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ILLINOIS COMMERCE COMMISSION

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On Its Own Motion)
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Proceeding to adopt an electric energy)
plan for Commonwealth Edison Company)

92-0268

REBUTTAL TESTIMONY OF PAUL L. CHERNICK

ON BEHALF OF THE CITY OF CHICAGO

SEPTEMBER 23, 1994

CITY EXHIBIT 7.0

**I.C.C. DOCKET 92-0268
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ON BEHALF OF THE CITY OF CHICAGO**

Q: Please state your name, occupation, and business address.

A: I am Paul L. Chernick. I am President of Resource Insight, Inc., 18 Tremont Street, Suite 1000, Boston, Massachusetts.

Q: Are you the same Paul Chernick who filed testimony in this proceeding?

A: Yes.

Q: What is the purpose of your rebuttal testimony?

A: I will respond to the rebuttal testimony of CWE witnesses Jerome Hill, Michael Brandt, Michael Giuffre, Sharon Kelly, and Mary O'Toole, and to Staff witness Bruce Larson.

Q: Based on the rebuttal testimony of these witnesses, do you wish to change your conclusions or your recommendations to the Commission?

A: No. In the main, the rebuttal testimony of these witnesses consists of:

- unsupported assertions;
- misrepresentations of my testimony; and
- flawed arguments.

Q: Can you specify some instances where rebuttal witnesses have made assertions without support?

A: Yes. Contrary to the CWE's discovery responses, Mr. Giuffre reports that CWE

has formulated detailed cost estimates of life extension on a unit-specific basis and claims that the highest estimate was about \$150/kW for one of the smallest units (Giuffre, p. 4, 7). However, he does not provide any of these unit-specific studies. Furthermore, his discussion of the status of CWE's unit-by-unit analyses is unclear and contradictory. In the same piece of testimony, he both reports that unit-specific analyses have been done and argues that unit-specific studies are too costly to undertake at this time. (Giuffre Rebuttal, pp. 4, 6-7).

Mr. Larson supports CWE's life extension assumptions based on completely undocumented experience with life extension analyses and the sweeping generality that "existing coal plants are a valuable utility asset" (Larson, p. 4).

Mr. Larson also finds it unnecessary to review the Company's coal price assumptions in this docket. Based on some previous undocumented review of CWE's coal price forecast in Docket 93-0027, he finds that CWE's "incremental coal costs for planning purposes are reasonable" (Larson, p. 6). It is not clear what Mr. Larson reviewed and it is not clear that CWE's avoided coal costs are equal to the prices Mr. Larson reviewed.

Q: Can you specify some instances where your testimony has been misrepresented?

A: Yes. Mr. Giuffre claims incorrectly that my criticism of CWE evaluation of life extension on an average-cost basis amounts to a conclusion on my part that CWE's "does not intend to ever evaluate" the Fossil Optimization Program (FOP) on a

unit-specific basis. (Giuffre Rebuttal, pp. 3). CWE's future intentions to examine the economics of life extension are beside the point. In raising this straw man, Mr. Giuffre skirts the real issue: the Commission cannot properly evaluate CWE's current demand and supply resource plans when CWE has not provided any unit-specific analysis to support its planning assumption that all existing coal plants will continue to operate past their 40-year normal life and, in many cases, improve operating performance.

Mr. Giuffre also states incorrectly that I recommended that the resource plan assume immediate retirement of all coal plants (Giuffre, p. 9). Contrary to Mr. Giuffre's claims, I actually proposed that the retirement dates for the coal plants be taken from CWE's base case estimate of retirement dates without FOP, provided in CWE's response to CDR 7-155 (Chernick Direct, at 19). There are only two cases in CWE's analysis in CDR 7-155 that can reasonably be regarded as a base case: (1) Case D, the intermediate case, where coal plants are retired between 1998 and 2005, or (2) Case B, which assumes retirement at the end of a normal 40-year life. The Company regarded Case B, where coal plants are retired between 1995 and 2015, as the optimistic without-FOP case. CWE's analysis considered a third worst case scenario, which assumes retirement of all units in 1998. While this case is interesting, it cannot reasonably be considered a base case. None of CWE's cases contemplate immediate retirement of all coal plants. I do not know why Mr. Giuffre believes that I made such a recommendation.

