

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Thomas S. Moore, Chairman
Richard F. Cole
Frederick J. Shon

_____)	
In the Matter of)	Docket No. 70-3070-ML
)	
LOUISIANA ENERGY SERVICES, L.P.)	ASLBP No. 91-641-02-ML
)	(Special Nuclear
(Claiborne Enrichment Center))	Material License)
_____)	

**PROPRIETARY TESTIMONY OF DAVID E. OSTERBERG
ON BEHALF OF CITIZENS AGAINST NUCLEAR TRASH
REGARDING CONTENTION Q**

Q. Please state your name and business address.

A. My name is David E. Osterberg. My address is 318
Second Avenue North in Mt. Vernon, Iowa. I am a partner in
the firm of Osterberg and Sheehan, Public Utility
Economists.

**Q. Please describe your educational and professional
background.**

A. After graduating with a Bachelor of Arts degree in
economics from Washington State University, I attended the
University of Wisconsin-Madison where I earned a Masters
Degree in economics, another in water resources management,
and a third in agricultural economics. I was an instructor
of economics at the University of Wisconsin-Green Bay and
assistant professor of economics and business at Cornell

College in Iowa. I am presently adjunct associate professor in the Geography Department at the University of Iowa as well as a consultant.

Until January 1995, I was an Iowa State Representative.

During my 12 years in the Iowa General Assembly I served terms as chairman of the Committee on Agriculture, as well as chairman of the Energy and Environmental Protection Committee. While in the General Assembly, I was a member of the Iowa Energy Policy Council and a member of the Agricultural Energy Management Advisory Council.

A summary of my professional qualifications and experience is provided in exhibit "A" to this testimony, which is incorporated herein by reference.

Q. Have you ever testified in an administrative proceeding?

A. Yes. I testified at the request of the Florida Public Service Commission staff in that state's Hearings on the federal Public Utility Regulatory Policy Act definition of "cost of service." I also testified for the staff of the Iowa State Commerce Commission on the same subject. I have testified before regulatory commissions in Iowa, Illinois, Indiana, South Dakota, South Carolina, Tennessee and New York for various clients. I have worked for the Nebraska Energy Office and the Omaha Public Power District. I was also part of an energy study for the state of Missouri.

Q. What is the purpose of your testimony?

A. I will address Contention Q filed by Citizens Against Nuclear Trash ("CANT"). In this Contention, CANT asserts that: "LES has not demonstrated that it is financially qualified to build and operate the [Claiborne Enrichment Center] CEC."¹

The purpose of my testimony is to discuss my conclusion that Louisiana Energy Services, L.P. ("LES") has not demonstrated that it possesses or has reasonable assurance of obtaining the funds necessary to cover the estimated construction costs and related fuel cycle costs for the CEC.

Further, my testimony on Contention J, which pertains to the lack of need for the CEC, relates to the issue of LES's financial qualifications. In short, because there is no need for additional uranium enrichment capacity, and because LES may very well not be able to successfully compete with other SWU suppliers, it is not reasonable to assume that investors will be willing to take the risks associated with financing the CEC at reasonable interest rates.

Q. What materials did you review in preparation for your testimony?

A. I reviewed the Environmental Impact Statement ("EIS");

¹ Citizens Against Nuclear Trash's Contentions on the Construction Permit/Operating License Application for the Claiborne Enrichment Center, (October 3, 1991) at 51-52.

the Environmental Report ("ER"); the Safety Evaluation Report; 10 CFR 50.33; 10 CFR part 50 Appendix C; LES's financial plan for the CEC, the LES partnership agreement; various workpapers and documents provided through discovery; industry publications; economic papers and texts; and I had consultations with other experts.

Q. In your opinion, does the LES partnership have the funds necessary to cover the estimated construction costs and related fuel cycle costs for the CEC?

A. No. LES is a development-stage enterprise of few marketable assets.² While the land and cash on the LES partnership's balance sheet and perhaps the office furniture have value, the deferred start-up costs for the CEC would be of little or no value to anyone other than LES or its partners.

Q. Do the individual general and limited partners of the LES partnership have the funds necessary to cover the estimated construction costs and related fuel cycle costs for the CEC?

A. No. The financial information presented regarding the

² See Louisiana Energy Services, L.P., Balance Sheet as of December 31, 1990, Together With Auditors' Report (exhibit "DO-18"). Deferred start-up costs at \$16,799,993, comprised well over 90% of the partnership's assets on December 31, 1990. Cash was \$24,067; land held for future development was \$557,554; and office furniture and equipment was \$45,413. Prepaid expenses of \$414,349 made up the remainder of the total assets of \$17,841,376.

LES partners does not show them to be companies of worth. For instance, Urenco Investments, Inc. was set up for the purpose of investing in LES. Its balance sheet is filled with assets that have value only if the CEC is actually built.³ The Graystone Corporation balance sheet is similarly lacking in non-LES related assets.⁴

Q. Please describe the structure of the LES partnership.

A. The structure of the LES partnership seems designed to substitute paper companies for corporations of worth. For instance, Micogen Limited III, Inc. ("Micogen"), an LES partner, is a subsidiary of Claiborne Fuels, L.P.; Claiborne Fuels, L.P. is a subsidiary of Claiborne Fuels, Inc.; Claiborne Fuels, Inc. is a wholly owned subsidiary of Fluor Daniel, Inc.; and Fluor Daniel, Inc. is a wholly-owned subsidiary of Fluor Corporation. While Fluor Corporation is a company of some note, with 1991 assets of more than two billion dollars and revenues of nearly \$7 billion,⁵ the subsidiary of the subsidiary of the subsidiary of the

³ See, e.g., Urenco Investments, Inc., Financial Statements As of December 31, 1991 and 1990, Together With Auditors' Report (exhibit "DO-20").

⁴ Graystone Corporation Balance Sheet as of March 31, 1992 (exhibit "DO-19 ") (**proprietary**).

⁵ Fluor Corporation Annual Report (1991), supra, at attachment K (exhibit "DO-21").

subsidiary of Fluor Daniel is not necessarily the sort of partner that can provide capital of its own or attract it on the market.

Q. How has the NRC Staff looked at the LES partnership?

A. The NRC Staff has failed to draw the proper distinctions between the parent and/affiliated companies of the LES partners, and the LES partners themselves. That is, in assessing the financial qualifications of the LES partnership, the NRC Staff has confused the assets of parent and/or affiliated companies of LES partners with assets of the LES partners themselves.⁶ For instance, the Staff has used Fluor Corporation as a sort of proxy for Micogen III and Claiborne Fuels L.P., noting that "Fluor has sufficient resources to make planned equity contributions and additional equity contributions within any reasonable range contemplated for the CEC."⁷ However it is Micogen and Claiborne Fuels L.P. that are liable for debt and equity contributions of more than 10 percent of \$816 million, not Fluor Corporation.⁸

⁶ Safety Evaluation Report for the Claiborne Enrichment Center, Homer, Louisiana (January 1994), ("SER") at 13-1 to 13-5.

⁷ Id. at 13-3.

⁸ LES Project Financial Plan (Non-Proprietary), (revised December 22, 1994), at D-4 and D-1 (exhibit "DO-15").

Q. Are the parent and/or affiliated companies of the LES partners responsible for the liabilities, indebtedness, duties, or obligations of their the LES partners?

A. No. The Partnership Agreement is designed to set the LES partners apart from their parent or related firms.⁹ The Partnership Agreement specifically insulates the parent and/or affiliate companies from liability for the actions of the LES partnership.

