RAS 9213

January 18, 2005

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

Louisiana Energy Services, L.P.
National Enrichment Facility

Docket No. 70-3103

ASLBP No. 04-826-01-ML

RESPONSE ON BEHALF OF NUCLEAR INFORMATION AND RESOURCE SERVICE AND PUBLIC CITIZEN TO LES MOTION TO EXCLUDE PREFILED DIRECT TESTIMONY OF CHARLES KOMANOFF

Preliminary statement

This Memorandum is submitted on behalf of Intervenors Nuclear Information and Resource Service and Public Citizen ("NIRS/PC") in opposition to the Motion of Applicant, Louisiana Energy Services, L.P. ("LES") to Exclude Prefiled Testimony of Charles Komanoff for Lack of Requisite Expert Qualifications and Reliability, filed on January 12, 2005.

Factual background

LES has been confronted with persuasive evidence, based upon its own market analyses, that the proposed National Enrichment Facility ("NEF") will not, in fact, meet a supposed shortage in enrichment capacity. Responding, LES seeks to slay the messenger who brought the bad tidings. It attempts to disqualify NIRS/PC's expert witness, Charles Komanoff, an experienced economist who has testified in several dozen proceedings involving energy economics.

Mr. Komanoff testified on deposition that he has testified as an expert in several dozen proceedings (Komanoff dep. 7, Oct. 13, 2004). His resume states that he has developed rigorous analyses of the costs of nuclear reactors and nuclear power. In the 1970's and 1980's he

> "consulted for two Congressional agencies, the U.S. Department of Energy, and close to two dozen states including New York, California, Texas and Florida; presented expert testimony before the U.S. Nuclear Regulatory Commission and 20 Public Utility Commissions; testified before four Committees of Congress and the Select Committee on Energy of the House of Commons (U.K.); and tutored countless journalists on the extent and causes of cost escalation in the U.S. nuclear power industry." Komanoff resume 1 (attached to Komanoff prefiled direct testimony).

His publications include the following, which are listed in his resume:

> *Power Plant Cost Escalation: Nuclear and Coal Capital Costs, Regulation and Economics* (Komanoff Energy Associates, 1981, republished by Van Nostrand Reinhold, 1982).
>
> *Power Plant Performance: Nuclear and Coal Capacity Factors and Economics* (Council on Economic Priorities, New York, 1976).
>
> *The Price of Power: Electric Utilities and the Environment* (Council on Economic Priorities, 1972, republished by M.I.T. Press, 1974), co-authored with Sandy Noyes and Holly Miller.
>
> "Doing Without Nuclear Power," in *Accidents Will Happen: The Case Against Nuclear Power* (L. Stephenson, ed.), Environmental Action Foundation and Harper & Row, New York, 1979.
>
> *Fiscal Fission: The Economic Failure of Nuclear Power — A Report on the Historical Costs of Nuclear Power in the United States* (Greenpeace, U.S.A., with Cora Roelofs, 1992).
>
> *There They Go Again: A Critique of the AER/UDI Report on Future Electricity Adequacy Through the Year 2000* (Nat'l. Assoc. of State Utility Consumer Advocates, 1987, co-authored).
>
> *Prometheus Bound: Nuclear Power at the Turning Point* (Cambridge Energy Research Associates, 1983), with I.C. Bupp.
>
> *Public Utilities Fortnightly*, "Predicting Nuclear Plant Capacity Factors," 1 December, 1994.
>
> *Electricity Journal*, "10 Blows That Stopped Nuclear Power," January 1991.
>
> *New England Journal of Public Policy*, "Dismal Science Meets Dismal Subject: The (Mal)practice of Nuclear Power Economics," Fall 1985.
>
> *Public Utilities Fortnightly*, "Assessing the High Costs of New Nuclear Power Plants," 11 October 1984.