Ms. Kelly also misrepresents my testimony when she reassures the Commission that CWE has never assumed that avoided distribution costs are zero "for all possible programs." I did not state that Edison believed that avoided distribution costs are zero for all possible programs. At issue in this proceeding is CWE's assumption that avoided distribution costs are zero for all proposed programs screened in the 1992 LCP (Kelly, 11-12). Ms. Kelly's insistence that CWE believes that some DSM can avoid distribution costs, if anything, makes CWE's avoided cost screening assumption even more unreasonable.

Q: Are you persuaded by Ms. Kelly's arguments in her rebuttal testimony regarding your testimony on avoided T&D costs?

A: No. Ms. Kelly contends, first of all, that avoided distribution costs for Edison's current DSM programs are zero, because all CWE's proposed programs are directed at reducing system load and distribution costs are avoided only if system peak reduction coincides with reduction in distribution peak. As an example, Ms. Kelly describes an A/C load control program that simply shifts and perhaps even increases distribution peaks. I fully agree that this load control program should not receive any credit for avoiding distribution costs, and in fact would go one step further: any increases in distribution costs due to load-shifting should be included as a cost in the program cost-effectiveness analysis. However, Ms. Kelly is incorrect in one important respect. Many of CWE's proposed programs were energy efficiency programs, not load control programs. Energy efficiency programs

reduce loads; they do not shift load.

Second, Ms. Kelly contends that my discussion of single-customer transformer banks is an oversimplification. She claims that because of load balance and cost considerations, CWE must generally design transformer banks with equally-sized units. Ms. Kelly's argument fails to demonstrate that "lumpiness" in distribution equipment eliminates any response to small reductions in load, for at least two reasons. First, her example assumes unrealistically that every large customer is served through only one bus. Second, under system design procedures as described by Ms. Kelly, when a customer's load exceeds the maximum design rating of its bank of three transformers by even a small amount, CWE must replace all three transformers with the next largest size. As a result, avoided distribution costs would be greater than I originally thought.

Third, Ms. Kelly contends that DSM cannot affect primary line installations because CWE uses only two wire sizes, the larger for the main and the smaller for the tap. Ms. Kelly forgets that load can affect the number of primary lines, either on a single feeder or in multiple feeders.

Fourth, Ms. Kelly contends that the DSM program effects on distribution loads have to be certain before CWE can take them into account in distribution system design. According to Ms. Kelly,

there is not enough certainty that all of the individual customers served by the network will accept and always follow a DSM program as designed to insure that the reduction in load on the distribution facilities will actually

occur (Kelly, p. 10).

This position is unreasonable, since nothing is ever certain in planning for the future. In addition, any significant reduction in load on a network reduces the amount of required transformer and line capacity on the network, regardless of whether all customers reduce their loads (in which case all capacity additions may be avoided for several years) or only a few do (in which case various investments will be deferred for varying periods. I have already dealt with CWE's circular argument that the lack of experience in DSM prevents giving any credit for T&D savings, which results in a lack of investment in DSM, and hence a continuing lack of experience.

Q: What other arguments would you like to address?

A: CWE and Staff witnesses contend that many of the costs and benefits of DSM, including avoided T&D costs, NOx control costs, and off-system sales margins, are too uncertain to estimate, and therefore should be ignored. The utility environment is an uncertain one. Long-term planning should be based on the best estimates of uncertain factors. Zero is not the best estimate for uncertain fuel costs, uncertain MW retirements, uncertain T&D savings patterns, or uncertain environmental compliance costs. Zero is certainly not a conservative estimate.