All liabilities, indebtedness, duties and obligations incurred by or on behalf of the Partnership (other than in violation of Section 4.1 of this Agreement), including, without limitation, liabilities, indebtedness, duties and obligations in connection with the construction and operation of the Facility, shall be the indebtedness and obligations of the Partnership.¹⁰

Q. Has LES supplied information to support the financial commitment of any parent and/or affiliated companies of the LES partners to fund the estimated construction costs and related fuel cycle costs for the CEC?

A. No. Although the parent and/or affiliated companies of the LES partners may be financially capable of providing funds to construct and operate the CEC, there is no evidence whatsoever that they are committed to doing so.

In fact, the commitment of the parent and affiliated

⁹ Agreement of Limited Partnership of Louisiana Energy Services, L.P. (Non-Proprietary) (exhibit "DO-22").

¹⁰ Id. Article 4.2 at 15.

companies of the various LES partners to any significant ongoing involvement with the CEC has been suspect from the start. For example, Duke Power Company is the owner of Claiborne Energy Services, Inc. ("CES"), a LES general and limited partner owning more than one quarter of LES.¹¹ Notwithstanding the role CES has in the LES partnership, Duke Power Company has stated to the North Carolina Utility Commission, one of its regulators, that it is financially committed only during the venture phase of the CEC project:

It is the present intention of Duke to sell or redeem the large majority of its share in LES to such outside investors, perhaps retaining a small partnership interest in order to meet NRC licensing requirements.¹²

Two other LES partners, Graystone Corporation and its subsidiary, Le Paz Incorporated, are owned by Northern States Power ("NSP"). However, when the Minnesota Public Utilities Commission submitted questions about the CEC venture to NSP, NSP took great pains to distance itself from the project:

NSP has no liability with respect to the uranium plant project because NSP is not a participant in the venture
.

NSP will determine whether or not to participate in the construction and operation of the plant upon CP

¹¹ LES Project Financial Plan (Non-Proprietary), supra, at D-3 & 4 (exhibit "DO-15").

¹² Duke Power Company, "Louisiana Energy Services, L.P.: A Report to the North Carolina Utilities Commission," (June 1990) at 6 (exhibit "DO-23").

issuance. Economic factors will determine NSP's participation, including market analysis, current cost estimates and projected plant efficiency.¹³

Furthermore, Louisiana Power and Light, the third utility company to have a subsidiary as a partner in LES, has stated that it will not participate in the construction phase of the CEC. As Mr. Frank Rives of Louisiana Power & Light noted:

Okay, we've put up \$1.3 million and this gives us a 'stake' during the joint venture period. If the project is successful and goes to construction at the financing point, beginning of construction, we will cash out our interest and will not be a partner in the facility in the construction and operation phases.¹⁴

Q. Has LES demonstrated that U.S. utility companies will purchase separative work units (SWU's) from the CEC?

A. No. LES has provided CANT with only one SWU purchase contract. That contract is with Northern States Power, the owner of two of the LES partners.

Q. Would investors perceive the fact that LES has only one long-term SWU sales contract negatively?

A. Yes. LES has emphasized in its Financial Model that it

¹³ Northern States Power Company (Minnesota), "Minnesota Public Utilities Commission Information Requests on Graystone," answer to questions 3 and 6 (exhibit "DO-17").

¹⁴ Transcript, Louisiana Public Service Commission Hearing (Baton Rouge, Louisiana, April 26, 1990) at 45-46 (exhibit "DO-24").

will sell almost all of its SWU's on long term contract, yet it has only one such contract.¹⁵ Investors will be naturally wary of a venture that to date does not comport with its own Financial Model.

LES should be lining up contracts to match its expected capacity. Urenco does precisely this.¹⁶ As the Chief Executive Officer of Urenco, Ltd., Dr. Klaus P. Messer, has stated, uranium enrichment plants should only be built if there are contracts for the plant's output.

You don't build an enrichment plant on a speculative basis. It's not like a car plant where you believe the market will be there so you build it and then go and sell the cars."¹⁷

Accordingly, LES's lack of contracts for SWU's will be a cause for significant concern by potential investors.

Q. Has LES specifically identified the source or sources of funding necessary to pay the cost of constructing and operating the CEC?

¹⁵ LES Financial Model, (**proprietary**) table 3 ("Operating Revenue Schedule") at 9-10 (exhibit "DO-25").

¹⁶ "Interview with Dr. Klaus P. Messer," Nukem Market Report (June 1994) at 16 (exhibit "DO- 4"); "The New Birth of Urenco," Nukem Market Report, supra, at 12 (Exhibit "DO-3"); "Outlook on USEC," NuclearFuel, (October 11, 1993) at 4 (exhibit "DO-5").

¹⁷ "Interview with Dr. Klaus P. Messer", supra, at 17 (exhibit "DO-4").

A. No. In response to a CANT Interrogatory LES stated that lending banks that would provide capital to the CEC could not be identified.¹⁸

Q. Has LES demonstrated that it has reasonable assurance of obtaining the funds necessary to cover estimated construction costs and related fuel cycle costs for the CEC?

A. No. "Reasonable assurance" means actual commitments to fund the project and LES has admitted it does not have any such commitments. Even if "reasonable assurance" does not mean actual commitments to fund, it at least means that there is evidence that potential funders would want to commit to fund the CEC. But the evidence on this point is to the contrary.

There are too many negative factors to reasonably assume that investors would be willing to take the risks involved in funding the CEC. Competition of other SWU providers, the recent U.S./ Russian HEU agreement (and potential future HEU agreements), the dwindling demand for SWU's, and the other competitive factors I have mentioned in my testimony on Contention J militate against the involvement of prudent investors in the CEC project. Even the Chief Executive Officer of Urenco, Ltd., Dr. Klaus

¹⁸ Applicant's Response to Intervenor's 3/24/94 Interrogatories, (April 15, 1994) at 9.

Messer, has admitted as much in a recent interview with a trade publication:

NUKEM: Are you confident of getting the financial support for the LES plant should you decide to build it?

MESSER: No, we are not. This is due to the unknown effect the Russian HEU will have on the market. The USEC will be paying about \$82 per SWU. If the U.S. utilities have access to a substantial amount of material at such low prices, it will hurt us.¹⁹

Q. What else leads you to believe that LES does not have reasonable assurance of obtaining the funds necessary to cover the estimated construction costs and related fuel cycle costs for the CEC?

A. Restrictions on LES's geographic marketing are not at all likely to be attractive to investors. Pursuant to Section 9.2 (c) of the LES Partnership Agreement, LES will be restricted to the U.S. portion of the world market for SWU's unless the Management Committee votes otherwise:

The Partnership shall not market Uranium Enrichment Services to facilities located outside of the United States unless otherwise decided by a Majority Vote of the Management Committee, subject to Section 5.2 (d) hereof.²⁰

And pursuant to Section 5.2 (d) of the Partnership

¹⁹ "Interview with D. Klaus P. Messer," supra, at 18 (exhibit "DO-4").

²⁰ Agreement of Limited Partnership of Louisiana Energy Services, L.P., at 38 (**proprietary**) (exhibit "DO-26").

Agreement, only the Urenco related partners have the power to lift this restriction. Only if it is in the interest of Urenco, a competitor of LES, will LES be able to sell outside the United States. This limiting condition on the CEC will put LES at a distinct disadvantage with all of its competitors. Under this restriction, the CEC will be excluded from the Far East, the only market expected to grow much in the foreseeable future. Thus, while producers in Europe and USEC can help their bottom line by competing for extra demand in Japan and South Korea, LES will be faced with a market which will be shrinking.