Nuclear Safety, "Sources of Nuclear Regulatory Requirements," Vol. 22, No. 4, Jul-Aug 1981.

Bulletin of the Atomic Scientists, "U.S. Nuclear Plant Performance," November 1980

Mr. Komanoff has testified as an expert witness in cases before this Commission, such as *U.S. Department of Energy Project Management Corporation Tennessee Valley Authority*, 15 NRC 362 (1982), where he offered cost-analysis testimony that ultimately overcame the objections of the Department of Energy. (at 397). In *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), 8 NRC 102, 115-16 (1978), he testified as an expert before an Atomic Safety and Licensing Board panel on issues involving a cost-benefit analysis of a nuclear generating plant. In *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), 7 NRC 989, 1020 (1978), he testified on nuclear plant reliability as an expert witness. In *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), 5 NRC 261 (1977), he testified as an expert on the comparative costs of nuclear and coal generation. It cannot be contended that such Boards and the Commission itself erred in admitting expert testimony from Mr. Komanoff.

In this proceeding, Mr. Komanoff has offered direct testimony on contention EC-7, which states as follows:

NIRS/PC EC-7 -- NEED FOR THE FACILITY

CONTENTION: Petitioners contend that the Environmental Report (ER) does not adequately describe or weigh the environmental, social, and economic impacts and costs of operating the National Enrichment Facility (See ER 1.1.1 et seq.) in that:

(A) Louisiana Energy Services, L.P.'s (LES) presentation erroneously assumes that there is a shortage of enrichment capacity.

(B) LES's statements of "need" for the LES plant (ER 1.1) depend primarily upon global projections of need rather than projections of need for enrichment services in the U.S.

(C) LES has referred to supply and demand in the uranium enrichment market (ER 1.1), but it has not shown how LES would effectively enter this market in the face of existing and anticipated competitors and contribute some public benefit.

Mr. Komanoff's testimony addresses worldwide sources of supply of enrichment services and examines the reality of LES's assertions that there is a shortage of enrichment capacity in the time frame relevant to the proposed NEF. Such evidence is clearly relevant under contention EC-7.

It must be borne in mind that the testimony offered by Mr. Komanoff is quite specific. His analyses involved, essentially, changing certain parameters in the application of models developed for and used by LES itself. Using computer modeling tools developed by LES's consultant, Michael Schwartz, Mr. Komanoff has projected the anticipated worldwide demand for enrichment services, based upon different assumptions as to the applicable tails assay used in enrichment operations. Mr. Komanoff further assessed the dollar impact of the forecasted changes upon overall generation costs. His expertise came into effect in determining that the proposed changes (e.g., in tails assay) reflect realistic scenarios and in measuring and assessing the significance of the market impact of a consequent change in generation costs.

Argument

Mr. Komanoff's testimony falls squarely within his area of expertise with regard to future demand for uranium-based fuel, the factors (e.g., generating capacity, capacity factors) that bear upon such demand, and the costs of satisfying such demand. The accompanying affidavit by Mr. Komanoff supports his expert testimony on such issues.

LES asserts that Mr. Komanoff has "expressly conceded" that he is not an expert in the uranium enrichment market, and it quotes at length from Mr. Komanoff's deposition.

(LES Br. 3-7). However, the quoted testimony concerns Mr. Komanoff's expertise in uranium mining and enrichment activity. Mr. Komanoff was asked whether he is an expert in such areas, and he understandably asked for clarification:

> "It depends on what an expert is. Was I well informed on them? Yes. Was I qualified to make forecasts of uranium prices to the extent that uranium prices were one element and a relatively subsidiary element of the entire life-cycle cost of nuclear power? Yes. But was I one of the leading 10 or 50 experts in the world on the uranium market and uranium mining and future cost of uranium? No." (Komanoff dep., Tr. 20, Oct. 13, 2004).

