate Paducah plant. This will reduce the Paducah plant's market share and force its costs up further, while at the same time cutting into USEC's cash flow and reserves.
3. Sympathetic Market: A number of the biggest buyers of LEU in the United States market are limited partners in the LES partnership.⁶ This suggests that they will be inclined to do business with LES rather than USEC, even if USEC were able to match LES' enrichment price.
4. Financing of the plant will—other things equal—be cheaper, since Urenco is a large, expanding and profitable company compared to USEC and so will be able to attract financing at a lower risk premium.

Based on this, if Urenco is allowed into this market before USEC gets its American Centrifuge plant up and running, it is more likely than not that USEC will not be able to

⁶ For example, one of the LES limited partners is Exelon. Exelon is the holding company for the nuclear utility in the United States with the largest number of nuclear plants (17) and 20 percent of the nation's power capacity. See www.exeloncorp.com/generation/nuclear/gn_nuclear.shtml. (16015) (NIRS/PC Exhibit 71).

get the American Centrifuge plant up and running. Moreover, even if USEC did get its plant up and running first, Urenco's deep pockets, derived from its many profitable operations elsewhere, would allow it to prevail in a price war against USEC with a single plant in the market at issue and no financial reserves.

Q32. What makes you think that Urenco would be inclined to pursue such an aggressive course?

A32. Urenco has an aggressive management committed to the world wide expansion of its enrichment and centrifuge sales. USEC is a competitor to Urenco's operations not only in the United States but also elsewhere in the world, especially in the Far East. This competition is not just for enrichment services but also potentially for enrichment technology as well if USEC is allowed to perfect its American Centrifuge technology. Presented with the golden opportunity to eliminate such a major competitor, Urenco is unlikely to turn it down. This is especially so given the possibility that without USEC on the scene the Russian HEU may leave the market as well. Additional evidence for a predilection toward aggressive action can be found in Urenco's (and Areva's) use of subsidies to penetrate the U.S. market.⁷ Moreover, in arguing its case before the Court of International Trade, Urenco made the claim that LEU is a service not a product and was therefore immune from United States trade laws. Had Urenco been successful with this argument it would have opened the United States market to a flood of "dumped" and subsidized LEU which might well have forced USEC out of the market.⁸

⁷ See, for example, "US DOC dumping case against Eurodif and Urenco" at www.antenna.nl/wisc/uranium/epusa.html (January 4, 2005) (NIRS/PC Exhibit 73).

⁸ See PACE, USEC—Heading into the Perfect Storm? (Sept. 2003), p.4 (NIRS/PC

Q33. How would an outcome like this relate to the "need" for the NEF plant as set forth by Urenco?

A33. In the first place, the elimination of USEC as a viable competitor would leave just Urenco. This clearly would not meet the stated need for a second competitor in the United States market, or the need for a more "diverse" supply. Second, in the market as it stands today, if USEC moves away from competitive price and service expectations, U.S. utilities have recourse to USEC's competitors Urenco or Areva in Europe for LEU. On the other hand, if USEC is eliminated and Urenco is left as the only (and monopoly) producer with an operating plant in the United States, U.S. utilities will not find pricing relief by turning to Urenco and its partner Areva in Europe.

Q34. Why isn't it possible that Urenco would get together with USEC and reach an agreement where they would peaceably divide the market?

A34. Whereas such an arrangement is conceivable, it would create an oligopoly market and not a competitive one. Moreover, it would make USEC a de facto-if tributary-ally of Urenco and so U.S. utilities would be faced with a market dominated by a multi-continent array of allied producers in the form of USEC-Urenco-Areva. Such an outcome is certainly not something we "need."

Q35. But one of the stated needs for the Urenco plant was to ensure that there was at least one plant in the United States with up to date and cost effective technology. If the Urenco plant is not approved, how will this need be met?

A35. USEC is not only obliged by its agreement with DOE to bring on line such a plant by the year 2010, but it is already in the licensing stage for such a plant. The Urenco plant is unnecessary to meet this need.

Q36. What about Urenco's claim that its NEF plant was required because "some domestic enrichment capability is essential for maintaining energy security"?

A36. The NEF plant is not necessary to have this need served, since there is currently USEC's Paducah plant in operation and the more cost effective American Centrifuge plant is in the works. Moreover, both USEC plants will be operated by a genuine United States "domestic" producer. Urenco is hardly a United States domestic producer; but instead an aggressive foreign conglomerate owned by foreign governments and utilities.

