

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

PROCEEDING TO ADOPT A LEAST COST ELECTRIC
ENERGY PLAN FOR COMMONWEALTH EDISON COMPANY

ICC DOCKET NO. 90-0038

JOINT REBUTTAL TESTIMONY OF DAVID M. BIRR
AND PAUL L. CHERNICK

ON BEHALF OF THE CITY OF CHICAGO

AUGUST 14, 1990

Q1. Please state your names and business addresses.

A1. David Matthew Birr, 7410 North Hoyne, Chicago, Illinois 60645 and Paul L. Chernick, PLC, Inc., Suite 703, 18 Tremont Street, Boston, Massachusetts 02108.

Q2. Are you the same David M. Birr and Paul L. Chernick who previously filed direct testimony in this docket?

A2. Yes we are.

Q3. Please describe the purpose of your rebuttal testimony.

A3. The purpose of our testimony is to respond to Edison's rebuttal testimony. In particular, we will address Edison's numerous misunderstandings of the City's direct testimony.

Q4. Please comment on the City's role in providing information to Edison prior to the filing of their plan and during the plan review workshops.

A4. Mr. Birr, a consultant to the City, has provided technical papers to Commonwealth Edison on various topics over the last five years including motor efficiency, low income weatherization, lighting, and competitive bidding. Prior to the filing of Edison's plan, the City collected and sent hundreds of pages of DSM program data from other utilities with the letter marked Exhibit 21 in this proceeding. Mr. Birr provided significant editing assistance in

preparing Edison's residential lighting education booklet in Docket No. 83-0035. As part of his participation in Docket No. 83-0035, Mr. Birr attended numerous workshops at which he freely shared detailed technical and DSM program design information with Edison. He also participated actively as a representative for the City in the rulemaking workshops in Docket No. 87-0261 and prepared extensive testimony in Docket No. 89-0034.

Mr. Birr also attended and actively participated in all but one of the plan review workshops sponsored by Edison. He specifically raised concerns about Edison's lighting analysis, the methodological treatment of free riders, Edison's treatment of environmental externalities, and the design of its proposed pilot motor efficiency program. These are only a small sample of the specific concerns addressed by the City during the workshop process.

In sum, the City has diligently sought to constructively improve the quality of least cost planning. Both the Department of Energy and Natural Resources and the Commission have recognized the value of the City's contributions by making substantive changes to the Statewide Electric Plan adopted in Docket No. 89-0034 in response to the City's testimony.

Q5. Why didn't the City offer detailed and specific DSM program alternatives to Edison during the workshops or in their direct testimony?

A5. The workshops were appropriately devoted to describing how Edison prepared its plan and identifying the concerns of various parties with Edison's conceptual approach, specific methods,

compliance with legal requirements, and the data used. The format of the workshops, a lack of sufficient time, the limited availability of Edison's consultants, and the limited technical knowledge of many of the workshop participants reduced the opportunity for detailed discussion of specific alternatives to Edison's proposals. However, many of the suggestions and comments made by parties gave Edison information it could use to modify its plan.

Prior to the submission of our direct testimony, Edison opposed a motion for extension of time which would have allowed submission of specific DSM programs by the City.

In the City's direct testimony, we have outlined a comprehensive DSM planning, evaluation and design philosophy as well as short-term DSM program priorities. In order to use these methods to modify the design of Edison's proposed plan, the City believes that sustained participation by DSM experts and Edison staff in a design collaborative is needed.

Q6. Does the City agree that the purpose of long-range least cost planning is to identify and acquire cost-effective and reliable resources?

A6. Yes.

Q7. Mr. Hill has claimed that the City does not agree with the purpose described in the previous question. What has he failed to understand about the meaning of cost-effective resources?