Mr. Komanoff similarly said that he was "not one of the world's authorities on the uranium enrichment business." (Tr. 24). Modestly, Mr. Komanoff disclaimed the title of "world authority," but such august status is not required for expert witnesses. Under Rule 702, Fed. R. Evidence, one is qualified to testify as an expert witness in the following circumstances:

> "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case."

Mr. Komanoff clearly does possess the knowledge, skill, experience, training, and education needed to analyze and explain the alternative methods available to satisfy a demand for enriched uranium, as he has done in his prefiled testimony. Indeed, LES complains that Mr. Komanoff had not produced "original research and published research reports" (LES Mot. 6) at the time of his deposition, but since that time Mr. Komanoff has conducted new research and set forth the results in his prefiled direct testimony, showing the small impact of foregoing construction of the NEF.

LES quotes Mr. Komanoff at length but does not tell the Board that Mr. Komanoff also testified that he long followed uranium mining and enrichment activities in order to testify on generating costs:

> "My purpose in doing this was not to sell research on the uranium market, but to be able to make reasonable, realistic forecasts of the uranium ore component and similarly of enrichment and the other stages of the nuclear fuel cycle for the purposes of calculating projected total life-cycle generating costs of current and future nuclear facilities." (Tr. 18).

Further, Mr. Komanoff testified that he assuredly is an expert on matters relating to world nuclear generating capacity and the extent of its usage—all factors directly related to the measurement of demand for enrichment and the means to satisfy such demand:

> "Q. Let me turn to the demand side of the equation. You identified what you called a driving force. It's for future world nuclear capacity. You spent a long time in the nuclear business, historically from it looks like the mid-1970s forward. Do you consider yourself an expert in being able to assess, project future world nuclear capacity?
> A. Yes." (Tr. 77).

Mr. Komanoff stated in addition that he will testify about projection of future world nuclear capacity:

> "Q Do you consider yourself an expert in the area of projecting future world nuclear capacity?
> A Yes.
> Q And do you have, based upon your expertise, do you have a view today about what future world nuclear capacity would be over the life of this facility?
> A That's really still in formation.
> Q What's the basis for your expertise in projecting world nuclear capacity?
> A I think I have a fairly good handle on the underlying determinants and how those determinants combine to affect or create or determine the amount of future world electrical generating capacity and the portion of that that's going to be fueled by different types of plants, including nuclear." (Tr. 78-79).

In addition, Mr. Komanoff stated that he is an expert in determination of future world capacity factors, i.e., the percentage of generation capacity that is actually put to use:

"Q I just have one other area that I wanted to pursue and the third factor, the third driving force in assessing demand was future world nuclear capacity factor.
A Yes.
Q Do you consider yourself an expert in assessing capacity factor?
A I'm a little rusty, but basically, yes.
Q And what's the basis for your expertise?
A For years I developed and maintained a database of -- well, let me backtrack and say that I always attended more closely to U.S. capacity factors than world, but I followed world capacity factors because that was a cousin of my main focus which was U.S. nuclear capacity factors, but at any given time I could roughly say which countries had the highest performance rates and which ones had the lowest and how they were doing. Were they bouncing up and down or were they consistent or what.

But for the United States from 1975 to around 1995, I maintained a database of the annual capacity factors of every U.S. reactor and I invested an awful lot of time and creativity into developing what I thought were some pretty great statistical models to explain the variations from reactor to reactor or from year to year, among all these data points of individual reactor capacity factors.
Q And you consider yourself an expert in that area?
A Absolutely.
Q Will you be testifying on that issue as it relates to demand in this proceeding?
A Probably.
Q And have you testified in any other proceeding at any other time or appeared as an expert in some capacity relative to your statistical model for assessing capacity factor?
A Yes." (Tr. 83-85).

LES suggests (LES Mot. 2) that the testimony by Mr. Komanoff may be excludable on principles of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), but the point is not urged seriously, as it could not be, because calculation of the future dollar impact of different courses of action is plainly an exercise of conventional economic projection.

