

**BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Ohio	)	
Edison Company, The Cleveland Electric	)	
Illuminating Company, and The Toledo	)	Case Nos. 12-2190-EL-POR
Edison Company For Approval of Their	)	12-2191-EL-POR
Energy Efficiency and Peak Demand	)	12-2192-EL-POR
Reduction Program Portfolio Plans for 2013	)	
through 2015	)	
	)	

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DIRECT TESTIMONY OF

GEORGE L. FITZPATRICK

ON BEHALF OF

OHIO EDISON COMPANY  
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY  
THE TOLEDO EDISON COMPANY

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1 **INTRODUCTION AND BACKGROUND**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is George L. Fitzpatrick, and my business address is 888 Veterans  
4 Memorial Highway, Suite 120, Hauppauge, NY 11788.

5 **Q. MR. FITZPATRICK, BY WHOM ARE YOU EMPLOYED AND IN WHAT**  
6 **CAPACITY?**

7 **A.** I am Executive Managing Director within the Management Consulting Division  
8 (“MCD”) of Black & Veatch Corporation (“B&V”). I currently lead both the  
9 Demand Side Management/Energy Efficiency (“DSM/EE”) practice and the  
10 Regulatory Litigation Support practice within MCD. I am also designated as a  
11 B&V Subject Matter Specialist in a number of areas related to our electric and gas  
12 utility consulting practice.

13 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE**  
14 **RELEVANT TO THE TESTIMONY YOU ARE NOW GIVING.**

15 **A.** My professional experience includes over 35 years within utility management and  
16 electric/gas technical and management consulting fields. My areas of expertise  
17 include: econometric and statistical analysis for energy and peak forecasting, load  
18 research, integrated resource planning, Smart Meter business case analytics,  
19 DSM/EE assessment, program design, implementation and evaluation, as well as  
20 electric generating plant life cycle economics, operating costs and performance  
21 modeling and overall utility investment prudence analyses.

1 I have testified extensively before state regulatory commissions throughout the  
2 United States, in both direct and rebuttal roles. Areas in which I have provided  
3 testimony include:

- 4 • Integrated Resource Planning;
- 5 • Electric and Gas DSM/EE Program Assessment, Implementation and  
6 Evaluation;
- 7 • Comparative lifecycle economics of competing utility investments;
- 8 • Econometric/statistical-based Load and Energy Forecasting;
- 9 • Other Econometric and Statistical Studies on Utility-related Issues;
- 10 • Weather Normalization Studies;
- 11 • Strategic Planning;
- 12 • Load Research Program Sample Design, Implementation and Analysis;
- 13 • Rate Design;
- 14 • Cost of Service Studies;
- 15 • Renewable Program Evaluation; and
- 16 • Performance Standard design and statistical construction

17 A more complete description of relevant qualifications to this testimony is  
18 contained in my professional resume, which is attached to my testimony as  
19 Exhibit GLF-1.

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

21 **A.** The purpose of my testimony is to: (1) sponsor the Market Potential Study  
22 (“MPS”) that B&V performed on behalf of Ohio Edison Company (“Ohio  
23 Edison”), The Cleveland Electric Illuminating Company (“CEI”) and The Toledo

1 Edison Company (“Toledo Edison”) (collectively, “Companies”); and (2) discuss  
2 my concerns with the Commission’s policy surrounding the use of the pro rata  
3 accounting methodology when determining energy efficiency results.

4 **Q. DOES YOUR TESTIMONY APPLY TO ALL OF THE COMPANIES?**

5 **A.** Unless otherwise stated, my testimony equally applies to all three Companies. It  
6 should also be noted that throughout my testimony I refer to sections included in  
7 the MPS, which is attached as Appendix D to each of the Energy Efficiency and  
8 Peak Demand Reduction Portfolio Plans (“Proposed Plans”). Rather than  
9 reiterate in my testimony the details of the sections to which I refer, I am  
10 incorporating those sections into my testimony by reference.

11 **Q. WAS THE MPS PREPARED BY YOU OR UNDER YOUR DIRECT**  
12 **SUPERVISION?**

13 **A.** Yes, it was.

14 **SUMMARY OF THE MPS**

15 **Q. PLEASE EXPLAIN GENERALLY WHAT THE MPS IS.**

16 **A.** The MPS is generally an assessment of three categories of energy efficiency  
17 (“EE) and peak demand reduction (“PDR”) potential within each of the  
18 Companies’ respective service territories: (i) Technical Potential; (ii) Economic  
19 Potential; and (iii) Achievable Potential, which, when analyzed together, provide  
20 an estimate of market potential for energy efficiency program and measure  
21 participation during the period when the Companies’ Proposed Plans will be in  
22 effect. This study was utilized by FirstEnergy’s EE & PDR plan development

1 team when designing the Proposed Plans. Company Witness Miller discusses in  
2 his testimony (Company Exhibit 4) how those plans were developed.