A7. In our opinion, Mr. Hill does not understand the Public Utilities Act's requirement to provide least cost energy services. The legislature and Commission are public bodies. They have the responsibility to promote and protect the long-term interests of all citizens and ratepayers. Section 1-102(b) of the PUA explicitly requires that "environmental costs of proposed actions having a significant impact on the environment and the environmental impact of alternatives are identified, documented, and considered in the regulatory process." Also, the Commission order in Docket No. 89-0034 specifically requires the inclusion of environmental costs and benefits in the cost-effectiveness analysis of resource options by specific utilities. These requirements clearly show the commitment to a societal perspective on cost-effectiveness.

Q8. Mr. Hill has testified that the selection of resources on a societal basis, without at least equal consideration of the effect of such implementation on a utility's rates and revenues, would be inappropriate. Is it your opinion that Edison has based its least cost plan resource selection on equal consideration of societal and utility impacts?

A8. No. In fact, Edison failed to propose several DSM programs which passed both the societal test and utility revenue requirements test. Equal consideration of societal and utility costs would result in the adoption of substantially more DSM resources than proposed by Edison.

Furthermore, the Commission has already established consideration of environmental benefits as a requirement for the

cost-effectiveness analysis of resource options. Therefore, equal consideration of societal and utility revenue impacts requires consideration of environmental benefits. Inclusion of the environmental benefits of DSM options would make many programs which were marginal losers on a utility revenue requirements basis into winners.

Q9. How much of a difference would result from screening well-designed DSM programs (i.e., programs with low free-rider levels) with the utility cost test versus the societal cost test?

A9. Not much. Generally, most programs that pass the societal test would also pass the utility revenue requirements test.

Q10. Has the City testified that the effects of resource selection on a utility's revenues should be ignored?

A10. No. Mr. Chernick's direct testimony discusses how DSM program adjustments in marketing strategy, incentive levels, timing, and cost recovery can be used to improve the value of the present value of revenue requirements test as long as the present value of societal benefits is not significantly reduced.

Q11. Does the City support prompt DSM cost recovery and recovery of lost utility revenues during the DSM capability building period?

A11. Yes. The City has consistently supported regulatory removal of these barriers.

Q12. Does the City advocate the full scale implementation of any DSM resource which passes the societal cost-effectiveness test?

A12. No. Mr. Birr's direct testimony indicates that design modifications may be needed to improve programs which pass a societal cost-effectiveness screen. Other DSM resource options which have not been properly analyzed by Edison may be more cost-effective than the twelve programs rejected by Edison which had a societal benefit-cost ratio greater than one.

The incremental nature of most DSM resources requires several years to ramp up to full scale implementation. Edison needs to start now in order to be prepared to actually acquire cost-effective DSM resources. Edison needs to make a realistic commitment to capability building.

Q13. Do you believe that Mr. Hill's view of capability building is realistic?

A13. No. Mr. Chernick's testimony makes it clear that Edison needs to acquire state-of-the-art planning capability and also learn from actual experience how to develop its DSM program implementation. Much of the Edison specific data on program results can only be acquired by actually running DSM programs. Without the experience of running programs of reasonable scope and size to comprehensively test the market potential of DSM, Edison will not build the internal administrative capability or the external delivery infrastructure for effective DSM programs. Thoughtful program implementation produces real information which cannot be acquired simply by conducting

surveys and market research. Examples of this type of information include program acceptability, penetration rates, implementation costs, condition and accessibility of existing equipment, etc.

Q14. Do you agree with Mr. Hill that the ability to quantitatively estimate the amount of supply resources deferred by DSM is not a meaningful measure of Edison's DSM capability?

A14. No. The PUA requires that cost-effective DSM resources be selected as the initial and primary source of new supply. Edison should commit sufficient administrative and analytic resources to produce a responsible and credible estimate. As noted in Mr. Birr's direct testimony, Edison has failed to provide the required demonstration that otherwise economical conservation projects are infeasible for some reason. 83 Ill. Admin. Code, Sec. 440.810(b)(2). Mr. Norland's rebuttal testimony shows revised high case savings from just two DSM programs totaling 1011 MW compared to original estimates of 167 MW for these same programs. Edison's lack of knowledge and the uncertainties surrounding the estimation process do not relieve Edison of the responsibility of identifying and acquiring all cost-effective DSM resources as the initial source of new supply.

