

**BEFORE THE STATE OF NEW JERSEY  
BOARD OF PUBLIC UTILITIES**

**IN THE MATTER OF THE VERIFIED )  
PETITION OF JERSEY CENTRAL )  
POWER & LIGHT COMPANY )  
CONCERNING A PROPOSAL FOR ) BPU DKT. NO. EO08050326  
FOUR SMALL SCALE/PILOT DEMAND ) EO08080542  
RESPONSE PROGRAMS FOR THE )  
PERIOD BEGINNING JUNE 1, 2009- )  
PHASE I )**

---

**TESTIMONY OF J. RICHARD HORNBY  
ON BEHALF OF THE  
DEPARTMENT OF THE PUBLIC ADVOCATE  
DIVISION OF RATE COUNSEL**

---

**RONALD K. CHEN  
PUBLIC ADVOCATE OF NEW JERSEY**

**STEFANIE A. BRAND, ESQ.  
DIRECTOR, DIVISION OF RATE COUNSEL**

31 Clinton Street, Eleventh Floor  
P. O. Box 46005  
Newark, New Jersey 07101  
(973) 648-2690 - Phone

Filed: July 23, 2009

**REDACTED VERSION**

## TABLE OF CONTENTS

	<u>Page No.</u>
I. INTRODUCTION .....	1
II. IDER EXPANSION PROGRAM .....	5
III. COST RECOVERY MECHANISM .....	15

1 **I. INTRODUCTION**

2  
3 **Q. PLEASE STATE YOUR NAME, EMPLOYER, AND PRESENT POSITION.**

4 A. My name is James Richard Hornby. I am a Senior Consultant at Synapse Energy  
5 Economics, Inc., 22 Pearl Street, Cambridge, MA 02139.

6 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?**

7 A. I am testifying on behalf of the New Jersey Department of the Public Advocate,  
8 Division of Rate Counsel ('Rate Counsel').

9 **Q. PLEASE DESCRIBE SYNAPSE ENERGY ECONOMICS.**

10 A. Synapse Energy Economics ("Synapse") is a research and consulting firm  
11 specializing in energy and environmental issues, including: electric generation,  
12 transmission and distribution system reliability, market power, electricity market  
13 prices, stranded costs, efficiency, renewable energy, environmental quality, and  
14 nuclear power.

15 **Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE AND EDUCATIONAL**  
16 **BACKGROUND.**

17 A. I am a consultant specializing in planning, market structure, ratemaking, and gas  
18 supply/fuel procurement in the electric and gas industries. Over the past twenty  
19 years, I have presented expert testimony and provided litigation support on these  
20 issues in approximately 100 proceedings in over thirty jurisdictions in the United  
21 States and Canada. Over this period, my clients have included staff of public utility  
22 commissions, state energy offices, consumer advocate offices and marketers.

23 Prior to joining Synapse in 2006, I was a Principal with CRA International  
24 and, prior to that, Tabors Caramanis & Associates. From 1986 to 1998, I worked  
25 with the Tellus Institute (formerly Energy Systems Research Group), initially as

1           Manager of the Natural Gas Program and subsequently as Director of their Energy  
2           Group. Prior to 1986, I was Assistant Deputy Minister of Energy for the Province of  
3           Nova Scotia.

4                     I have a Master of Science in Energy Technology and Policy from the  
5           Massachusetts Institute of Technology (MIT) and a Bachelor of Industrial  
6           Engineering from the Technical University of Nova Scotia, now merged with  
7           Dalhousie University. I have attached my resume to this testimony as  
8           Exhibit\_\_\_(JRH-1).

9   **Q.   PLEASE SUMMARIZE YOUR EXPERIENCE WITH ENERGY**  
10   **EFFICIENCY MEASURES AND POLICIES, INCLUDING POLICIES ON**  
11   **RATEMAKING.**

12   A.   My experience with energy efficiency measures and policies began over thirty years  
13       ago as a project engineer responsible for identifying and pursuing opportunities to  
14       reduce energy use in a factory in Nova Scotia. Subsequently, in my graduate program  
15       at MIT I took several courses on energy technologies and policies, and prepared a  
16       thesis analyzing federal policies to promote investments in energy efficiency. After  
17       MIT, I spent several years with the government in Nova Scotia, during which time I  
18       administered a provincial program to promote energy conservation in the industrial  
19       sector and later included energy conservation in all sectors as part of energy plans  
20       developed for the province. More recently, over the past twenty years as a regulatory  
21       consultant I have helped review and prepare numerous integrated resource plans in  
22       the gas and electric industries.

23                     Since 2007 I have completed several projects addressing the alignment of  
24       utility financial incentives and rates with the pursuit of energy efficiency. Those

1 projects include testimony in proceedings in North Carolina, South Carolina and  
2 Indiana as well as the preparation of a report sponsored by the National Action Plan  
3 for Energy Efficiency.