Q. Please comment on the debt to equity ratio to be used in building the CEC.

A. The CEC purportedly will have a debt to equity ratio of 70-30.²¹ Assuming that this is true, the CEC will have a difficult time in the financial markets. Nuclear power plants that I am familiar with have been constructed (or attempted to be constructed) by companies with a debt to equity ratio much closer to 50-50. Furthermore, nuclear power plants have kilowatt hours as their output, for which there is usually demand and, at least for now, such plants have an exclusive service territory to sell in. In contrast, a plant like the CEC that is outside of the more

²¹ SER at 13-1.

protected utility market, and which produces a product for which there is questionable demand, would have trouble attracting capital at a reasonable price. This lack of a protected market and questionable demand, when combined with an unfavorable debt to equity ratio, makes a project even less likely to get financing.

Q. Did Staff feel that 30% equity was adequate?

A. Yes, but I believe they are wrong. Staff stated that the approximately 30 percent equity was positive for the project because Staff knew of analogous projects which relied on even more debt -- up to 100 percent.²² However, when asked by CANT to identify exactly what other "analogous" projects received 100% financing, the Staff was not able to provide a single example of a nuclear facility with a 70-30 debt to equity ratio, instead offering only the example of a non-nuclear energy plant that may have received more than 70% debt financing.²³ As a consequence of issues such as safety concerns, operational factors, and escalating decommissioning costs, the financial market treats companies

²² "LES's reliance on approximately 30 percent equity is positive because, by contrast, many analogous construction projects rely on 100 percent debt financing." SER at 13-1.

²³ NRC Staff's Response to 8/16/94 Interrogatories and Request For Production of Documents Pertaining to Contentions B, I, J, K, Q, and W, Filed by Citizens Against Nuclear Trash (September 30, 1994) at 12-13, 36.

that do not have nuclear energy plants differently from companies that do have nuclear energy plants. Thus, it was entirely inappropriate for the Staff to have relied on the alleged debt to equity ratio for a non-nuclear energy plant as justification for the debt to equity ratio which LES proposes for the CEC. Accordingly, there is no evidence whatsoever to support the Staff's conclusion that a 70-30 debt to equity ratio is reasonable for the CEC.

Q. What is "debt coverage ratio"?

A. In general, financial ratios, such as "debt coverage ratios", are used by the investor community to measure the riskiness of a company. "Debt coverage ratio" in particular is the ratio of revenues a company has, as compared to the company's required debt payments. Such a ratio measures the ability of a company to make its contractual interest payments. The higher the value of this ratio, the better able the company is to fulfill its obligations to those who loaned it money. For example, a ratio of approximately 3 to 1 means that the company should be able to pay off its debtholders in times of decreased revenues. However, as the ratio approaches 1 to 1, the risk of the company not being able to pay its debtholders increases.

Q. Do companies with the same debt coverage ratio pay the same

interest rate?

A. No. Some companies are in industries considered more risky than others. Therefore, a 3.5 to 1 debt coverage ratio in one industry may correspond to a 2.5 to 1 debt coverage ratio for a company in an industry that is considered safer.

Q. Do you believe the debt coverage ratio for the construction of the CEC is adequate?

A. No. According to confidential documents supplied by LES, the average debt coverage ratio for the CEC will be 1.54 to 1.²⁴ The average debt coverage ratio for the first plant increment at the CEC will be even worse, at less than 1 to 1. LES has made many alternative analyses of its Financial Model. Not surprisingly, when LES assumes lower SWU selling prices or higher interest rates in its analysis, the average debt coverage ratio for all three increments of the CEC falls below 1.5 to 1.

Q. Is there a relationship between the debt coverage ratio of a company, and the ratio of debt to equity for a construction project?

A. Yes. For instance, one can see from LES's Financial

²⁴ LES Financial Model (**Proprietary**) at 1 (exhibit "DO-25").

Model, that as more equity is put into the project, the debt coverage ratio improves.

Q. What is your opinion of the debt coverage ratios in all of the various alternative analyses of the LES Financial Model?

A. Almost all of the debt coverage ratios provided by LES are low. In general, these ratios are so low that if this project were being built by an electric utility company, the bonds would be rated below investment grade²⁵ -- that is, they would be considered quite risky.

Q. Why do you compare the CEC to the utility industry?

A. I refer to the utility industry because this industry is where almost all nuclear technology has been offered on capital markets, and thus the kind of debt coverage ratios expected of utility companies might be similar to those required of the CEC. However, because a utility company is more insulated from risk than LES (because there is a demand for a utility company's product, and because it sells this product in an exclusive service territory), I would expect that investments in the CEC would be viewed as more risky than investments in a utility company project. That increased riskiness would require a higher rate of interest

²⁵ "Electric Utilities Financial Ratios Revised," Standard & Poor's CREDITWEEK (November 1, 1993) at 41 (exhibit "DO-29").

to attract capital, assuming the debt coverage ratios were the same for the CEC and the utility company.

Alternatively, the CEC would have to have a greater debt coverage ratio than the utility company to attract capital at the same interest rate.

Q. What do you conclude about the debt coverage ratio in the LES Financial Model?

A. I conclude that it is so low that LES will have to pay a great deal of interest to attract capital. Substantially higher interest rates make it unlikely that the project will be feasible.

Q. Has NRC staff commented on the possibility for success of the CEC?

A. Yes, and here I agree in part with the Staff when they state:

Because of the potentially large price-depressing impact of Russian LEU sales, the plant runs a high risk of not being able to cover fixed charges (including an equity return).²⁶

The CEC is a risky project and investors will be unlikely to provide the funds for it's construction or operation at the interest rate that LES assumes in its

²⁶ Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer, Louisiana, U.S. Nuclear Regulatory Commission, August 1994 at 4-85.

Financial Model.²⁷

Q. Do you believe that, because LES has utility partners that are capable of utilizing all of the production from the first phase of the CEC, this demonstrates that LES has "reasonable assurance of obtaining the funding necessary to cover the costs and related fuel cycle costs" for the CEC?

A. No. LES will not be able to build the first increment of the CEC premised on the sale of the output exclusively to LES partners, and then decide later if they want to go forward and build the rest of the plant. I have prepared a table, exhibit "DO-27," to demonstrate this.

Q. Please explain the assumptions that went into creating Exhibit "DO-27".

A. Exhibit "DO-27" utilizes data from the "inputs and assumptions" in the LES Financial Model. The exhibit assumes that LES will immediately construct only the first 500,000 SWU increment of the planned three increments of the CEC, leaving LES the option to expand to full production at a later date. Under this scenario, the CEC would produce just the output that LES assumes will be purchased by affiliated companies. The first increment of the CEC is

²⁷ LES Financial Model (**Proprietary**) at 1 (exhibit "DO-25").

assumed to produce until the year 2017, when the decision to replace centrifuges will be made.

The results of analyzing this scenario demonstrates that building the CEC large enough only to serve the LES partners would result in the production of SWU's at such high unit costs that the CEC would be non-competitive. Thus, building the CEC in stages, as Urenco seems to do in Europe, is not an option for LES. The high SWU costs would produce prices for LES's utility partners that would undoubtedly be rejected by the Public Utility Commissions which regulate these partners.

Q. Please explain the entries in Exhibit "DO-27".

A. Exhibit "DO-27" utilizes data contained in LES's "base case" Financial Model labeled (FPM11A94). In my table, the first grouping of rows is devoted to production and revenue. The next three groupings are devoted to Production, Administrative, and Capital costs. The bottom rows produce figures for total costs and total costs per SWU.