Q15. Does the City agree that any cost-effective resource option selected should also be reliable, equitable, and protect environmental quality?

A15. Yes. Mr. Birr specifically addressed all of these important goals of the PUA in his direct and rebuttal testimony in Docket No. 89-0034. Mr. Chernick's direct testimony on short-term DSM program priorities and the valuing of externalities provide further details on how important these other criteria are to the City. These criteria, however, must be applied to both supply and DSM resources using comparable terms and methods.

Q16. Is the non-participants test proposed by Mr. Norland and Ms. Juracek as a screen for DSM resources applied by Edison to screen supply side resources?

A16. No. Ms. Juracek continues to repeat the fallacy that supply side resources are not used to serve specific customers but, "the aggregate supply needs of the system; hence there are no non-participants." Aggregate supply needs are only the accumulation of specific customers' demands at different points in time. Some customers today may pay for resources which will serve the needs of future customers. These future customers receive benefits of resources for which they did not pay. Applying Edison's non-participants DSM test on comparable terms and methods to supply side options would require that the Commission allocate the costs of new generating plants to only those new or existing customers responsible for the increase in demand. Specific customers who have level or declining demand have always subsidized those who have rising demand when new generation is added to meet that demand. The aggregate, system-wide rate effects of alternative portfolios of supply and demand resource options may provide decision-makers with some

useful guidance in picking a portfolio. Rate proceedings, not long-range planning proceedings for resource selection, are the appropriate forum to correctly allocate the costs of new resources, whether supply or demand.

Q17. Please comment on Mr. Hill's description of his understanding of the City's learn by doing philosophy.

A17. Mr. Hill suggests that the City has proposed that Edison implement such programs on a large-scale basis. He does not specify what scale of programs would be so large to create whatever problem he foresees with large-scale programs. The City did not specify any specific near-term program scales. While the City did identify some general short-term DSM program priorities, we repeatedly indicated that detailed program design was beyond the scope of our testimony. This is precisely the reason why we believe a design collaborative with Edison is needed (i.e., to design specific programs). To the extent Edison's programs build on designs which were successful elsewhere, they can proceed with greater speed and confidence.

We do believe that programs must be run on a scale that produces meaningful information on market penetration rates and implementation costs. Programs which capture cost-effective lost efficiency opportunities should be sized to capture those resources as completely as possible.

Q18. Do you agree with Mr. Hill that flexibility of DSM program design and implementation is essential to effective least cost planning?

A18. Yes. That is one of the primary reasons why Edison must begin now to build a comprehensive familiarity with DSM resources available from different market segments. Edison needs to build the capability to actually deliver DSM resources prior to the date when it needs to add new capacity. Greater familiarity with a variety of DSM resources (e.g., a range of end uses, delivery mechanisms, market sectors) provides Edison with more flexibility in responding to uncertain future resource needs.

Q19. Please comment on the City's awareness of Edison's willingness to work with other parties on promoting energy efficient building codes and other methods of capturing lost efficiency opportunities.

A19. Mr. Birr's testimony in Docket No. 89-0034 specifically proposed the adoption of a statewide energy efficient building code. Also, some of the documents attached to the letter sent to Edison last fall by the City (Exhibit 21) suggested various ways to promote energy efficiency in buildings, including building codes. The City recently invited Edison to public hearings and Edison testified in support of the adoption of new ASHRAE efficiency standards for new public buildings in Chicago. Edison's offer to assist in the promotion of energy efficiency standards is a hopeful first step in the effort to capture lost efficiency opportunities. However, the materials previously sent to Edison by the City make it clear that building codes are not a panacea. Utility programs have an important role to play in promoting energy efficiency in buildings. The language of Recommendation XIII in the Statewide Electric Plan clearly directs the utilities to consider technical assistance,

financial incentives, educational programs, and code compliance training as means of capturing lost efficiency opportunities in buildings. Mr. Birr's direct testimony in this docket (pp. 10-11) make it clear that Edison's response to Recommendation XIII is inadequate. The City is willing to work with Edison in designing comprehensive and realistic programs to capture cost-effective lost efficiency opportunities.