4 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NEW JERSEY**  
5 **BOARD OF PUBLIC UTILITIES?**

6 A. Yes. I have testified on rate unbundling and purchased gas adjustment clause matters  
7 before the Board of Public Utilities (Board or BPU) in gas and electric cases during  
8 the past 20 years.

9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

10 A. My testimony addresses the cost-effectiveness of the Integrated Distributed Energy  
11 Resource (“IDER”) Expansion program proposed by Jersey Central Power and Light  
12 Company (“JCP&L”) in its petition dated August 1, 2008 in this proceeding.

13 **Q. PLEASE SUMMARIZE YOUR POSITION REGARDING THE PROPOSED**  
14 **IDER EXPANSION PROGRAM.**

15 A. The IDER Expansion Program is, as its name implies, a proposal to achieve  
16 electricity demand reduction (DR) by expanding the application of IDER technology  
17 beyond the level that JCP&L began testing in June 2009 under its IDER Pilot  
18 program. JCP&L estimates that the benefits of the proposed IDER Expansion  
19 program will slightly exceed its costs under the Total Resource Cost (TRC) test. That  
20 estimate of benefits for the IDER Expansion program is more uncertain than the  
21 estimates for similar direct load control programs proposed by other utilities. First,  
22 JCP&L does not have a full summer’s worth of actual performance data from the  
23 IDER Pilot program for the IDER technology under actual load reduction event  
24 weather conditions. Second, the cost-effectiveness of the IDER Expansion assumes

1 demand reduction from commercial and industrial (“C&I”) customers but almost a  
2 year since its approval JCP&L had not enrolled any C&I customers in the IDER Pilot  
3 program.

4           Given the uncertainty associated with the estimated benefits of the proposed  
5 IDER Expansion program and the fact that the IDER Pilot program has only been  
6 operating since June 1 of this year, I recommend that the Board defer consideration of  
7 the IDER Expansion program until JCP&L can estimate its cost-effectiveness with  
8 more certainty. Specifically, JCP&L should be required to demonstrate the quantity  
9 of actual demand reduction per residential customer the IDER technology has  
10 achieved under actual load reduction event conditions and to confirm that it will be  
11 able to enroll the number of C&I customers assumed in its cost-effectiveness  
12 analyses. If the Board does decide to approve the expansion of the IDER program  
13 before obtaining additional actual data on the cost-effectiveness of the program, I  
14 recommend that it direct the Company to enroll participants over the next few years  
15 rather than over the next twelve months as proposed by the Company, and to submit  
16 an annual report on the program’s performance after each year.

17 **Q. PLEASE SUMMARIZE YOUR POSITION REGARDING THE PROPOSAL**  
18 **TO TRANSFER RECOVERY OF THE IDER PILOT PROGRAM COSTS**  
19 **FROM THE SYSTEM CONTROL CHARGE TO A NEW DEMAND**  
20 **RESPONSE CHARGE RIDER.**

21 A. The Company is proposing to transfer recovery of its IDER Pilot program costs from  
22 the System Control Charge (SCC) to a new Demand Response Charge, Rider DRC.  
23 This proposal should be rejected.

24

1 **II. IDER EXPANSION PROGRAM**

2 **Q. PLEASE BEGIN BY EXPLAINING THE RELATIONSHIP BETWEEN THE**  
3 **IDER PILOT PROGRAM AND THE PROPOSED IDER EXPANSION**  
4 **PROGRAM.**

5 A. The IDER Expansion Program is, as its name implies, a proposal to apply the IDER  
6 technology on a larger scale than the IDER Pilot, which the Board approved on July  
7 25, 2008. The IDER Pilot was initiated because JCP&L wanted to demonstrate a new  
8 approach to monitoring and controlling non-critical customer electrical loads of  
9 residential, commercial and industrial customers during periods of peak demand.  
10 JCP&L proposed using IDER technology for direct load control of central air  
11 conditioners, pool pumps and water heaters. Under the IDER Pilot JCP&L expected  
12 to achieve a total of 8 MW of demand reduction consisting of 5 MW from controlling  
13 the loads of approximately 3,500 residential customers and 3 MW from controlling  
14 the loads of 30 to 90 C&I customers.

15 The Board approved a budget of \$3,475,000 for the IDER Pilot to cover direct  
16 capital costs plus two years worth of operating costs, including cash incentives to  
17 participants, but no return on investment to JCP&L shareholders. JCP&L agreed to  
18 submit an interim Pilot Program assessment by the end of 2009 and a final assessment  
19 by the end of 2010.

20 **Q. WHAT IS THE EXPERIENCE WITH THE IDER PILOT PROGRAM TO**  
21 **DATE?**

22 A. JCP&L describes its experience with the IDER Pilot through July 1, 2009 in an initial  
23 operational performance report. As of June 1, 2009 according to that report, JCP&L  
24 had been successful in enrolling enough residential customers to meet its target level

1 of demand reduction from that sector but has not enrolled any C&I customers. As a  
2 result the IDER Pilot has 3,300 residential customers representing 5.1 MW of demand  
3 reduction rather than the 8 MW of demand reduction that JCP&L expected to  
4 achieve. JCP&L has registered that 5.1 MW with the PJM Interruptible Load for  
5 Reliability (“ILR”) program.