Q37. What about Urenco's claim that the NEF plant is necessary to ensure that the U.S. nuclear industry doesn't become unduly dependent on foreign dominated enrichment services?

A37. The answer here again is straightforward and obvious. Urenco and its affiliated entity Westinghouse (owned by the British government)⁹ are the general partners and owners of at least 90 percent of LES and perhaps more (depending upon whether a person believes

⁹ LES ER 1.0-1 and 2. Note that Westinghouse is owned by BNFL which is one of the owners of Urenco Investments. BNFL is owned by the British government.

the ER or the Urenco Annual Report). Urenco is a foreign company and the existence of a Urenco-owned plant cannot logically "ensure that the nuclear industry in the United States doesn't become unduly dependent on foreign dominated enrichment services." And of course it is even dramatically more impossible to fill this need with a Urenco plant, since the creation of the Urenco plant, more likely than not, will result in the **elimination** of the only legitimate United States domestic plant and its replacement with the exact "foreign dominated enrichment service" the "need" was supposed to combat.

Q38. So please summarize your discussion about Mr. Nevin's conclusion that Urenco and its allies' "knowledge and experience" in Europe and elsewhere suggest that the construction of this plant given the character of "existing . . . competitors" will result in "public benefit"?

A38. My review of the evidence suggests that Nevin is wrong about the likely impact of the introduction of a Urenco plant in the U.S. given the evidence of Urenco's activities and plans in its European markets. Its "knowledge and experience" clearly suggest market domination and not the creation of a thriving competitive market.

III. SCHNOEBELEN

Q39. What is the purpose of Schnoebelen's testimony?

A39. Mr. Schnoebelen's testimony deals as well with "LES's views concerning its ability to enter the uranium enrichment market in the face of existing and potential competitors."

A6.

Q40. Any preliminary comments on his issue statement?

A40. It is perhaps telling that he has left off the "and contribute some public benefit" from the

statement from the Contention in A6.

Q41. In his response in A9 Mr. Schnoebelen suggests that the fact that LES/Urenco has gotten contracts with some owners of NPPs indicates that LES has entered the market with public benefit. Do you agree?

A41. I do not, for two reasons. First, because some of the contracts are with Urenco's partners in LES who have an obvious incentive to sign up to make a showing for this case. To this extent the contracts are really with themselves and are not at arms length. Secondly, however, to the extent that the arrival of Urenco with this proposal is seen as signaling the likely end of USEC as a major producer, owners of NPPs have an incentive to sign up now rather than after the possible demise of USEC. If this latter factor is significant then the signing of contracts may be a manifestation of a lack of public benefit rather than an indication that public is better off with Urenco.

Q42. What does Mr. Schnoebelen say about the magnitude of the contract commitments LES/Urenco claims it has?

A42. Mr. Schnoebelen says in A13 that the contracts with NPP-related companies constitute 42 of the 104 licensed nuclear power plants in the U.S. (40% of the total) and "among the six customers are half the utilities that have acquired existing nuclear power plants in the United States through purchase or merger."

Q43. How do you evaluate the impact of this information on LES's and the Staff's assumption that USEC's American Centrifuge plant will be built?

A43. I believe that this is another strong indication that given its weak financial condition

USEC will find it difficult to attract investors to raise the \$1.5 billion to build the American Centrifuge Plant. If USEC cannot finance the construction of the ACP then its position in the market will probably collapse. The Paducah plant will probably not survive a price war with Urenco/LES, and USEC will not have met the conditions of its agreement with DOE. If this is so, then the NEF plant will not have made for a competitive U.S. market, will not have added to the energy security of the United States, will not have diminished the reliance of the U.S. nuclear energy consumers on foreign dominated enrichment suppliers, and will have produced a net loss all around.

Q44. Please summarize your conclusions with respect to Mr. Schnoebelen's testimony.

A44. I do not believe the existence of the contracts and pending contracts are proof that LES/Urenco can enter the market and produce significant net public benefits. They are, however, ominously consistent with an effort to replace a larger U.S. plant with a smaller foreign owned plant and eliminate competition-especially given Urenco's affiliation with the other major Western European producer, Areva. It should also be recalled that Urenco is also the dominant world producer of centrifuges, with the only major prospective competitor being USEC. With the end of USEC, the threat of competition in the centrifuge supply industry would also be eliminated. Its worth noting that the centrifuges to be used in the NEF are to be produced by the partnership of Urenco and Areva, the dominant Western European enrichers and monopoly suppliers of centrifuges.

IV. SCHWARTZ AND KRICH

Q45. What is the purpose of the testimony of Schwartz and Krich?