Q20. Do you agree with Mr. Hill that DSM options that are cost-effective to society but more expensive on a \$/kW basis than a combustion turbine should not be undertaken by a utility?

A20. No. This unfair comparison completely ignores the cost of energy which for a gas-fired combustion turbine would be over 2¢/kWh today and escalate as gas prices rise. It also ignores transmission and distribution capacity, line losses, and required reserve margins. If a \$/kW criteria were strictly applied to all generation options, Edison would never build another baseload plant. Proposing to use this criteria for DSM programs but not for all supply options is a failure to use comparable terms and methods.

Q21. Do you agree with Mr. Hill that Edison used comparable terms and methods to evaluate generation and DSM resource options?

A21. No. There are at least three examples of how Edison did not use comparable terms and methods. First, Edison did not commit sufficient financial and administrative resources to adequately evaluate DSM options. Edison's familiarity with generation resource

options and comparative ignorance of DSM resources led it to propose a future resource plan which acquires 200 MW (less than 5%) of projected future capacity needs from DSM resources in the base and high case load growth scenarios. In contrast, the review of cost-effective conservation potential in Mr. Chernick's direct testimony suggests that at least 20% of Edison's existing load represents potentially cost-effective DSM resources. Based on the size of Edison's system, this translates to roughly 3400 MW of potentially cost-effective DSM resources.

Second, Edison's proposal to apply the non-participants test to DSM resources, but not to generation resources, is a glaring failure to use comparable methods to evaluate the equity effects of resource options.

Third, Edison chose to take account of the economic benefits of off-system sales when performing its mothballing analysis of existing fossil plants. Therefore, Edison's failure to consider the potential economic benefits of off-system sales made possible by DSM resources is a violation of the comparable terms and methods standard.

Q22. Do you believe that Mr. Hill's proposal that Edison wait until the development of a common planning definition for environmental externalities is consistent with the requirements of the PUA and the Commission order in Docket No. 89-0034 which require that the valuation of externalities be considered by utilities in their cost-effectiveness analysis?

A22. No. As indicated in our direct testimony, Edison's argument that it does not know how to perform an analysis does not relieve the Company of its legal requirement to learn how in order to comply with the law. Mr. Chernick's direct testimony proposed a detailed state-of-the-art methodology for valuing externalities. That testimony also described the externality analysis used by regulators in New York and California. The City is eager to work with Edison, as part of a design collaborative, to revise its analysis so that it properly evaluates environmental externalities.

Q23. What do you believe is an appropriate rationale for making changes to Edison's proposed plan?

A23. We have identified a multitude of errors in Edison's analysis and numerous deficiencies in its plan which prevent compliance with the applicable statute, rule, and Commission order in Docket No. 89-0034. Edison's plan needs to be modified to correct its conceptual, methodological, and numerical errors in order to meet the requirements for adoption set forth in 83 Ill. Admin. Code, Sec. 440.810(b).

Q24. Do you agree with Mr. Hill that Edison evaluated the DSM technologies referred to in Dr. Williams' letter on behalf of the City to Edison (i.e, Exhibit 21)?

A24. Mr. Hill neglected to mention that the letter and the attached materials related to DSM programs which would be potentially cost-effective. Edison evaluated specific technologies rather than the

programs mentioned in Dr. Williams' letter which addressed conservation in specific market sectors. As discussed at length in Mr. Chernick's direct testimony, Edison's evaluations of specific DSM technologies as opposed to market sectors as the basis for DSM programs is a flawed approach to program design. The City does not agree that Edison's use of DSMPRO to analyze DSM technologies was a reasonable way to evaluate the DSM programs we suggested for consideration.