Second, CWE and Staff witnesses contend that long term planning should not deal with "details," in particular, life extensions. It was not my intent to suggest that the LCP must identify particular units for retirement or life extension (although

this may be the preferred approach); assuming the retirement of a best-estimate mix of proxy units would be consistent with long-range planning.

Similarly, Mr. Giuffre contends that detailed plant-specific studies are inappropriate for a long-range plan and assures the Commission that when the right time comes, “as the decision dates come closer,” the Company will perform a realistic forecast of retirements. Mr. Giuffre appears to believe that the only decision that depends upon a detailed life extension study is the FOP investment itself. He fails to recognize that there are decisions, including those affecting DSM, that must be made now that depend on a unit-specific assumptions.

Q: Based on the rebuttal testimony, do you have any updates to your testimony?

A: Yes, on two points. The findings of the Lake Michigan Ozone Study reported contemporaneously with my initial testimony and the petition by the Lake Michigan States filed in July, 1994 indicate that the near-term NO_x control costs may not be as significant as I previously thought. However, I do not agree with Ms. O’Toole’s conclusion that CAAA regulations will not significantly increase environmental control costs (O’Toole, p. 2), for a number of reasons.

First, the modeling results of the Lake Michigan Ozone Study are only preliminary.

Second, even if USEPA endorsed the Lake Michigan Study findings, the effects on NO_x control costs may be only temporary. Once VOC emissions and, thereby, the VOC/NO_x ratio have been reduced, NO_x reductions are more likely to

be important in reducing ozone levels.

Third, as Ms. O'Toole recognizes, NO_x controls will still required in the year 2000 to meet Phase 2 of Title IV. This may precipitate retirement of some units.

Fourth, CWE's coal plants will be vulnerable to environmental regulation for air toxics. Since coal plants are major emitters of heavy metals (especially mercury), and since CWE's plants are upwind of the Great Lakes, additional controls for fine particulates (such as baghouses) and for gaseous mercury (perhaps scrubbers) are likely for CWE's coal plants.

Finally, Illinois may still implement a NO_x trading program. If so, NO_x emissions, like SO₂, would appropriately be reflected in the production costing modeling as a fuel cost adder. According to Ms. O'Tolle quote in Electric Utility Week, on February 21, 1994,

"I still think you would see some sort of trading program for NO_x even if NO_x is not an ozone precursor," said Mary O' Toole, system environmental engineer at Comm Ed.

Q: What is the second update to your testimony?

A: In her rebuttal testimony, Ms. Kelly reports that the marginal distribution cost estimate of \$100/peak kW-year (in 1991\$), which I cited from Paul Crumrine's 1990 Cost-of-Service Study testimony, is a nominally levelized, not real-levelized, figure. I agree with Ms. Kelly that the nominally levelized figure is not appropriate

when the DSM does not reduce load for the entire useful life of the distribution equipment. According to CWE's calculations, the real-levelized carrying charge is about one-half of the nominally-levelized charge. In my experience, the ratio is more like two-thirds, but whatever the exact value, CWE's own estimate of marginal distribution costs is clearly greater than zero.

Q: Did the Company's rebuttal testimony provide additional supports for your testimony?

A: Yes. In my initial testimony, I questioned CWE's assumption in the 1993 Supplement of a 1996 need date, even though the Plan included sizable investments for life extension of existing fossil steam units as well as additions to peaking capacity through peaker refurbishments in 1994 and 1995. As Mr. Hill's rebuttal testimony indicates, capacity additions in 1994 and 1995, which CWE treated at the time as committed, have been deferred or eliminated.

In addition, in the 1992 LCP and the 1993 Supplement, CWE took the position that the NIPSCO 1995-2002 power purchase was the "least cost" option and appropriately treated as committed. In his rebuttal testimony, however, Mr. Hill has announced that CWE has backed out of the NIPSCO purchase, in response to a lower load forecast. As CWE's actions clearly demonstrate, the NIPSCO purchase was avoidable, and it should have been considered avoidable in the DSM screening and integration analysis. Without the NIPSCO purchase, the resource plan in the 1993 Supplement would have indicated a need date of 1995, not 1996 as CWE

assumed.