3 **Q. WHAT IS TECHNICAL POTENTIAL?**

4 **A.** Generally, Technical Potential is the savings associated with replacing or  
5 installing all standard efficiency technologies across all end uses regardless of  
6 cost effectiveness. Technical Potential represents the maximum savings level  
7 possible. The official definition is set forth in both Rule 4901:1-39-03(A)(1),  
8 Ohio Administrative Code and in Section 2.1 of the MPS.

9 **Q. WHAT IS ECONOMIC POTENTIAL?**

10 **A.** Generally, Economic Potential reviews the Technical Potential and screens it to  
11 identify and select only those measures that pass the cost-effectiveness test. For  
12 Ohio, the Total Resource Cost (“TRC”) test is used as the basis for determining  
13 cost effectiveness. As a result, Economic Potential is a sub-set of Technical  
14 Potential. The official definition is set forth in both Rule 4901:1-39-03(A)(2),  
15 Ohio Administrative Code and in Section 2.1 of the MPS.

16 **Q. WHAT IS ACHIEVABLE POTENTIAL?**

17 **A.** Achievable Potential savings reviews the measures contained in the Economic  
18 Potential savings estimates and further screens them to capture that portion of  
19 savings that can realistically be implemented by customers. In other words, even  
20 if a measure is cost effective for the customer, they may be unwilling to install the  
21 measure for various reasons such as personal preferences, reluctance to incur a  
22 higher upfront costs, or overall budgetary constraints. The official definition is

1 set forth in both Rule 4901:1-39-03(A)(3), Ohio Administrative Code, and in  
2 Section 2.1 of the MPS.

3 **Q. WHAT IS THE SCOPE OF THE MPS?**

4 **A.** The scope of the MPS addresses the energy efficiency potential during the period  
5 2012 through 2026 for each of the three Companies, although the focus for  
6 purposes of the Proposed Plans is for the period January 1, 2013 through  
7 December 31, 2015 (“Plan Period”).

8 **Q. WHAT WAS THE METHODOLOGY FOLLOWED WHEN**  
9 **DEVELOPING THE MPS?**

10 **A.** The methodology followed when developing the MPS is described in Section 3.0  
11 of the MPS.

12 **Q. WHAT BASIC ASSUMPTIONS WERE MADE WHEN DEVELOPING**  
13 **THE MPS?**

14 **A.** When developing the MPS, the assumptions set forth in Section 8.6 of the MPS  
15 were made, along with others as set forth throughout the MPS.

16 **Q. WHAT INFORMATION WAS FACTORED INTO THE DEVELOPMENT**  
17 **OF THE MPS?**

18 **A.** When developing the MPS, Black & Veatch considered primary data collected  
19 from statistically valid customer mail and telephone surveys. We also conducted  
20 interviews with FirstEnergy’s large account representatives, large customers and  
21 local retail store employees.

22

23

1 **Q. WHAT WAS THE PURPOSE OF MAIL AND TELEPHONE SURVEYS?**

2 **A.** The overall objective of the survey process was to collect primary market and  
3 customer research information, on a statistically valid basis, that would allow our  
4 team to develop robust estimates of customer participation in the various  
5 measures and programs that were relevant to the Companies' service territories.

6 **Q. WHAT WERE THE GENERAL TOPICS INCLUDED IN THE SURVEYS?**

7 **A.** Survey questions were designed to elicit information about:

- 8 • The nature of equipment used by various customers;
- 9 • Customer equipment preferences or needs;
- 10 • Whether customers had any experience in previous FirstEnergy related EE  
11 and/or PDR programs;
- 12 • The customer's propensity to participate in future FirstEnergy EE and/or  
13 PDR programs;
- 14 • The customer's propensity to participate in specific measures offered by  
15 the Companies; and
- 16 • Customer Demographics.

17 **Q. HOW MANY SURVEYS WERE SENT AND RETURNED?**

18 **A.** There were a total of 11,810 surveys sent via mail. Of those, we received  
19 responses from 852 customers in Ohio Edison's territory; 776 in CEI's territory;  
20 and 856 in Toledo Edison's territory. In addition to mail surveys, we conducted  
21 300 telephone surveys with commercial customers -- 100 per operating company.  
22 Section 4.4 and 4.5 of the MPS present the key findings associated with these  
23 survey activities.

1 **Q. BASED ON THE WORK THAT YOU HAVE DESCRIBED, WHAT WERE**  
2 **THE RESULTS OF THE MPS FOR THE PLAN PERIOD?**

3 **A.** The MPS provides both a “base case” and “high case” savings potential for each  
4 of the years 2012 through 2026, which are summarized in Tables 1-1 to 1-9 in the  
5 MPS. Below is a summary of Achievable Potential for each of the Companies  
6 during the Plan Period:

	<u>CO</u>	<u>YEAR</u>	<u>BASE</u>	<u>HIGH</u>
8	<b>OE</b>	2013	4.4%	5.2%
9	OE	2014	5.6%	6.8%
10	OE	2015	6.8%	8.3%
11				
12	<b>CEI</b>	2013	5.2%	5.6%
13	CEI	2014	6.3%	6.9%
14	CEI	2015	7.3%	8.1%
15				
16	<b>TE</b>	2013	4.5%	5.0%
17	TE	2014	5.5%	6.2%
18	TE	2015	6.4%	7.2%
19				

20 **Q. PLEASE EXPLAIN WHAT THESE RESULTS MEAN.**

21 **A.** The percentages presented above are estimated energy savings based on Black &  
22 Veatch’s modeling efforts. The percentage values are cumulative energy savings  
23 over the operating Companies’ three years average sales. These resulting  
24 percentage values are all above the annual requirement established in Section  
25 4928.66, Revised Code during the Plan Period.