Q25. Do you agree with Mr. Norland's claim that free rider levels are likely to be so high that no commercial lighting program for Edison will be cost-effective?

A25. No. Free-ridership is largely a function of program design. Properly designed programs to promote electronic ballasts and 32 watt fluorescent lamps or reflectors can keep free-ridership below the 50% level at which his own analysis reveals these programs to be cost-effective resources for Edison.

Furthermore, no data has been provided by Mr. Norland to support his estimates of in excess of 60% free riders for electronic ballasts and reflectors. The sales data he does cite suggests much lower naturally occurring market penetration rates of 2% and 10% for these two technologies.

Q26. Have the extremely high free rider estimates proposed by Mr. Norland affected other aspects of Edison's analysis of DSM resources?

A26. Yes. Using high free-ridership estimates substantially reduces the benefits attributable to any DSM resource using either the societal or utility cost test. One of the reasons Mr. Norland's estimates are so high is that the programs analyzed by DSMPRO are simplistic technology-specific incentive programs, not state-of-the-art market sector focused programs. The marketing and design of programs is often as significant a variable in improving market penetration rates and reducing free riders as the size of the financial incentive offered to the consumer.

Q27. Please comment on Mr. Norland's discussion of Mr. Chernick's efforts to reproduce the DSMPRO results.

A27. Edison's analysis was not reproducible by Mr. Chernick for several reasons. As admitted by Mr. Norland, Edison's own data tables contained errors. Furthermore, there was an inadequate description of the definition of some terms and equations used to derive the various tables. Edison's own witness, Mr. Gianopoulos, was unable to clarify why the numbers in the DSMPRO output did not appear to agree with the described inputs and calculation methods during extensive cross-examination.

Q28. Please comment on Mr. Norland's revised estimates of market penetration rates for two of Edison's proposed DSM pilot programs.

A28. Mr. Norland's substantially increased estimates of market penetration rates are a step in the right direction in correcting Edison's analysis. Edison's use of pessimistic market penetration

rates for DSM programs is likely to substantially underestimate the amount of cost-effective DSM resources available. Even these revised market penetration rates based on the average experience with historical DSM programs do not reflect the rates which can be achieved by state-of-the-art DSM program design.

Q29. Please comment on Mr. Norland's claim that potential DSM savings estimates are often overly optimistic compared to actual savings.

A29. The two examples cited by Mr. Norland (i.e., gas furnace retrofits and comprehensive weatherization of all electric residential customers) are unlikely to be major DSM resources for Edison. Technically, they are irrelevant examples.

The gas furnace program savings estimation error resulted from the Alliance to Save Energy's failure to use actual performance data, rather than engineering estimates. We are gratified to note that Mr. Norland has acknowledged the value of data obtained from actual program experience, rather than estimates or studies. This example demonstrates the value of the learning by doing approach to DSM.

Q30. Do you have any experience which suggests that savings from energy efficiency can be reliably predicted?

A30. Yes. Mr. Birr has extensive personal experience with project management of energy performance contracts. Performance contracting companies have successfully guaranteed the measured savings levels

they predict for many years. Energy service companies' very financial survival is based on their ability to reliably predict future energy savings.

Q31. Do you agree with Mr. Norland that Mr. Chernick's definition of DSM resource potential is unclear?

A31. No. Mr. Norland makes two claims: (1) Mr. Chernick does not distinguish between technical and economic potential and (2) naturally occurring DSM potential is not subtracted from the estimate of cost-effective potential. Mr. Chernick's testimony clearly refers to the economic potential of DSM resources (pp. 40-42). Mr. Norland suggests we should subtract out DSM likely to be captured by market forces. However, Edison's own econometric load forecasts cannot identify the amount of DSM resources which would be selected without utility programs.

Q32. Does this conclude your rebuttal testimony?

A32. Yes.