Consistent with my testimony, CWE's revised resource plan, (provided as Attachment A, p. 1, to Mr. Hill's rebuttal testimony), also indicates the deferral of a peaker refurbishment from 1994 to 1995.

In another instance, Mr. Giuffre's testimony confirms the reasonableness of my criticism of the Zion life extension analysis. He admits that plugging and sleeving is feasible and is being implemented at Zion. He also admits that no final decision on the fate of Zion has been made, and even the timing of that decision remains uncertain. He agrees that, where a decision on retirement can be deferred (in this case, through continued plugging and sleeving), deferring that decision may be the best strategy. This would lead logically to modeling Zion as continuing to operate with decreasing capacity and decreasing reliability until the current best-estimate of the date at which replacement or retirement are the only viable choices, after which the plant could be modeled at its expected capacity, i.e., the full refurbished capacity times the probability of life extension.¹ It does not appear that

¹ Mr. Giuffre argues that he cannot model the retirement of Zion 1 because the O&M cost of running Zion 2 would be more than half the cost of the entire plant. His premise is correct, but his conclusion is wrong. CWE can compare the avoidance of 100% of the Zion 1 life extension costs, plus 100% of future Zion 1 capital additions, plus a fraction (less than 50%, but probably 30-40%) of station O&M, to the replacement fuel and capacity costs for just 50% of the station. The results are likely to be different from CWE's comparison of 100% of the Zion 1 life extension costs and 100% of station O&M (we do not know how future additions or Zion 2 life extension was treated), to the replacement power costs for 100% of the station.

CWE has modeled Zion in this manner in evaluating other resources, including DSM. Reduced Zion capacity and reliability would increase avoided energy costs.

Q: Do you have any concluding observations?

A: Yes. Mr. Giuffre's discussion on need date (pp. 13-14), while it misstates my position, focuses attention on a very important problem in CWE's planning. CWE treats supply and demand resources very differently.

- CWE decided that system reliability concerns justified pursuing improved reliability and capacity at the peakers prior to the need date, even though CWE gives DSM no credit for improving system reliability prior to the need date. Without any analysis, CWE decided to pursue supply and delay DSM that CWE had found to be cost-effective.
- For the Zion analysis, CWE apparently assumed that the market value of baseload capacity in the region is fairly high,² and that purchases to replace Zion would be expensive, but assumes for DSM evaluation that baseload capacity has no market value for off-system sales in the region.
- Without performing formal cost-benefit analyses, CWE undertakes some

² Mr. Giuffre's rebuttal testimony at the top of page 11 claims that "in the short run, we had to assume that capacity purchases from neighboring utilities would be required" and attributes the cost-effectiveness of the life extension to "the cost of such alternative resources," apparently including the purchase. In Appendix VI-D (case ZNRTRA), I see no reference to these purchases; CWE appears to assume that no capacity is available from off-system (implying a very tight regional market), and assumes that retirement of Zion would result in the prompt construction of a large amount of CTs.

supply investments at existing units. Without bothering to perform formal cost-benefit analyses, CWE rejects some DSM options. In the absence of analysis, DSM is rejected and supply is pursued.

- When CWE identifies a supply investment as cost-effective (and sometimes without any formal analysis), it undertakes it or (if the plant will operate without immediate investment) treats the investment as committed and unavoidable. When CWE identifies a demand-side investment as cost-effective, it usually arbitrarily decides to delay the investment, without any economic analysis of the delay.³

Q: Does this complete your rebuttal testimony?

A: Yes.

³ Mr. Brandt argues that delaying a DSM option prior to the "need" date is not a delay. Whatever he wants to call it, that delay is different than the treatment afforded supply and is not based on any economic analysis.