More specifically, rows 8-26 of the table demonstrate output and sales. My assumptions are similar to those of LES,²⁸ in that inventory is built up during the first year and sales of SWU's begin in the year 2000. The inventory is drawn down over the life of the plant. Sales on the spot

²⁸ Id. at 9 & 10.

market are approximately the same percentage as LES assumes²⁹ in its Financial Model runs. SWU prices are the same as assumed by LES in the "base case" of LES's Financial Model.³⁰

The second grouping of rows (31-62) cover production costs. Labor costs are divided by LES into "base labor force" and "variable labor force."³¹ I assume that the base labor force is required to run the plant no matter how many SWU's are produced. Since only one third of the planned 1.5 million SWU's are produced, I assign only one third of the variable labor costs. Similar assumptions are made for electricity, maintenance, tails containers, and tails disposal fund. The production costs are totalled in row 66, labelled "Total Production Cost."

Administrative costs are assumed to be more or less fixed so I use the same figure LES does.³² Decommissioning costs are assumed to be one third of those in LES's "base case" model,³³ and are spread over the total years of production rather than being allocated to the last year of production. These costs are totaled in row 84, labeled

²⁹ Id.

³⁰ Id.

³¹ Id. at 11 & 12.

³² Id.

³³ Id.

"Total Production, Administrative, and Decommissioning costs."

Capital costs are based on all those costs allocated to increment 1, along with some of the building costs for the other two increments. Row 93 is the total of all costs, including capital costs, and row 97 gives the costs per SWU.

Q. What do you conclude from the data in Exhibit "DO-27"?

A. The exhibit shows a cost of more than \$164 per SWU in the year 2000, rising to a cost above \$300 per SWU in 2016 and 2017. This cost is so high as to make the option of building the first unit of the CEC premised on sales exclusively to LES partners, and then going forward as new orders are secured, untenable. These high SWU costs would produce prices for LES's utility partners that would undoubtedly be rejected by the Public Utility Commissions which regulate these partners.

Because this option is precluded (the CEC must produce more than 500,000 SWU's per year to be profitable), LES must attempt to build a facility that produces more output. However, I have already shown that a larger facility (i. e., at LES's projected maximum output of 1.5 million SWU's) will not be financially viable either. Because of the CEC's high debt to equity ratio and poor debt coverage, investors will not be found at reasonable interest rates. Substantially

higher interest rates make it unlikely that the project will be feasible. Thus, a smaller plant produces SWU's that are too expensive, and a larger plant, when investors recognize the risks, will produce interest rates so high that SWU costs will also be too high.

Q. In short, do you believe that LES has demonstrated that it "possesses or has reasonable assurance of obtaining the funds necessary to cover the estimated construction costs and related fuel costs" for the CEC?

A. No. To begin with, there is no need for the output of the CEC, and this fact in and of itself means that it is not reasonable to assume that investors will take the risks associated with funding the CEC venture. And because the LES partners themselves do not have the necessary funds, they are dependant on investors.

Further, LES has not shown a commitment by the parent and affiliated companies of the LES partners to contribute equity capital to the CEC venture; in fact, one LES partner (LP&L) has specifically said that it will not commit to the construction of the CEC, and one affiliated company of an LES partner (Duke Power Company) has said it will sell or redeem the large majority of its share of LES.

LES has failed to specifically identify lenders willing to commit funds to the CEC.

LES has only one SWU purchase contract, out of the many that would be required to utilize the capacity of the CEC.

The CEC project is highly leveraged (much more debt than equity) which, when combined with a paltry debt coverage ratio and the possibility of lower SWU prices, will result in interest costs that are much higher than assumed in the LES Financial Model, and are so high that the CEC project will not be feasible. Such sanguine assumptions in a Financial Model will be very unattractive to investors.

Q. Does that conclude your testimony?

A. Yes it does.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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LOUISIANA ENERGY SERVICES, L.P.)	ASLBP No. 91-641-02-ML
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CERTIFICATE OF SERVICE

I hereby certify that copies of the "TESTIMONY OF DAVID E. OSTERBERG ON BEHALF OF CITIZENS AGAINST NUCLEAR TRASH REGARDING CONTENTION Q" have been served on this 24th day of February, 1995, as follows:

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Citizens Against Nuclear Trash

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Thomas S. Moore, Chairman
Richard F. Cole
Frederick J. Shon

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In the Matter of)	Docket No. 70-3070-ML
)	
LOUISIANA ENERGY SERVICES, L.P.)	ASLBP No. 91-641-02-ML
)	(Special Nuclear
(Claiborne Enrichment Center))	Material License)
_____)	

**TESTIMONY OF DAVID E. OSTERBERG
ON BEHALF OF CITIZENS AGAINST NUCLEAR TRASH
REGARDING CONTENTIONS J.4 AND K**

Q. Please state your name and business address.

A. My name is David E. Osterberg. My address is 318
Second Avenue North in Mt. Vernon, Iowa. I am a partner in
the firm of Osterberg and Sheehan, Public Utility
Economists.

**Q. Please describe your educational and professional
background.**

A. After graduating with a Bachelor of Arts degree in
economics from Washington State University, I attended the
University of Wisconsin-Madison where I earned a Masters
Degree in economics, another in water resources management,

and a third in agricultural economics. I was an instructor of economics at the University of Wisconsin-Green Bay and assistant professor of economics and business at Cornell College in Iowa. I am presently adjunct associate professor in the Geography Department at the University of Iowa as well as a consultant.

Until January 1995, I was an Iowa State Representative.

During my 12 years in the Iowa General Assembly I served terms as chairman of the Committee on Agriculture, as well as chairman of the Energy and Environmental Protection Committee. While in the General Assembly, I was a member of the Iowa Energy Policy Council and a member of the Agricultural Energy Management Advisory Council.

A summary of my professional qualifications and experience is provided in exhibit "A" to this testimony, which is incorporated herein by reference.

Q. Have you ever testified in an administrative proceeding?

A. Yes. I testified at the request of the Florida Public Service Commission staff in that state's Hearings on the federal Public Utility Regulatory Policy Act definition of "cost of service." I also testified for the staff of the Iowa State Commerce Commission on the same subject. I have testified before regulatory commissions in Iowa, Illinois, Indiana, South Dakota, South Carolina, Tennessee and New

York for various clients. I have worked for the Nebraska Energy Office and the Omaha Public Power District. I was also part of an energy study for the state of Missouri.

Q. What is the purpose of your testimony?

A. I will address Contentions J.4 (need for the facility)³⁴ and K (no-action alternative)³⁵ filed by Citizens Against Nuclear Trash ("CANT").

The purpose of my testimony is to discuss my conclusion that the analysis of the need for the proposed Claiborne Enrichment Center ("CEC") is inadequate, and that the discussion of the no-action alternative as required under the National Environmental Policy Act ("NEPA") has all but been ignored.

My testimony on Contention Q (which pertains to financial qualifications) relates to my testimony herein regarding the alleged need for the CEC. In short, because there is no need for additional uranium enrichment capacity, and because Louisiana Energy Services, L.P. ("LES") may very well not be able to successfully compete with other SWU suppliers, it is not reasonable to assume that investors will be willing to take the risks associated with financing

³⁴ Citizens Against Nuclear Trash's Contentions on the Construction Permit/Operating License Application for the Claiborne Enrichment Center, (October 3, 1991) at 36-37.

³⁵ Id. at 41-42.

the CEC at reasonable interest rates.