6 As of July 1 JCP&L has conducted four test load management events under  
7 the IDER Pilot, as noted on page 6 of its report. None of these events were called or  
8 confirmed by PJM. In each of the events JCP&L reduced electricity demand by  
9 controlling the central air conditioners of a number of residential customers. It  
10 accomplished this by using direct load controllers to turn off each central air  
11 conditioner and allowing the temperature within the home to rise by a predetermined  
12 level agreed to by the customer, typically six degrees Fahrenheit. In two of the test  
13 events JCP&L controlled [begin confidential] [redacted] [end  
14 confidential], based on reductions of [begin confidential] [redacted] [end  
15 confidential] per controller, and in the other two test events it controlled [begin  
16 confidential] [redacted] [end confidential], based on reductions of  
17 [begin confidential] [redacted] [end confidential] per controller.

18 These four test events did not replicate actual load reduction events, and  
19 therefore the performance data is not representative of what will be achieved during  
20 actual load reduction events on high peak demand days. First, the weighted heat  
21 temperature index (WHTI)<sup>1</sup> during each of the four test events was in the low 70s  
22 degrees Fahrenheit. In contrast, the WHTI during an actual load reduction event  
23 would be over 80 degrees Fahrenheit. Second, the durations of the four test events

---

<sup>1</sup> This index measures the combined impact of temperature and humidity.

1 were shorter than actual load reduction events, which are expected to be six hours on  
2 average. Thus, while the four test events demonstrated that the IDER technology  
3 actually functions as expected, they did not measure the actual quantity of demand  
4 reduction that the program would obtain from participants over several hours on a day  
5 when temperature and humidity are high and PJM is actually calling for demand  
6 response.

7 **Q. PLEASE SUMMARIZE THE PROPOSED IDER EXPANSION**  
8 **PROGRAM.**

9 A. In August 2008, less than a month after receiving approval of the two year IDER  
10 Pilot, JCP&L proposed the IDER Expansion. JCP&L included this program as one of  
11 the four DR programs it proposed in its August 1, 2008 filing in response to the  
12 Board Order of July 1, 2008.

13 JCP&L expects to achieve a total of 15 MW of demand reduction through the  
14 IDER Expansion program. Of that total it expects to achieve 11 MW from  
15 controlling the loads of 7,000 residential customers and 4 MW from controlling the  
16 loads of 40 to 100 C&I customers.

17 JCP&L has estimated an annual revenue requirement for the IDER Expansion  
18 program consisting of amortization of capital costs over six years, annual return on  
19 the unamortized amount at the pre-tax cost of capital adopted in its last base rate case  
20 (11.61%) and operating expenses. The capital costs consist of costs for control  
21 equipment installed at the sites of participating customers, software and  
22 communications equipment. The annual operating expenses consist of annual costs  
23 for administration, program development, contractors and direct incentives to  
24 participating customers.

1 **Q. WHAT IS THE PRIMARY PROJECTED BENEFIT OF THE PROPOSED**  
2 **IDER EXPANSION PROGRAM?**

3 A. The primary projected benefit of the proposed IDER Expansion is the compensation  
4 that JCP&L expects to receive for the demand reduction from the program that it  
5 registers in the PJM ILR program, or the PJM Reliability Pricing Model (RPM) from  
6 2012 onward<sup>2</sup>. Under the ILR program PJM compensates participants who commit  
7 to provide a specified quantity of demand reduction during a given year, if called  
8 upon according to reliability criteria. The compensation equals the quantity of  
9 demand reduction committed for the year multiplied by the value of capacity in that  
10 year. For example, in 2011 JCP&L expects to register 15 MW from the IDER  
11 Expansion program in the ILR and to receive compensation of \$749,000 in return,  
12 i.e., 15 MW times a capacity value of \$49.93 per kw-year (Schedule ELG-2, page 1  
13 of 3, line 7).

14 JCP&L expects to receive additional compensation for reducing demand  
15 during PJM Economic Load Response events. Under that program PJM compensates  
16 participants who reduce demand during that year if PJM calls for reductions in  
17 response to high wholesale energy market prices. For example, in 2011 JCP&L  
18 expects to reduce demand by 15 MW in response to PJM calls for economic  
19 reductions during events on 15 days each lasting 6 hours and to receive compensation  
20 of \$92,000 in return, i.e. 15 MW times 90 hours times an energy value of \$68 per  
21 MWh (Schedule ELG-2, page 1 of 3, line 14).

---

<sup>2</sup> The ILR Program terminates at the end of 2011. From 2012 onward participants seeking compensation from PJM for demand reduction must participate in the RPM.