LES has, at best, raised a factual dispute about the admissibility of Mr. Komanoff's testimony, a dispute that should not be decided on a paper showing. Determination of the qualification of a proffered expert witness is normally made after voir dire examination of the witness in hearings before the Board. See, e.g., *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), LP-04-13, 60 NRC 33, 35 (July 2, 2004), *affirmed,* CLI-04021, 60 NRC 21 (July 29, 2004). In the *Duke Energy* case the Board explained the detailed and somewhat subjective

nature of the inquiry into a witness's qualifications as an expert; such inquiry would be difficult to conduct without a voir dire examination:

> "As stated during the June 25 session, we found that Dr. Lyman was quite straightforward in stating both those specific matters in which he has knowledge and experience and those in which he does not. He also provided information about various nuclear-security-related articles he has authored, as well as about other participation in nuclear security-related subjects, which we describe below. We found, and herein find, that he has, despite some lack of knowledge of certain particular detailed tactical information, demonstrated the requisite skill and ability to understand, analyze, utilize, and explain the significance of the sort of information, both conceptual and detailed, that would be relevant and that would aid us in the security-related determinations we are called upon to make in this proceeding. This, we found and do herein also find, satisfies the standard proposed by the Staff, from Federal Rule of Evidence 702, that "a witness qualified as an expert by knowledge, skill, experience, training, or education," [may] testify "if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or determine a fact in issue." 60 NRC at 36.

Affirming, the Commission pointed out that the Board had fully examined the witness on voir dire and found that his general background in the subject would assist the Board:

> "To begin with, the Board made a careful inquiry into Dr. Lyman's qualifications in the security area. After hearing voir dire and the parties' arguments, the Board specifically found that Dr. Lyman had the knowledge, skill, experience, training, and education to assist the Board in making its determinations in this case. The Board was made aware, and acknowledged, that Dr. Lyman lacked knowledge of 'certain particular detailed tactical information.' The Board nonetheless found that he had 'extensive knowledge and experience at the conceptual and strategic level.'" 60 NRC at 28.

The Commission emphasized the need for broad general knowledge of matters in issue and criticized the Staff for insisting on more specific knowledge of particular subjects:

> "But practical, 'hands-on' experience, while desirable, is not indispensable in all cases. Unwarranted and inflexible barriers, such as too great an insistence on 'specific' knowledge in selected aspects of the subject, should not disqualify an expert witness who possesses a strong general background and specialized knowledge in the relevant field." 60 NRC at 31.

The Commission's statements are applicable here. Mr. Komanoff has plainly immersed himself in matters involving the projection of generation costs and performance and is ideally

situated to express an opinion on the overall costs of alternative methods of supplying enrichment needs and the ultimate requirement of fabricated fuel. It achieves little to exclude a witness with broad general knowledge of matters that should be disclosed in the DEIS, based upon misguided arguments about the need for specific knowledge of particular aspects.

In similar circumstances panels of the Atomic Safety and Licensing Board, after hearing oral testimony by a proffered expert witness, have admitted witnesses who have valuable general background and can assist the Board in understanding matters in issue:

> "While Dr. Thompson may have little experience in the actual operation of a nuclear power plant or in PRA preparation, . . . given his education and experience relating to nuclear facility and SFP design, particularly his experience with spent fuel storage issues and his previous activities with probability assessments, we cannot say that his testimony will not aid the Board in determining and/or understanding the probability of the seven-step accident sequence. Therefore, we give Dr. Thompson's testimony due weight in the subject areas in which we believe he possesses knowledge and experience that can aid the Board in its determinations regarding EC-6." *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-01-9, 53 NRC 239 (March 1, 2001).