Q. What materials did you review in preparation for your testimony?

A. I reviewed the Environmental Impact Statement ("EIS"); the Environmental Report ("ER"); the Safety Evaluation Report; NEPA regulations, 42 C.F.R. 1500 et seq.; NRC regulations, 10 C.F.R. Part 51, including Subpart A, Appendix A; data from the Energy Information Administration of the U.S. Department of Energy; industry publications; economic papers and texts; and conversations with other experts.

Q. In what respects do you find the consideration of the alleged need for the CEC to be inadequate?

A. LES asserts that the "fundamental case [or "need"] for the CEC is that [the CEC] can and will compete on economic grounds" LES Project Financial Plan at 5. However, as set forth in my testimony pertaining to Contention Q, there are serious doubts about LES's ability to do just that.

Further, in the EIS it is asserted that there is a "need for an additional market competitor in the U.S." EIS at 1-5. Framing the discussion of need for the CEC in these terms is inappropriate for three reasons.

First, the discussion fails to acknowledge that supply and demand conditions demonstrate no need for new Separative Work Units (SWU's). Second, the discussion is deficient because it assumes that there is a domestic market for SWU's which needs additional competition when, in fact, the market for SWU's is international and is already very competitive.

Third, the discussion fails to acknowledge that the CEC would interfere with United States policy on disarmament and nuclear non-proliferation.

Q. Please explain the first part of your analysis on the need issue.

A. The supply of SWU's is generally acknowledged to be greatly in excess of any reasonable need for this product. The Energy Information Administration ("EIA") of the U.S. Department of Energy collects data on most aspects of the nuclear industry. The EIA's most recent report on nuclear energy states the following: "[t]he current worldwide enrichment capacity of 46.7 million SWU is more than enough to meet the expected demand."³⁶ One year earlier, the EIA was even more frank about the lack of need for SWU's stating, "[c]learly, with capacity far in excess of annual

³⁶ "World Nuclear Outlook 1994," Energy Information Administration, DOE/EIA-0436(94) (December 1994) at xi (exhibit "DO-1").

requirements, the enrichment services market is highly competitive."³⁷ Other industry sources also acknowledge the overcapacity of uranium enrichment in the world.³⁸

Q. Is the present capacity to produce SWU's decreasing so that the over-supply will soon be used up?

A. No. In fact the capacity to produce SWU's has been increasing, and that will provide more competition for the proposed CEC. Japan is expanding its SWU output. Urenco, one of the LES partners, has expanded its European output of SWU's and has plans to expand more. These announced expansions, according to the EIA, will increase SWU output from 46.1 million in 1992 to 47.1 in 1995.³⁹

Further increases in SWU capability are also possible. Urenco and Eurodif have launched a study to determine the feasibility of using Urenco's gaseous centrifuge technology to help Eurodif expand capacity. Gaseous centrifuge technology is better suited than gaseous diffusion technology for enriching Eurodif's recycled nuclear material

³⁷ "World Nuclear Capacity and Fuel Cycle Requirements 1993," Energy Information Administration, DOE/EIA 0436(93) (November 1993) at xi (exhibit "DO-2").

³⁸ "New Birth of Urenco," Nukem Market Report, (June 1994) at 8 & 9 (exhibit "DO-3"); "Outlook on USEC," NuclearFuel, (October 11, 1993) at 2 & 4 (exhibit "DO-5").

³⁹ "World Nuclear Capacity and Fuel Cycle Requirements 1993," supra, table 16, at 33 (exhibit "DO-2").

into fuel.⁴⁰ China is also thought to be entering the international market with additional amounts of SWU to sell.⁴¹ In addition, Russia's effective capacity has recently grown as it has converted military SWU production to domestic purposes, and Japan may expand output beyond its plans for 1995.⁴²

Q. Does this behavior imply that there is economic justification for expanding SWU capacity in general?

A. No. Almost all of this expansion is directed by specific policy considerations within each country mentioned. For example, most of these countries, unlike the U.S., do not already have enough capacity for their domestic SWU demand.

Q. What has been happening to the demand for SWU's?

A. Demand for SWU's depends on the number of reactors requiring nuclear fuel services. Estimating the number of these reactors has suffered from extreme optimism. For example, as recently as 1973, the Atomic Energy Commission

⁴⁰ "Interview with Dr. Klaus P. Messer", Nukem Market Report, (June 1994) at 19 (exhibit "DO-4").

⁴¹ "Outlook on USEC," NuclearFuel, supra, at 4 (exhibit "DO-5").

⁴² Id.

("AEC") testified that by the year 2000 U.S. commercial nuclear reactors would total 1,200,000 megawatts. In fact, however, this is more than ten times what we will actually see on that date.⁴³

More recently, demand for SWU's has fallen as planned nuclear plants have failed to come on line in the U.S. In addition, at the end of 1993, a moratorium or slowdown in construction of nuclear units was in effect in thirteen countries.⁴⁴ As demand for new nuclear capacity decreases so does the demand for the SWU's to provide the fuel for that capacity.

Moreover, the EIA worldwide estimates for new nuclear capacity have been revised downward over time. EIA's 1994 estimates reduced its previous year's "High Case Capacity Projection" for the year 2010 by 17 Gigawatt-Electric (GWe).⁴⁵ The same EIA publication's "Low Case Capacity Projection" has world capacity increasing by only 0.3 percent per year (from 338.1 GWe in 1993 to 354.7 GWe in the

⁴³ Charles H. Montange, "The Federal Uranium Enrichment Program and the Criteria and Full Cost Recovery Requirements of Section 161 of the Atomic Energy Act," Journal of Mineral Law & Policy, University of Kentucky College of Law, (Vol. 2, No. 1, 1986-87) at 22 (exhibit "DO-6").

⁴⁴ "World Nuclear Outlook 1994," supra at ix (exhibit "DO-5").

⁴⁵ Id. at x.

year 2010).⁴⁶

Furthermore, even EIA's "Low Case Capacity Projection" fails to recognize the recent actions by the Tennessee Valley Authority ("TVA").

On December 12, 1994, the Tennessee Valley Authority (TVA) made an announcement that they are halting construction of three nuclear power units -- Bellefonte 1 and 2, and Watts Bar 2. TVA indicated that they will consider completing the units if partners can be found to help the financing. However, TVA is not optimistic that interested partners will be found.⁴⁷

Thus, because EIA's 1994 figures do not take into account this recent action by the TVA, EIA's demand estimates are high by approximately 3.6 GWe (1.2 GWe per plant) and so are EIA's estimated demands for SWU's for these plants. This action by the TVA probably means that after Watts Bar 1 is completed, no new nuclear units will come on line before the year 2010. (Three other plants, still in the pipeline, were on "indefinitely deferred" status even before the recent decision by TVA, and so were not included in either of EIA's high or low case projections.)⁴⁸

⁴⁶ Id. at ix.

⁴⁷ Id. (appendant to this publication.)

⁴⁸ Id. at 10. The plants are Washington Public Power Supply System's WNP 1 and 3 units, and Cleveland Electric Illuminating Company's Perry 2 unit.

Besides being high by 3.6 GWe (as a consequence of failing to take into account the recent TVA cancellations), EIA nuclear capacity estimates are also high because they do not take into account early retirement of nuclear reactors. Fourteen U.S. nuclear reactors have been either prematurely retired or reached a permanent non-operating state, including six since 1988. Three units were canceled in less than a year's time (February 1992 to January 1993).⁴⁹ Many more plants could be decommissioned early because of slack electricity demand and surplus generating capacity.⁵⁰ In short, although EIA estimates have finally been revised downward to a very significant extent, even these estimates still remain too high.