1 **Q. DOES JCP&L PROJECT THE ANNUAL COMPENSATION FROM THE**  
2 **TWO PJM PROGRAMS TO OFFSET THE PROJECTED COST OF THE**  
3 **PROPOSED IDER EXPANSION PROGRAM?**

4 A. Yes, eventually. JCP&L projects the annual compensation from these two PJM  
5 programs will offset the annual revenue requirements of the proposed IDER  
6 Expansion program by 2016. Over the twenty year period 2010 through 2029  
7 JCP&L projects the net present value (NPV) of PJM revenues to exceed the NPV of  
8 the IDER Expansion program revenue requirements, excluding direct incentives to  
9 participants, by 15 percent. This is a benefit to cost ratio of 1.15 under the TRC test.  
10 The benefit to cost ratio under the Ratepayer Test, which includes the incentives that  
11 are given to customers who enroll and participate in the IDER Expansion program,  
12 would be 0.91. These results are presented on page 1 of Exhibit\_\_\_(JRH-2).

13 On July 22 the Company advised parties that it may have over-estimated the  
14 level of PJM revenues for 2012/2013 since it did not bid the 15 MW from the IDER  
15 Expansion program into that year's RPM auction, which was held in early May 2009.  
16 However, if approved the Company does expect to receive some level of RPM  
17 revenues in 2012/2013 by bidding the 15 MW into future incremental auctions that  
18 PJM will run for that power year. For the purposes of my testimony I continue to  
19 refer to the analyses that the Company provided in response to RCR-IDER-16.

1 **Q. DOES THE LEVEL OF PJM REVENUES AND HENCE THE PROGRAM'S**  
2 **BENEFIT TO COST RATIO HINGE UPON THE PROJECTED DEMAND**  
3 **REDUCTIONS FROM THE IDER EXPANSION PROGRAM?**

4 A. Yes. If the projected demand reductions over-estimate the actual levels achieved, the  
5 actual compensation from PJM will be less than projected and the benefit to cost ratio  
6 will very likely drop below 1.

7 **Q. IS THE UNCERTAINTY REGARDING PROJECTED DEMAND**  
8 **REDUCTIONS GREATER FOR THE IDER EXPANSION THAN FOR**  
9 **OTHER SIMILAR DIRECT LOAD CONTROL PROGRAMS?**

10 A. Yes. While there is obviously uncertainty associated with the projected level of  
11 reductions that any DR program will achieve, there is more uncertainty regarding the  
12 projections for the IDER Expansion than for similar residential and small commercial  
13 direct load control programs of other utilities that I have reviewed.

14 First, as discussed previously, JCP&L does not have a full summer's worth of  
15 actual performance data from the IDER Pilot program for the IDER technology under  
16 actual load reduction event weather conditions. The residential direct load control  
17 programs of other utilities rely upon technology that has a track record in New Jersey.  
18 Based on that track record, the Summit Blue report projects reductions in the order of  
19 1.1 kW per residential customer<sup>3</sup>. In contrast, JCP&L began testing the IDER  
20 technology in New Jersey only recently and it is projecting a higher average  
21 reduction, i.e., 1.4 kW per residential customer. In addition, other similar residential  
22 direct load control programs I have reviewed typically enroll customers gradually  
23 over 4 to 5 years. Under this phased approach to enrollment, if a utility has a problem

---

<sup>3</sup> Violette, Daniel et al, *New Jersey Central Air Conditioner Cycling Program Assessment*, Summit Blue Consulting, June 4, 2007, page 44.

1 in the first year of its program it can adjust the design of the program for the  
2 customers to be enrolled in subsequent years. That approach is consistent with the  
3 recommendation in the Summit Blue report<sup>4</sup> that these programs be phased in over  
4 four to five years providing an opportunity for “mid-course corrections” based upon  
5 validation of program design assumptions and customer research. JCP&L, on the  
6 other hand, expects to enroll all participants in the first year of the IDER Expansion  
7 program and thus essentially all of its capital investment would be made in the first  
8 year. If, as the Company proposes, all customers are enrolled and equipment installed  
9 within the first twelve months, most of the marketing, installation and customer  
10 incentive costs are incurred in that year. Under this approach the Company will be  
11 making the majority of its financial commitment before it has reliable data on the  
12 actual performance of the IDER technology.

13 Second, the JCP&L estimate of costs and benefits of the IDER Expansion  
14 program assumes the program will achieve 15 MW of demand reduction. As noted  
15 earlier it expects to achieve 11 MW from controlling the loads of 7,000 residential  
16 customers and 4 MW from controlling the loads of 40 to 100 C&I customers.  
17 However, as of June 1, almost a year since its approval, JCP&L had not enrolled any  
18 C&I customers in the IDER Pilot. Therefore, the projected enrollment of C&I  
19 customers for the IDER Expansion program is quite uncertain.

---

<sup>4</sup> Ibid, pages 8 and 58.