A45. As set forth by Mr. Schwartz, "the purpose of this testimony is to provide LES's views concerning the 'need' for the proposed NEF, as that need is reflected in the market

analysis of uranium enrichment supply and requirements set forth in Section 1.1.2 of the NEF ER.”

Q46. And as set forth by Mr. Krich?

A46. Mr. Krich’s purpose is to identify the NRC requirements and guidance relevant to LES’s consideration of the ‘need’ for the proposed NEF for the purposes of NEPA.

Q47. Does the “need” for the plant involve issues of United States “energy security”?

A47. Yes, as set forth by Mr. Krich in A14.

Q48. Does the ‘need’ for the plant also involve issues of United States “national security”?

A48. Yes, again as set forth clearly by Mr. Krich in A14.

Q49. How are these needs to be achieved according to Mr. Krich?

A49. They are to be achieved by the development of “diverse, reliable domestic enrichment capacity.”

Q50. What do you understand Mr. Krich to mean by “diverse”?

A51. He is referring to Section 1.1.1 of the ER and by diverse he means more than one producer in the United States. The ER suggests that having just one, currently USEC, is not a public benefit, and having two—one of which would be NEF—would be.

Q52. Does the panel assume for the purpose of this testimony that USEC would remain a viable producer in a competitive market if the NEF were built?

A52. Yes, they appear to do so, though only by assumption.

Q53. In arriving at his estimates of supply did Mr. Schwartz consider cost of production?

A53. As with the entire presentation of the case for the NEF, Mr. Schwartz does and then again he doesn't. He seeks to get the benefits of including the relevant cost factor in his analysis when he wants to eliminate capacity from his analysis, but then he claims he didn't use cost data at all in reaching his conclusions when doing his market analysis.

Q54. How has he done this?

A54. He chooses to include only those producers who in the passive voice are "considered to be competitive." A41. Thus he provides only his conclusion as to "competitiveness" and not the analysis that supports his labeling. His definition of "economically competitive and physically usable" capacity "refers to that portion * * * of the physical capability that * * * can be competitively sold." A42. Yet the analysis supporting what is and what is not competitive capacity is not presented for verification. Moreover, his choices emphasize the supposed "need" for the Urenco facility. For example, he does not include the Portsmouth, Ohio GDP which is currently being maintained in a cold ready status as potentially available, because it would be "uneconomical" to start and operate the plant. A44. Similarly in A45 Mr. Schwartz counts the planned George Besse plant into production between 2007 and 2013 but then insists on "closing" the existing George Besse GDP plant at the end of the same period. A45.

Q55. Why is it unreasonable to do this?

A55. For two reasons. First, because all the choices of what to assume with respect to the

future availability of these plants come up favoring the construction of the plant without any presentation of why those choices are empirically more reasonable. And second, because if demand for SWUs began to exceed the supply capacity of the centrifuge plants, the price for SWUs would rise until alternative capacity was “economically competitive.” Mr. Schwartz doesn’t allow for this normal market adjustment mechanism here, although he does use rising prices for uranium to be a factor in determining the “need” for SWU capacity.

Q56. Could you summarize what you have just said?

A56. Yes. The point is that what is an “economically competitive” enrichment plant at any particular point in time is a function of the demand for SWUs at that time. Supply is a function of price, as every first year economics student knows. To ignore this analytically is a major error. Schwartz’s supply curve, like the Emperor’s Clothes, is missing.

Q57. What about the reduction of supply availability due to trade restrictions?

A57. Mr. Schwartz devotes three pages to the availability of Russian supply. A46 to A48. He notes that there is currently excess Russian supply that would be available were there no trade barriers. The trade barriers are there to protect domestic producers from subsidized sellers or “dumpers.” Note as well that the Russians are major producers and Schwartz does assume that sales of Russian SWU to Europe and the U.S. will probably increase by about 30% over the next five years. A48.

Q58. In A52 Mr. Schwartz argues:

[A]bsent construction of the NEF (and USEC's and Eurodif's proposed centrifuge facilities, for that matter) there is likely to be a shortage of enrichment capacity after 2010. Indeed, these facilities will be needed in large part simply to replace existing enrichment capacity that will be lost due to the planned shutdowns of USEC's Paducah and Eurodif's George Besse gaseous diffusion plants in the near future.

And in A54 he adds,

[I]t is important to bear in mind that the NEF is intended to provide an **additional *domestic*** source of enrichment that will serve the fuel procurement needs of U.S. Commercial power reactors. (Italics in the original, bolding added)

Do you agree with these arguments?