Q. Have other organizations revised their estimates of the need for SWU'S in the past?

A. Yes. In its 1994 report, Energy Resources International, Inc. ("ERI"), whose 1991 estimates were cited

⁴⁹ Energy Information Administration, "Monthly Energy Review," (November 1994) at 107 (exhibit "DO-7"). Retired plants according to the EIA include, Peach Bottom 1, Indian Point 1, Humbolt Bay, Dresden 1, LaCrosse, Fort St. Vrain, Yankee Rowe, San Onofre 1, and Trojan. This list does not count Shippingsport, Hanford-N, Three Mile Island-2, Shorham, and Rancho Seco, all of which still retain operating licenses, although it is very doubtful that any will ever generate another kilowatt-hour of electricity.

⁵⁰ Aging Nuclear Power Plants: Managing Plant Life and Decommissioning, (U.S. Congress Office of Technology Assessment) (September 1993) at 75 (exhibit "DO-28").

in the Final Environmental Impact Statement for the CEC, has decreased its worldwide SWU requirement by almost 40 million SWU's for the 1994-2005 period.⁵¹ These decreases reflect international and not U.S. conditions. Still, if LES depends upon ERI as an estimator of SWU demand, such a large reduction in estimates occurring over such a short period should inform LES that demand estimates will not hold still even over the period of time required to build an enrichment plant.

Q. Do you accept the ERI U.S. estimates?

A. No. First, although ERI's 1994 domestic U.S. SWU demand is approximately one percent lower than EIA's, (apparently because ERI did not expect that the three TVA plants would be built) ERI's estimated demand for SWUs continues to rise over time. Thus, it seems that ERI does not expect to see early cancellations of presently producing U.S. nuclear plants of the magnitude generally anticipated. Many financial analysts expect the cancellations to be substantial,⁵² and I agree with those analysts.

⁵¹ "World Nuclear Outlook 1994," supra, (table 31 at 57); see also, FEIS at 1, 6 & 7 (exhibit "DO-1").

⁵² "Should Investors Be Concerned About Rising Nuclear Plant Decommissioning Costs?", Shearson Lehman Brothers Electric Utilities Commentary, (Vol. 3, No. 1, January 6, 1993) Executive Summary at 1 (exhibit "DO-9").

Q. Please explain the issue of Operations and Maintenance ("O&M") costs and why this could lead to early retirement of currently operating nuclear units.

A. Nuclear plants generally have higher capital costs than fossil fuel plants. They can be competitive only if their operations and maintenance costs ("O&M") (including fuel costs) are low in relation to the O&M costs (including fuel costs) of fossil fuel plants. Low nuclear O&M costs was the expectation of utilities who invested in nuclear plants.

However, starting in about 1987, the costs of O&M, including fuel for nuclear plants, began to exceed the costs of nuclear technology's main fossil fuel competitor -- coal-fired plants -- and, while O&M costs for nuclear plants have begun to fall recently, they remain above those of coal plants.⁵³ This economic setback for nuclear power may result in several more nuclear plants being prematurely taken out of service.⁵⁴

⁵³ "World Nuclear Outlook 1994," supra, at 39 (exhibit "DO-1").

⁵⁴ Id. at 39, 40 & 43; Mark Gielecki and James G. Hewlett, "Commercial Nuclear Electric Power in the United States: Problems and Prospects," Monthly Energy Review, Energy Information Administration (August 1994) at 4 (exhibit "DO-10"); Shearson Lehman Electric Utilities Commentary, supra, Executive Summary at 1 and text at 3 (exhibit "DO-9"); National Research Council, Nuclear Power: Technical and Institutional Options for the Future, (National Academy Press 1992) at 2 (exhibit "DO-11").

Q. Could changes in historic utility regulation lead to early retirement of some nuclear plants?

A. Yes. The present regulatory system has been challenged by the concept of "Integrated Resource Planning" ("IRP"). State Public Utility Commissions are asking the utilities they regulate to show how they can produce energy services most cheaply, comparing various ways of producing kilowatt hours with various methods of manipulating demand, so the same final services can be attained at lowest cost.

The fact that they would be subject to the anticipated IRP calculations may have played a part in TVA's apparent abandonment of three new units. IRP calculations will also play a role in the decision to re-power unit 1 at TVA's Brown's Ferry complex.⁵⁵

Whether IRP is mandated by utility regulatory commissions, or instituted by individual utilities, the process can lead to premature closing of expensive plants--often nuclear plants. By engaging in the IRP process, utility companies are likely to find they have cheaper alternatives to continuing to produce electricity with their present nuclear units.

⁵⁵ "World Nuclear Outlook 1994", supra, at 9 (exhibit "DO-1").

Q. You have stated that changes in historic utility regulation might lead to early retirement of some nuclear plants. Might non-regulatory pressures lead to the same result?

A. Yes. The expected, and by some feared, competitive wind that is blowing through the utility industry is likely to put additional pressures on utilities with high cost plants. For example, a practice known as "retail wheeling" which creates direct competition among all utilities instead of relegating each company to an exclusive service territory, will provide such non-regulatory pressure. Retail wheeling allows utility customers to purchase electricity from any utility company, not merely the utility company that has traditionally served them. If retail wheeling becomes a reality (it is currently being tried in California and Michigan), investments in nuclear capacity are likely to become "stranded" by the competition.⁵⁶ If power plants owned by a utility cannot compete with kilowatt-hours of electricity that may soon be legally shipped (wheeled) into their formerly exclusive utility territory, these high cost units will be shut down. To the extent that a nuclear plant may be one with high O&M costs, competition may well lead to its early shutdown.

⁵⁶ Charles M. Studness, "Stranded What, Exactly?" Public Utility Fortnightly, (December 1, 1994) at 42 (exhibit "DO-12").

Q. Do you conclude that both changes in regulation and changes in competition within the electric utility industry could lead to early retirement of nuclear units?

A. Yes. I agree with many financial analysts who expect that there will be a number of early retirements of nuclear plants. A Lehman Brothers Electric Utilities Conference held in late 1992 produced the following summary statement:

In the next few years, we expect economic pressure to continue to grow on marginal nuclear units due to enactment of the Energy Policy Act of 1992 which is intended to promote development of an independent power industry and competition in the wholesale electric market. Also, nuclear plants must continue to pass economic muster as more states implement integrated resource planning processes which will put utilities with high operating costs at a competitive disadvantage.⁵⁷

Such retirements will lead to a decrease in the demand for SWU's in the United States.

Q. Will specific events in the life of a particular plant also have an effect on early retirement of that plant?

A. Yes. A large repair at a nuclear power plant may set the stage for the early retirement of that plant. Trojan was decommissioned early because of a steam generator problem which would have lead to a major repair.⁵⁸ Large

⁵⁷ Shearson Lehman Brothers Electric Utilities Commentary, supra, Executive Summary at 1 (exhibit "DO-9").

⁵⁸ "Portland GE Says Closing Trojan Was Least-Cost Decision," Public Utility Fortnightly, (February 15, 1994) at 11 &

repairs, especially in light of new regulatory and competitive pressures in the electricity generation market, will no doubt lead to more early decommissionings.

Because of conditions in the electric production market, any company with a reactor that experiences a problem requiring a major repair, may find it reasonable to take that plant out of service. In short, the new competitive regime, or the continuation of regulation more or less on the same terms that U.S. utilities are used to, both lead to the likelihood of reduced demand for SWU's.