Board panels have rejected motions in limine asserting deficiencies in expert testimony, pointing out that the objectors' complaints are properly regarded as "grist for the cross-examination mill." *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), 2000 WL 862622 (June 12, 2000). Thus, "[i]n order for expert testimony, such as we have here . . . to be admissible it need only (1) assist the trier of fact, and (2) be rendered by a properly qualified witness." *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 107, 1091 (June 29, 1983). Such tests are plainly satisfied.

NIRS/PC here offer testimony by Charles Komanoff, who has been recognized as an expert in the costs of nuclear power generation. He seeks to bring forward information about the actual purpose and need for the proposed NEF, which, if built, will form an important component of the cost of nuclear power generation in this country. Such information is

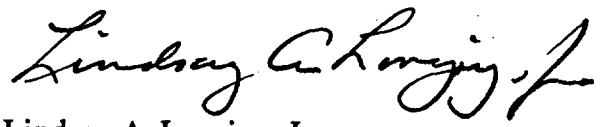
clearly relevant to the completeness of the environmental disclosure in the ER and the DEIS. Such testimony is plainly within Mr. Komanoff's area of demonstrated expertise. It should not be grounds to disqualify Mr. Komanoff that his expertise lies in the large area of impacts upon generation costs, for that is just the kind of assistance that will best help the Board to make a full and relevant record.

LES also argues that Mr. Komanoff's testimony does not address the admitted contention (LES Mot. 10). Contention EC-7 puts in issue the asserted future shortage of enrichment capacity (Basis A). Mr. Komanoff's testimony shows that the asserted shortage is illusory, because by altering the tails assay used at enrichment facilities, the need for enriched uranium can be satisfied, and it gives a conservative estimate of the cost impact of such a strategy. Such testimony is directly relevant to the assertion of a shortage and cannot be excluded on relevancy grounds.

Conclusion

The testimony offered by Charles Komanoff goes to one of the overriding environmental issues of this proceeding: the supposed need for the proposed facility. Mr. Komanoff is ideally situated by training and experience to show the Board the future impact of a decision whether to build the proposed NEF upon costs experienced by generators and users of nuclear power. LES should not be permitted to prevent such information from entering the record in this case. Should the Board have any concerns about the qualifications of Mr. Komanoff to testify on the issue of need for the facility, the Board may examine Mr. Komanoff on voir dire. The Board will then find, as it can now find, that Mr. Komanoff has the training and experience in the area of utility costs that will enable him to assist the Board in its decisions. The motion should be denied.

Respectfully submitted,



Lindsay A. Lovejoy, Jr.
618 Paseo de Peralta, Unit B
Santa Fe, NM 87501
(505) 983-1800
(505) 983-0036 (facsimile)
E-mail: lindsay@lindsaylovejoy.com

Counsel for Petitioners
Nuclear Information and Resource Service
1424 16th St., N.W. Suite 404
Washington, D.C. 20036
(202) 328-0002

and

Public Citizen
1600 20th St., N.W.
Washington, D.C. 20009
(202) 588-1000

January 18, 2005

CERTIFICATE OF SERVICE

Pursuant to 10 CFR § 2.305 the undersigned attorney of record certifies that on January 18, 2005, the foregoing Response on behalf of Nuclear Information and Resource Service and Public Citizen to LES Motion to Exclude Prefiled Direct Testimony of Charles Komanoff was served by electronic mail and by first class mail upon the following:

G. Paul Bollwerk, III
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: gpb@nrc.gov

Dr. Paul B. Abramson
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: pba@nrc.gov

Dr. Charles N. Kelber
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: cnk@nrc.gov

James Curtiss, Esq.
David A. Repka, Esq.
Winston & Strawn
1400 L St.
Washington, D.C. 20005-3502
e-mail: jcurtiss@winston.com
drepka@winston.com
moneill@winston.com

John W. Lawrence, Esq.
Louisiana Energy Services, L.P.
2600 Virginia Ave., N.W.
Suite 610
Washington, D.C. 20037
e-mail: jlawrence@nefnm.com