1 **Q. WOULD THE IDER EXPANSION PROGRAM BE COST-EFFECTIVE WITH**  
2 **LOWER REDUCTIONS PER RESIDENTIAL CUSTOMER AND NO C&I**  
3 **CUSTOMERS?**

4 A. No. Under a scenario in which the IDER Expansion program achieved load  
5 reductions of 1.1 kW per residential customer as used in the Summit Blue report and  
6 enrolled no C&I customers I estimate that the TRC test benefit to cost ratio would  
7 drop to 0.77. (The Ratepayer Test benefit to cost ratio would be 0.73). Under that  
8 scenario the total capital cost of the program would be lower, since JCP&L would not  
9 incur the cost of installing controls for C&I customers, but the revenues from the PJM  
10 programs would also be lower reflecting the lower demand reductions. I prepared my  
11 analysis by re-running the JCP&L spreadsheet model for a lower level of residential  
12 demand reductions and no C&I customer costs or reductions. The results are  
13 presented on page 2 of Exhibit\_\_\_(JRH-2).

14 **Q. IS JCP&L WILLING TO ACCEPT ANY FINANCIAL RISK IF THE IDER**  
15 **EXPANSION PROGRAM IS APPROVED WITHOUT THESE**  
16 **UNCERTAINTIES BEING ADDRESSED?**

17 A. No. JCP&L is requesting that the IDER Expansion program be approved before it  
18 knows the actual demand reduction per residential customer the IDER technology can  
19 achieve under actual load reduction event conditions and with considerable  
20 uncertainty surrounding its projected demand reduction from C&I customers. RC-  
21 JCPL-78 asked JCP&L if it would agree to forego recovery of a portion of the  
22 revenue requirements associated with the IDER Expansion if that program was  
23 approved without results from the IDER Pilot, and subsequent analyses of those  
24 results indicated that its TRC benefit to cost ratio was less than 1. In response

1 JCP&L stated that it was unwilling to accept that financial risk. RC-JCPL-78 is  
2 presented as Exhibit\_\_\_(JRH-3).

3 **Q. HAS JCP&L PROVIDED ESTIMATES OF OTHER BENEFITS THAT**  
4 **MIGHT JUSTIFY APPROVAL OF THE IDER EXPANSION PROGRAM?**

5 A. No. JCP&L states that the IDER Expansion offers additional benefits in the areas of  
6 system reliability impacts; energy market pricing effects; environmental benefits from  
7 reduced operation of less efficient generating units and reduced requirements for new  
8 generation; and the deferral of capital investments in the T&D system. However, as  
9 indicated in its response to RC-JCP&L -78, JCPL has not quantified any of those  
10 purported benefits. Moreover, as indicated in its response to RCR-IDER-7 presented  
11 in Exhibit\_\_\_(JRH-3), JCP&L has not done any analyses of the impact of demand  
12 reductions under the IDER Pilot program on its distribution system operations or  
13 reliability.

14 **Q. HAS JCP&L IDENTIFIED ANY DISADVANTAGES OF DELAYING**  
15 **CONSIDERATION OF THE IDER EXPANSION UNTIL ACTUAL RESULTS**  
16 **FROM THE IDER PILOT PROGRAM ARE AVAILABLE?**

17 A. Yes, as indicated in its responses to RC-JCPL-77 and RC-JCPL-39, presented in  
18 Exhibit\_\_\_(JRH-3), when asked to list any major disadvantages that would result  
19 from a delay in the implementation of the IDER Expansion program, the Company  
20 only cited the “wind down of customer adoption and deployment activities” requiring  
21 additional “ramp up” time and the missed opportunity for evaluation of the system on  
22 a broader basis (RC-JCPL-39). These disadvantages all presume that the actual  
23 performance of the IDER Pilot will be exactly as projected. If the actual performance

1 of the IDER Pilot is worse than projected, the points listed as disadvantages by  
2 JCP&L will not be valid.

3 **Q. WHAT ACTION DO YOU RECOMMEND THE BOARD TAKE**  
4 **REGARDING THE IDER EXPANSION IN RESPONSE TO JCP&L'S**  
5 **REQUEST?**

6 A. Given the uncertainty associated with the estimated benefits of the proposed IDER  
7 Expansion program I recommend that the Board defer consideration of it until JCP&L  
8 can demonstrate the quantity of demand reductions it can achieve measured according  
9 to the PJM methodology and can confirm that it will be able to enroll the number of  
10 C&I customers assumed in its cost-effectiveness analyses.

1 **III. COST RECOVERY MECHANISM**

2

3 **Q. IS JCP&L PROPOSING TO RECOVER THE COSTS OF THE IDER**  
4 **EXPANSION PROGRAM THROUGH A NEW RATE MECHANISM?**

5 A. Yes. JCP&L is proposing to recover the costs of the IDER Expansion Program  
6 through a new Demand Response Charge, Rider DRC.

7 **Q. IS JCP&L PROPOSING TO SHIFT RECOVERY OF THE COSTS OF THE**  
8 **IDER PILOT PROGRAM TO THIS NEW PROPOSED RATE MECHANISM.**

9 A. Yes. JCP&L is currently recovering the costs of the IDER Pilot program through the  
10 System Control Charge (SCC). According to the Direct Testimony of Company  
11 witness Sally Cheong, JCP&L is proposing to shift the recovery of future costs of the  
12 IDER Pilot from the SCC to Rider DRC. Ms. Cheong states that the proposed shift  
13 will facilitate tracking and accounting of all demand response-related programs in one  
14 rate mechanism.