Q. Isn't the possibility of early retirement of plants just speculation on your part?

A. No. While I am not prepared to tell you exactly which nuclear units will not be generating power in say, the year 2005, the fact that several plants have been taken out of service has led financial analysts and energy experts to predict that there will be fewer than 110 nuclear units in the United States on that date.⁵⁹ All companies presently producing SWU's for these reactors must consider the possibility of less demand for their services, but an enrichment plant that has not yet even been built must

12 (exhibit "DO-13").

⁵⁹ Shearson Lehman Brothers Electric Utilities Commentary, supra, Executive Summary at 1 (exhibit "DO-9").

incorporate this evidence into its financial plan. It is very likely that this possibility would dissuade a reasonable investor from providing capital for a new facility such as the CEC.

Q. Up to this point you have discussed existing nuclear plants. Isn't it true that new environmental requirements as well as growth in electric demand will make new electric producing capacity necessary?

A. Capacity additions will take place, but this capacity will most likely comprise smaller production units which have shorter construction lead times. Furthermore, in order to avoid emissions problems, these units are likely to be gas-fired or use alternative power sources such as wind.⁶⁰ Utility managers have recently been touting the advantages of gas turbine generating units that can be brought on in increments of 40 to 150 MWe as an alternative to large base load coal or nuclear units.⁶¹

Most important, efficiency -- i.e., producing "negawatts" instead of kilowatts -- will be responsible for

⁶⁰ Annual Energy Outlook 1994: With Projections to 2010," Energy Information Administration, DOE/EIA-0383(94) (January 1994) (exhibit "DO-8") at 7, 174-75 (exhibit "DO-8").

⁶¹ Charles E. Bayless, "Less is More: Why Gas Turbines Will Transform Electric Utilities," Public Utility Fortnightly, (December 1, 1994) at 22 (exhibit "DO-14").

a large share of the energy services in the future. As with early retirements, either the adoption of IRP or retail wheeling will greatly reduce what little incentive there might be to build new nuclear power additions.

Q. Wouldn't these concerns you cite above target all large central station steam generating plants, not specifically nuclear plants?

A. Only to a degree. The future of electricity generation is not with long-lead time, high capital cost production units. The future is with small, gas-fired units, alternative energy plants, and efficiency. Fewer large coal-fired and nuclear plants will be built. However, perceived safety issues, problems of nuclear waste disposal, and the high O&M costs of many present nuclear plants will make nuclear technology much less likely than coal technology.⁶²

Furthermore, utility commissions have treated overly large additions of nuclear and fossil-fueled capacity quite differently. Disallowances of cost recovery due to determinations of excess capacity, imprudence and related matters kept over \$14 Billion of nuclear capacity out of rate bases during the 1980's. While the same regulatory

⁶² Mark Gielecki and James G. Hewlett, supra, at 1 (exhibit "DO-10").

treatment was sometimes meted out to coal plants, the total amount was less than a billion dollars.⁶³ This disallowance of recovery of costs has made further investments in nuclear power plants far from likely. A committee of the National Research Council determined:

Billions of dollars in disallowances of recovery of costs from utility ratepayers have made utilities and the financial community leery of further investments in nuclear power plants.⁶⁴

Q. Even if the total demand for SWU's is shrinking, could a low-cost producer still take part of the market from other established producers?

A. Even with the over supply of SWU capacity, it is possible for a very low-cost producer to find a share of the market. However, LES is unlikely to fill that role because, even assuming that the CEC would have low production costs, it will be carrying the heavy capital costs of an undepreciated plant. In contrast, current SWU producers all carry lesser capital costs because all of their older plants are partially or fully depreciated.

Thus, the Russians are likely to continue to be the low-cost producer of SWU's. Urenco, which uses similar technology to that proposed by LES, can produce more cheaply

⁶³ Nuclear Power: Technical and Institutional Options for the Future, supra, table 2-8 at 40 (exhibit "DO-11").

⁶⁴ Id. at 2.

than the CEC from partially depreciated plants in Europe. Eurodif will likely continue to compete using its older gaseous diffusion plants. And the USEC plants, which are quite old and are fully depreciated, will continue to be competitive as they do not carry a large burden of capital costs that must be amortized.

Q. What costs are relevant to an already established plant as opposed to a yet-to-be built plant?

A. It is critical to understand that, while the already constructed plants of LES's competitors can be expected to continue to produce as long as something above marginal costs is being covered, this is not true for the CEC. The NRC staff seems to have gotten this fundamental economics principle completely wrong.⁶⁵ The CEC is not built yet, so it is not low O&M costs that dictate whether the CEC has the ability to successfully compete; it is the CEC's total costs -- including paying all of its lenders -- that will determine the CEC's ability to successfully compete. Logic dictates that even with low O&M costs, the CEC is unlikely to be a successful competitor with other companies who do not have such heavy capital costs.

⁶⁵ Safety Evaluation Report for the Claiborne Enrichment Center (January 1994) at 13-5. The NRC Staff compares the projected O&M costs for the CEC to the O&M costs for currently producing plants, when the comparison should be: the projected O&M costs for the CEC and the CEC's capital costs, as compared to the O&M costs for currently producing plants.

Q. Will security of supply give LES an advantage with U.S. utility companies?

A. No. LES alleges that it will be able to take part of the market from other established foreign producers, especially the Russians, because U.S. utilities desire a stable domestic source of SWU's.⁶⁶ However, if stable domestic supply is of interest to U.S. electric utilities, the USEC already exists to fill that role. The USEC can be expected to be a fierce competitor to LES (as it is to the other current market participants) if LES ever begins to produce SWU's.

Further, it has been documented that the CEC has "disadvantages" rather than "advantages" in the eyes of many U.S. utility companies. For example, it is the USEC that has a big advantage as the marketer of the recently completed Russian HEU agreement.⁶⁷ That agreement alone, which runs for twenty years, will hurt a yet-to-be-established competitor like LES. The chief executive officer of Urenco (an LES partner and a competitor to USEC), has stated that USEC has made it difficult for LES to secure SWU contracts.

⁶⁶ LES Project Financial Plan (Non-Proprietary) (revised December 22, 1994) at D-9 (exhibit "DO-15").

⁶⁷ "Outlook on USEC," NuclearFuel, supra, at 7 (exhibit "DO-5").

Due to the HEU deal, and the founding of USEC, American utilities just are not prepared to commit themselves [to buy from LES.]⁶⁸

Furthermore, the experience that the USEC gains in marketing Russian HEU will prepare the USEC to sell the large stocks of U.S. HEU which most likely will be downblended into nuclear plant fuel for many years into the future, as a consequence of the end of the cold war. This downblended U.S. HEU could fuel nuclear reactors for decades. While the possibility that this new source of SWU's will cause aggravation to already existing producers, this "disadvantage" to potential producers like LES who have not even entered the market could be devastating.

In short, the USEC provides a stable source of SWU's and is a vigorous competitor with other worldwide producers.⁶⁹

Q. Your second major point under need is that there is no "domestic" as opposed to an "international" market for SWU's. Please explain this.

A. The U.S. Government Accounting Office ("GAO") has

⁶⁸ "Interview with Dr. Klaus P. Messer," Nukem Market Report, supra at 17 (exhibit "DO-4").