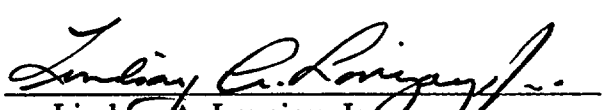
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Associate General Counsel for Hearings, Enforcement, and Administration
e-mail: OGCMailCenter@nrc.gov
lbc@nrc.gov
abc1@nrc.gov
jth@nrc.gov
dmr1@nrc.gov
dac3@nrc.gov

Office of Commission Appellate Adjudication
Mail Stop O-16C1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Tannis L. Fox, Esq.
Deputy General Counsel
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, NM 87502-1031
e-mail: tannis_fox@nmenv.state.nm.us

Glenn R. Smith, Esq.
Christopher D. Coppin, Esq.
Stephen R. Farris, Esq.
David M. Pato, Esq.
Assistant Attorneys General
P.O. Drawer 1508
Santa Fe, NM 87504-1508
e-mail: ccoppin@ago.state.nm.us
dpato@ago.state.nm.us
gsmith@ago.state.nm.us
sfarris@ago.state.nm.us

Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Rulemakings and Adjudications Staff (original and two copies)
e-mail: hearingdocket@nrc.gov



Lindsay A. Lovejoy, Jr.
618 Paseo de Peralta, Unit B

Santa Fe, NM 87501
(505) 983-1800
(505) 983-0036 (facsimile)
e-mail: lindsay@lindsaylovejoy.com

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	Docket No. 70-3103
Louisiana Energy Services, L.P. National Enrichment Facility	ASLBP No. 04-826-01-ML

DECLARATION OF CHARLES KOMANOFF

Charles Komanoff states as follows under penalty of perjury:

1. I am trained in economics and have been qualified as an expert in several score cases before state public utility commissions as well as the Nuclear Regulatory Commission itself. I have appeared on behalf of state governmental agencies representing citizens of 19 states, including California, Texas, New York, Florida, Illinois, Pennsylvania and Ohio (the seven largest states), whose combined population is some 63% of the entire population of the United States. I have also executed consultancies for the General Accounting Office and the Office of Technology Assessment (representing the U.S. Congress) and two cabinet agencies, the Departments of Transportation and Energy.
2. In all of these engagements, my skill has been quantitative analysis. I have been retained in these and similar activities because of my capacity to investigate policy matters clearly and, often, in a new and different light. This capacity enabled me to be far "ahead of the curve" in diagnosing and forecasting the disappointing operating performance of U.S. reactors (beginning in the mid-1970s) and the uniquely steep and prolonged escalation in

the costs of building new nuclear plants (beginning in the late 1970s), among other phenomena.

3. In my deposition, I candidly acknowledged that I had not studied the nuclear fuel cycle to the same level of detail with which I studied power reactors themselves. I have, however, included the fuel cycle in my studies over several decades. Based upon my training and such studies, I have full confidence in my ability to analyze the fuel cycle issues presented here, involving means to satisfy a need for enriched uranium.
4. I have spent decades in examining costs of nuclear power production and have studied the various stages of the nuclear fuel cycle for the purposes of calculating projected total life-cycle generating costs of current and future nuclear facilities. By long-term study since the 1970's I have made myself an expert in calculating and projecting future world nuclear capacity and capacity factors.
5. In the matter of uranium enrichment, LES quotes my deposition to the effect that "I'm not an expert ... in the sense that an expert is one who conducts original research and publishes research reports." Since that time, I have produced an original piece of research here, in my proffered testimony.
6. My proffered testimony goes to a matter of great importance — whether operation of the NEF is necessary to avert a shortage of enrichment capacity — and its corollary, the cost of foregoing the NEF. I am confident that I have accurately projected the impact on costs of the worldwide nuclear fuel cycle of foregoing the construction of the NEF.

Signed: Charles Komanoff Date: Jan. 18, 2005