A58. Again, I do not. First, and again, "shortage" is a price issue. To the extent that demand increases faster than supply we move to a different point on the supply curve and more capacity is forthcoming at that price. This may result in the continued viability of one or more of the gaseous diffusion plants. This may result, as is apparently the plan now, with the further incremental increase in the capacity of Urenco's European plants. Unless and until there is a reasonable presentation of the supply response to rising prices, any economic analysis of the adequacy of supply is necessarily defective.

Q59. Did you have a second criticism of Mr. Schwartz's statement in A52?

A59. Yes I do. Mr. Schwartz, like Mr. Nevin, refuses to acknowledge the likelihood of the construction of the NEF on the viability of the proposed American Centrifuge Plant. Mr. Schwartz tells us that without the construction of the USEC plant there will probably be a shortage of enrichment capacity. A52. Mr. Schwartz recognizes that the ACP is slated to be a 3.5m plant. But he affirmatively assumes that the construction of the NEF is not inconsistent with the construction of the American Centrifuge Plant. If he wants to make

this assumption that is up to him, but he should be obliged to reveal his empirical justification for such an assumption. My review shows that, for the reasons set forth in II. Above, it is unlikely that the ACP would be built if the NEF is built.¹⁰ In the scenario where the NEF is built and the American Centrifuge Plant is not built, then the net loss to the U.S. market would be the difference in capacity between the two plants of 0.5m at least, or more generously the net loss in the ACP expansion capacity (to 7m) of around 4.0m per year. Mr. Schwartz provides no answer to the question of whether LES's need analysis collapses if the construction of the NEF means the ACP is not built. So far the only response from LES is that they don't want to hear the question, and this is not a legitimate answer under NEPA.

¹⁰ Public Citizen, *Urenco Limited: A Corporate Profile*, p.2 (April 2004) (NIRS/PC Exhibit 74). See also USEC 10-Q for September 30, 2004, p.4 (1419) and p.25 (1440) (NIRS/PC Exhibit 72).

Q60. In Q56 Mr. Schwartz was asked if his analysis was "based in any way on the ability of LES to be competitive from a business perspective in selling the proposed NEF's output"? He responded, "No. The conclusions that I reached were not based on the ability of LES to compete in the marketplace in selling the output of the NEF." Do you agree with this approach to the justification of need for the NEF?

A60. No I don't. I believe it points up the idiosyncratic nature of the analysis being presented here by the Company and the Staff. If Mr. Schwartz is in no way assuming that the NEF facility is capable of selling its output at a "competitive price" then how can he be saying that the NEF is more economically viable than the Paducah plant? If his conclusions do not rest on the assumption of the economic competitiveness of the NEF, then how does he know it qualifies for inclusion in the category of plants which are "economically competitive" as described at A42 and specifically A50 and discussed above? And if he doesn't know, then why isn't his analysis, as it relates specifically to the need for the NEF, irrelevant?

V. CONCLUSIONS

Q61. Dr. Sheehan, please review your conclusions.

A61. I reach four conclusions:

1. The Staff and LES analyses are defective in that they reach conclusions about the adequacy of enrichment supply over time without dealing explicitly with cost and price while making critical assumptions based on costs and prices.

2. The Staff and LES analyses refuse to consider the possibility that the construction of the NEF plant would seriously jeopardize the ability of USEC to construct the its American Centrifuge plant with its up-to-date technology. If the construction of the NEF effectively prevents the construction of the USEC plant which would otherwise be constructed, the NEF plant would fail to meet its need justification as set forth in the ER and be counterproductive in its own terms.
3. The replacement of USEC by Urenco as the dominant or single producer in the United States would sharply worsen and not improve the security of United States supply.
4. The presentation of data on contracts signed by the NEF is not evidence of the ability of the NEF plant to provide net "benefits to the public."

Q62. Does this complete your testimony?

A62. Yes it does.

CERTIFICATE OF SERVICE

Pursuant to 10 CFR § 2.305 the undersigned attorney of record certifies that on January 28, 2005, the foregoing Rebuttal Testimony of Michael F. Sheehan on behalf of Nuclear Information and Resource Service and Public Citizen, NIRS/PC Contention EC-7, was served by electronic mail and by first class mail upon the following:

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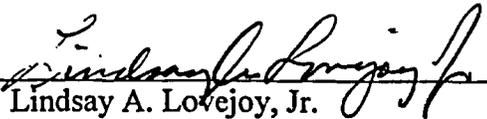
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