15 **Q. SHOULD JCP&L BE ALLOWED TO SHIFT RECOVERY OF THE COSTS**  
16 **OF THE IDER PILOT PROGRAM TO THE NEW PROPOSED RATE**  
17 **MECHANISM?**

18 A. No.

19 First, the Board has authorized JCP&L to recover the costs of the IDER Pilot  
20 program through the SCC over six years at a rate of approximately \$0.5 million per  
21 year. JCP&L is also recovering the costs of its legacy AC Cycling program costs  
22 through the SCC. Thus, even if recovery of the IDER Pilot program costs were  
23 shifted to the DRC, the SCC would not be reduced to zero and terminated.

1           Second, the categories of costs the Board has authorized JCP&L to recover for  
2 the IDER Pilot program are different from those that JCP&L is seeking to recover for  
3 the IDER expansion. Under the IDER Pilot the Board authorized JCP&L recovery  
4 of, but not on, its direct capital. In other words JCP&L is not recovering a return on  
5 that investment. In addition, the Board authorized recovery of only two years of  
6 operating costs, including cash incentives to participants. In contrast, for the IDER  
7 Expansion program JCP&L is requesting recovery of its capital costs over six years,  
8 plus an annual return on the unamortized amount at the pre-tax cost of capital adopted  
9 in its last base rate case (11.61%), plus annual operating expenses over the life of the  
10 program.

11           Given the differences between the costs being recovered under the SCC and  
12 those proposed for recovery under Rider DRC, recovery of IDER Pilot program costs  
13 should continue under the SCC and be kept separate from recovery of IDER  
14 Expansion program costs.

15 Q.   **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

16 A.   Yes.

# **SCHEDULES**

## **James Richard Hornby**

**Senior Consultant**  
**Synapse Energy Economics, Inc.**  
**22 Pearl Street, Cambridge, MA 02139**  
**(617) 661-3248 ext. 243 • fax: (617) 661-0599**  
**www.synapse-energy.com**  
**rhornby@synapse-energy.com**

### **PROFESSIONAL EXPERIENCE**

**Synapse Energy Economics, Inc.**, Cambridge, MA. *Senior Consultant*, 2006 to present.  
Analysis and expert testimony regarding planning, market structure, ratemaking and contracting issues in the electricity and natural gas industries.

**Charles River Associates (formerly Tabors Caramanis & Associates)**, Cambridge, MA.  
*Principal*, 2004-2006.

*Senior Consultant*, 1998-2004.

Provided expert testimony and litigation support in several energy contract price arbitration proceedings, as well as in electric and gas utility ratemaking proceedings in Ontario, New York, Nova Scotia and New Jersey. Managed a major productivity improvement and planning project for two electric distribution companies within the Abu Dhabi Water and Electricity Authority. Analyzed a range of market structure and contracting issues in wholesale electricity markets.

**Tellus Institute**, Boston, MA.

*Vice President and Director of Energy Group*, 1997–1998.

Presented expert testimony on rates for unbundled retail services in restructured retail markets and analyzed the options for purchasing electricity and gas in those markets.

*Manager of Natural Gas Program*, 1986–1997.

Prepared testimony and reports on a range of gas industry issues including market structure, unbundled services, ratemaking, strategic planning, market analyses, and supply planning.

**Nova Scotia Department of Mines and Energy**, Halifax, Canada; 1981–1986

*Member*, Canada-Nova Scotia Offshore Oil and Gas Board, 1983–1986

Member of a federal-provincial board responsible for regulating petroleum industry exploration and development activity offshore Nova Scotia.

*Assistant Deputy Minister of Energy* 1983–1986

Responsible for analysis and implementation of provincial energy policies and programs, as well as for Energy Division budget and staff. Directed preparation of comprehensive energy plan emphasizing energy efficiency and use of provincial energy resources. Senior technical advisor on provincial team responsible for negotiating and implementing a federal/provincial fiscal, regulatory, and legislative regime to govern offshore oil and gas. Directed analyses of proposals to develop and market natural gas, coal, and tidal power resources. Also served as Director of Energy Resources (1982-1983) and Assistant to the Deputy Minister (1981-1982).

---

**Nova Scotia Research Foundation**, Dartmouth, Canada, Consultant, 1978–1981  
Edited Nova Scotia's first comprehensive energy plan. Administered government-funded industrial energy conservation program—audits, feasibility studies, and investment grants.