⁶⁹ Further into the future, the Atomic Vapor Laser Isotope Separation ("AVLIS") process would give the USEC the technology to upgrade its present plants -- although this may not even be necessary, since abundant amounts of HEU are available for downblending.

documented that the market for SWU's is international.⁷⁰ The pricing policy of DOE from 1984 until it relinquished its duties as SWU seller to USEC, demonstrates that the U.S. market is not protected from international competition. In 1984, the Utility Services Contract ("USC") which is a 10 year requirements-based contract, was instituted by DOE to give utilities the option to fill up to 30% of their SWU needs on the spot market.⁷¹ This was a direct response to competition. Further, DOE initiated incentive prices in 1987 as a means to maintain DOE (now USEC) market share, in the face of increasing worldwide competition.⁷² In short, although the DOE once maintained a monopoly position as the world supplier of SWU's, that has completely changed and the market is now competitive and worldwide.

Utility companies know the market is international. In 1988 Northern States Power, which is affiliated with one of the LES partners, Graystone Corporation,⁷³ filled most of its SWU needs on the spot market. A large share of that

⁷⁰ "Uranium Enrichment: Congressional Action Needed to Revitalize the Program," Report to Congressional Requesters (October 1987) (exhibit "DO-16").

⁷¹ "Outlook on USEC," NuclearFuel, supra, at 8 (exhibit "DO-5").

⁷² Id.

⁷³ Graystone Corporation is a wholly-owned subsidiary of NRG Group, Inc., and NRG Group, Inc. is a wholly-owned subsidiary of Northern States Power Company.

market was Soviet produced SWU's.⁷⁴ Because the market is international and depends on the supply of all the current producers of SWU's as well as the various alternatives to new SWU production, events outside the U.S. will have great impact on the CEC venture. Current enriched uranium inventories, mixed oxide fuel ("MOX"), future exports from Russia, further HEU deals from throughout the former Soviet Union, as well as the utilization of reprocessed material, will all ensure that the SWU market will remain oversupplied for a very long time.⁷⁵

Q. Do you have other comments on the way the issue of need is defined for the CEC?

A. LES has conjured up a very narrow, artificial definition of need ("need for an additional domestic competitor") simply to justify the CEC project, but that definition does not reflect world market conditions for SWU's. There is no such thing as an exclusively domestic market. There are domestic companies who need to purchase enrichment services, but those companies do not limit their purchases to the United States -- they buy worldwide. And

⁷⁴ Northern States Power Company (Minnesota), "Minnesota Public Utilities Commission Information Requests on Graystone," answer to question 12 (undated) (exhibit "DO-17").

⁷⁵ "New Birth of Urenco," Nukem Market Report, supra at 9 (exhibit "DO-3").

as has been shown above, the worldwide market for SWU's is highly competitive and will continue to be so for the foreseeable future.

Q. Your third point regarding the "need" issue is that the CEC would have a detrimental effect on nuclear non-proliferation. Please explain.

A. The U.S./Russian Highly Enriched Uranium agreement will remove 50 metric tons of bomb-grade material from storage that otherwise might have found its way into hands bent on making it into bombs. Avoiding this scenario in and of itself ought to be sufficient reason for the U.S. government to pay nearly \$12 billion to acquire this material. Accordingly, even if the HEU were simply to be blended down and stored in the U.S. rather than in Russia, in an ideal world there would be reason to go forward. However, in the real world, where economic incentives make or break deals, it is obvious that a ready market for this material as a fuel for commercial nuclear plants is essential.

Q. Does the initial price of the downblended SWU's (\$82.10) give the Russian government an incentive to reduce their HEU stockpile?

A. Because the Russians agreed to the HEU deal, it is obvious that the price of \$82.10 was enough of an incentive

for the Russians to reduce their HEU stockpile. However, a saturated market for SWU's in the world keeps the price that can be paid for HEU lower than it might be, and therefore gives less incentive for the program to be expanded. Adding more capacity in the United States would only further saturate the SWU market and make the possibilities for economic blend down of the additional HEU stockpile even worse.⁷⁶

Thus, although, the NRC staff may be correct in asserting that the sale of the downblended HEU is not the primary incentive for the downblending,⁷⁷ it does not follow that the possibility of such sales is not an important incentive for the downblending. Logic dictates that the possibility of implementing a program to capture HEU and take it out of circulation becomes slight if there is no economic incentive to do so. To suggest otherwise is unreasonable.

Q. Why do you conclude that the "no action alternative" which

⁷⁶ The amount of weapons-grade highly enriched uranium from former Soviet Union stockpiles is about 1250 tons, two and one-half times as much as the 500-ton quantity pertinent to the U.S.-Russian HEU Agreement. Statement by Minister Viktor N. Mikhailov of Minatom, NUKEM Market Report at p. 28 (October 1993).

⁷⁷ NRC Staff's Response to 12/16/94 Interrogatories and Request For Production of Documents Filed by Citizens Against Nuclear Trash and Directed to the Executive Director for Operations and the NRC Staff pertaining to Contentions B, J, K, Q and W, at 23 (January 13, 1995).

is required under NEPA has not been adequately investigated?

A. If the CEC is not built, the potential adverse effects on air, groundwater, surface water, and other natural resources will be eliminated, and an additional 120,000 tons of toxic, radioactive tailings will not be added to the alarmingly large national inventory of such tailings.⁷⁸ Other economic development that might be thwarted by the presence in the area of a nuclear facility should, on the other hand, be forthcoming.

Q. What factors should the NRC Staff have considered in assessing the "no action alternative" to CEC?

A. The discussion of the "no action alternative" should not simply have parroted LES's assertions regarding the local jobs that would not be created and the extra electricity that would be consumed in producing SWU's at other facilities if the plant is not built. The NRC Staff should have fully reviewed and weighed all of the individual negative impacts that would be avoided if the CEC were not built. Because the Staff failed so completely to recognize the negative impacts of the CEC on the most impacted

⁷⁸ For a full discussion of negative impacts (which would be avoided if the CEC were not built), see the testimony of Dr. Robert D. Bullard concerning Contention J.9, also filed in this proceeding.

communities,⁷⁹ it is not surprising that their analysis of the "no action alternative" is entirely deficient.

Q. LES has confined its discussion of alternatives to producing SWU's from existing USEC plants. Please comment.

A. The "product" of the CEC is only useful for the production of electricity by some nuclear plants. However, the same electricity can be produced using other methods which are environmentally benign such as wind or biomass. More importantly, the same energy services can be gained by investing in efficiency, which demands less total electricity to accomplish the same final purposes. These alternatives were not considered.

Q. Please summarize your testimony.

A. The assertion that there is a "need for an additional market competitor in the U.S." is inappropriate for three reasons. First, the assertion fails to acknowledge that supply and demand conditions demonstrate no need for new Separative Work Units (SWU's). Second, the assertion is deficient because it assumes that there is a domestic market for SWU's which needs additional competition when, in fact, the market for SWU's is international and is already very

⁷⁹ See the testimony of Dr. Robert D. Bullard concerning Contention J.9, also filed in this proceeding.

competitive. Third, the assertion fails to acknowledge that the CEC would interfere with United States policy on disarmament and nuclear non-proliferation.

Furthermore, the "no action alternative" required under NEPA has not been adequately investigated.

Q. Does this conclude your testimony?

A. Yes, it does.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Thomas S. Moore, Chairman
Richard F. Cole
Frederick J. Shon

_____)	
In the Matter of)	Docket No. 70-3070-ML
)	
LOUISIANA ENERGY SERVICES, L.P.)	ASLBP No. 91-641-02-ML
)	(Special Nuclear
(Claiborne Enrichment Center))	Material License)
_____)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the "TESTIMONY OF DAVID E. OSTERBERG ON BEHALF OF CITIZENS AGAINST NUCLEAR TRASH REGARDING CONTENTIONS J.4 and K" have been served on this 24th day of February, 1995, as follows:

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Washington, D.C. 20555	

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Respectfully submitted,

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