**Canadian Keyes Fibre**, Hantsport, Canada, Project Engineer, 1975–1977

**Imperial Group Limited**, Bristol, England, Management Consultant, 1973–1975

## **EDUCATION**

M.S., Technology and Policy (Energy), Massachusetts Institute of Technology, 1979.  
Thesis: "An Assessment of Government Policies to Promote Investments in Energy Conserving Technologies"

B.Eng. Industrial Engineering (with Distinction), Dalhousie University, Canada, 1973

## **EXPERT TESTIMONY AND LITIGATION SUPPORT (1987 to present)**

Provided expert testimony and/or litigation support on planning, market structure, ratemaking and gas supply/fuel procurement in the electric and gas industries in approximately 100 proceedings in over thirty jurisdictions in the United States and Canada. List of proceedings available upon request.

---

REDACTED

IDER Expansion - JCP&L Assumptions : 15 MW

Forecast Year	Annual Amortization	Investment Return	Other Expenses less incentives to participants	Incentives to participants	Ratepayer Test			Total Resource Cost Test	
					Gross Revenue Requirement	PJM Revenues	Net Revenue Requirements	Gross Revenue Requirement less participant incentives	PJM Revenues
	a	b	c	d	e = a+b+c+d	f	g = e - f	h = e - d	i = f
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
2028									
2029									
<b>Total</b>					\$ -	\$ -	\$ -	\$ -	\$ -
<b>Net Present Value @</b>		6.86%			\$ -	\$ -	\$ -	\$ -	\$ -
<b>Benefit to Cost Ratio</b>						<b>0.91</b>			<b>1.15</b>

Source : Attachment RCR-IDER-16

IDER Expansion - Residential reduction @ 1.1 kW/customer; no C&I customer Scenario : 8.6 MW

Forecast Year	Annual Amortization	Investment Return	Other Expenses less incentives to participants	Incentives to participants	Ratepayer Test		Net Revenue Requirements	Total Resource Cost Test	
					Gross Revenue Requirement	PJM Revenues		Gross Revenue Requirement less participant incentives	PJM Revenues
	a	b	c	d	e = a+b+c+d	f	g = e - f	h = e - d	i = f
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
2028									
2029									
<b>Total</b>					\$ -	\$ -	\$ -	\$ -	\$ -
<b>Net Present Value @</b>		6.86%			\$ -	\$ -	\$ -	\$ -	\$ -
<b>Benefit to Cost Ratio</b>						<b>0.73</b>			<b>0.77</b>

**Notes :** Aggregate residential demand reduction is 11 MW divided by 1.4 kW per customer and multiplied by 1.1 kw/customer  
 Reduction in capital cost due to no C&I customers is million per RC-JCPL-41  
 Reduction in annual incentives to C&I customers is  
 Calculations are from Synapse re-run of Attachment RCR-IDER-16

**8.6**

**In the Matter of Demand Response Programs for the Period Beginning  
June 1, 2009 – Electric Distribution Company Programs  
Docket Nos. EO08080542 and EO08050326**

RESPONSES TO DATA REQUESTS

**RC-JCPL-78** Projected costs and PJM revenues related to IDER expansion, Gardow Direct Testimony pages 2 and 9, Schedules ELG-1 and ELG-2. The economic analyses of the proposed IDER expansion presented in responses S-JCP&L-DR-2 and RC-JCPL-38c indicate that it would have a positive net present value and a Total Resource Cost ratio greater than 1 based upon a number of assumptions. These assumptions include the capital cost, the average reduction per participant, the number of participants, the average life of the switches or thermostats, and the payments from PJM. The pilot approved in Docket ER07060375 will enable the Company to test certain of those assumptions during the summer of 2009, in particular the actual reduction per participant and the actual performance of the technology. If the economic analyses presented in responses S-JCP&L-DR-2 and RC-JCPL-38c are re-run in the Fall of 2009 using assumptions reflecting JCP&L's actual IDER experience from the summer of 2009, and the results based upon these revised assumptions indicate that the IDER expansion will not have a positive net present value and/or will not have a Total Resource Cost ratio greater than 1, will JCP&L agree to forego recovery of the revenue requirements associated with the IDER expansion? If not, why not.

**Response:** It is expected that the actual IDER experience from the summer 2009 will result in meeting the estimated demand reduction per participant. With the delayed implementation of the expansion, there will be adequate feedback from the pilot to incorporate appropriate improvements, if any, in the deployment of the expansion to support achievement of the anticipated goals.

As to the Total Resource Cost ("TRC") test, as noted in the testimony of Eva L. Gardow (Exhibit JCDR-2), the principal benefits of the IDER program are found in its effectiveness in contributing to the efforts to meet the State's aggressive demand response and related goals, which will produce PJM program revenues and many additional benefits in the areas of system reliability impacts; energy market pricing effects (for example, by reducing peak LMPs and by improving JCP&L's load shape, which should be reflected in BGS auction bids); environmental benefits from reduced operation of less efficient generating units and reduced requirements for new generation; and the deferral of capital investments in the T&D system. However, the value of any of the foregoing additional benefits cannot be quantified at this time. The TRC analysis referenced in this question relies only on the simple comparison of program costs to the quantifiable dollars and cents benefits from participation in PJM programs. There are many variables regarding the PJM program revenues and JCP&L does not plan to rerun these analyses nor would it forego cost recovery after Board approval of the implementation of the IDER expansion.

**In the Matter of Demand Response Programs for the Period Beginning  
June 1, 2009 – Electric Distribution Company Programs  
Jersey Central Power & Light Company –  
Pilot Report and Proposed IDER Expansion  
Docket Nos. EO08080542 and EO08050326**

RESPONSES TO DATA REQUESTS

- RCR-IDER-7** On page one of the report, the Company states “The system provides targeted load control capability permitting JCP&L to reduce load on feeders or transformers. .... In addition, having the ability to reduce loads within specific areas provides utility operators with additional tools to manage power flows.” Subsequently, on page four, the Company states that “The ICP allows control of the entire enrolled population in the targeted area or of specific subset groups of customers designated by circuits, transformers, and substation areas.”
- a) Please explain the criteria used by the JCP&L system operators to select the specific circuits, transformers and/or substations on which to implement load reductions.
  - b) Please provide load reduction information monitored at each substation, transformer, and circuit for each of the four load reduction events initiated during the pilot.
  - c) Please provide any analyses of changes in reliability that JCP&L prepared of each event, relative to expected performance on those circuits during the reporting period had IDER not been in place, for each system reliability metric including, but not limited to, SAIDI, SAIFI, CAIDI.
  - d) Please provide details describing and explaining any differences seen between load reductions called for from the ICP and the load reductions seen on each substation, transformer and circuit included in the program area for each load reduction event initiated during the pilot.
- Response:**
- a) During the test load management events, the load reductions were applied randomly across the entire targeted area. The defining criteria was that the air conditioner had to register active load on the system to be included in the test event. Each test event managed a subset of the “Available Load”.
  - b) At this time, there is no load reduction monitoring at the substation, transformer, or circuit level integrated into the ICP.
  - c) There has been no analysis regarding changes in reliability in the targeted area for these test events.
  - d) At this time, there is no load reduction monitoring at the substation, transformer, or circuit level integrated into the ICP.

**In the Matter of Demand Response Programs for the Period Beginning  
June 1, 2009 – Electric Distribution Company Programs  
Docket Nos. EO08080542 and EO08050326**

RESPONSES TO DATA REQUESTS

**RC-JCPL-39** Proposed IDER expansion, Gardow Direct Testimony pages 2 to 11. Please describe any and all major disadvantages of delaying consideration of the IDER expansion until the Fall of 2009, at which time the Company will have initial results from the pilot.

**Response:** There are a number of major disadvantages related to delaying consideration of the IDER expansion until the Fall of 2009, including the following:

1. Loss of Program Continuity and Economies of Scale - Delaying the start of IDER expansion would force JCP&L to wind down customer adoption and deployment activities just as the process is gathering momentum and becoming efficient. Restarting these activities would require an additional ramping up period.
2. Missed Opportunity to Examine Critical Mass - A wider pool of participants would enable JCP&L to examine program benefits and assess technology capabilities on a scale that would have a more realistic impact on operations. This includes the system's ability to aggregate a large number of MW across a wide control area; and its ability to ramp up, sustain, and ramp down shed events within specified operational parameters. Assessing the impact of diversification of participants across a wider geographical area should provide for nearer term understanding of how to integrate the IDER management capabilities into system operations and planning.
3. Missed Opportunity to Include Findings in Nearer Term System Implementation Planning – Understanding the benefits of a larger and more diversified IDER program should create operational statistics and other results that could be included in nearer term intelligent grid and communications planning.
4. Missed Opportunity to Include Findings in Nearer Term System Upgrade Planning Cycles - Understanding the benefits of a larger and more diversified IDER program may possibly create results that could be included in nearer term operations and planning cycles.
5. Missed Opportunity for Nearer Term Understanding of BGS Price Implications – A wider pool of participants should have a greater impact on operations and provide for nearer term understandings on how and if the program has an impact on BGS pricing. A smaller pool of participants may not have a significant enough impact to be visible in the BGS auction process.

**In the Matter of Demand Response Programs for the Period Beginning  
June 1, 2009 – Electric Distribution Company Programs  
Docket Nos. EO08080542 and EO08050326**

RESPONSES TO DATA REQUESTS

**RC-JCPL-77** Reference Response to RC-JCP&L-39: Proposed IDER expansion. Regarding the disadvantages of delaying decision until Fall 2009. Please update this response if and as appropriate.

**Response:** The following are the disadvantages that were identified in the response RC-JCP&L-39. All five are still valid disadvantages.

**Disadvantage #1:** Loss of Program Continuity and Economies of Scale

**Disadvantage #2:** Missed Opportunity to Examine Critical Mass

**Disadvantage #3:** Missed Opportunity to Include Findings in Near Term Smart Grid Implementation Planning

**Disadvantage #4:** Missed Opportunity to Include Findings in Near Term System Upgrade Planning cycles

**Disadvantage #5:** Missed Opportunity for Nearer term Understanding of BGS Price Implications