26 **Q. WHAT IS THE DIFFERENCE BETWEEN THE BASE AND HIGH**  
27 **CASES?**

28 **A.** The base case represents a normal program plan with incentives and marketing  
29 expenses generally seen in the market today. It reflects what can reasonably be



1 expected using reasonable incentives and marketing techniques. The high case,  
2 on the other hand, includes more aggressive marketing and higher customer  
3 incentives.

4 **Q. IN YOUR OPINION, WHICH CASE SHOULD BE USED FOR PURPOSES**  
5 **OF DEVELOPING THE PROPOSED PLANS?**

6 **A.** As a general proposition, I would select the base case savings potential for  
7 planning purposes.

8 **Q. IN YOUR OPINION, WHY IS THE BASE CASE THE BETTER CASE TO**  
9 **USE WHEN DEVELOPING THE PROPOSED PLANS?**

10 **A.** The base case costs and participation levels are more reflective of a level of  
11 savings that are more likely to be achieved. When modeling, the goal is to reflect  
12 what is expected under normal circumstances, and not under overly aggressive  
13 targets. The high case would be more reflective of stretch goals. Additionally,  
14 base case savings levels should be sufficient to foster free market transformation  
15 of the Companies' service territories' appliance/end use stocks to the next level of  
16 energy efficiency. Use of the high case increases the risk that more resources will  
17 be spent to achieve the same levels of ultimate energy efficiency and peak  
18 demand reduction as would result under the base case.

1           **PRO RATA VERSUS ANNUALIZED SAVINGS CALCULATIONS**

2   **Q.    ARE YOU FAMILIAR WITH THE COMMISSION’S DIRECTIVE TO**  
3           **MEASURE ENERGY SAVINGS RESULTS BASED ON A PRO RATA**  
4           **METHODOLOGY?**

5    A.    Yes, I am. In Docket No. 08-888-EL-ORD, the Commission, in its June 17, 2009  
6           Entry on Rehearing, indicated that only the savings from the time a measure is  
7           implemented until the end of the year in which a measure is first installed can  
8           count towards a utility’s statutory energy efficiency benchmarks during that initial  
9           year.

10 **Q.    DO YOU AGREE WITH THIS APPROACH?**

11 A.    No. The lifetime savings for both pro rata and annual methodologies are the  
12           same; it’s just a matter of when you recognize the savings for compliance and  
13           reporting purposes. I believe that the additional costs associated with measuring  
14           results under the pro rata methodology outweigh any potential incremental  
15           accuracy the pro rata methodology may, in the year the measure is installed, have  
16           over measuring results on an annual basis.

17 **Q.    WHAT KINDS OF COSTS ARE YOU REFERRING TO?**

18 A.    There are several. First, there are the costs that must be accelerated in order for  
19           the Companies to meet their statutory targets in the year in which a measure is  
20           installed under the pro rata methodology. Obviously under the annual savings  
21           methodology, savings from a measure is estimated for the entire year, rather than  
22           only the portion of the year in which the measure is actually installed. As I  
23           testified in the Companies’ first Portfolio case in Case No. 09-1947-EL-POR *et*

1 *al.*, the use of the pro rata methodology increased costs during the three years  
2 those plans were to be in effect by approximately \$ 51.2 million because  
3 additional programs and measures had to be included in the plan to make up for  
4 the short fall created by only allowing a portion of the savings to be recognized in  
5 the initial year of implementation. In this difficult economy, we should be  
6 looking for ways to minimize costs to customers, especially when additional costs  
7 will eventually have to be incurred to achieve the ever increasing targets over the  
8 next several years.

9           Second, there are administrative costs associated with tracking pro rated  
10 savings. Because pro rata savings are based on the date on which a measure is  
11 implemented, the Companies must not only track the date on which a customer  
12 applied for participation in any of the programs, but under the pro rata  
13 methodology, the Companies must also follow up to determine the date on which  
14 the measure was actually implemented. This basically doubles the tracking that  
15 must be done. Third, there are additional costs surrounding the Evaluation,  
16 Measurement and Verification (“EM&V”) process because the contractor must  
17 make special arrangements to track results in such a manner.

18 **Q. WHY MUST THE EM&V CONTRACTOR MAKE SPECIAL TRACKING**  
19 **ARRANGEMENTS?**

20 **A.** Annualized reporting is the industry practice. At least 23 states use annualized  
21 reporting when measuring energy savings results. In addition to Pennsylvania,  
22 where the Companies’ EM&V contractor also performs services on behalf of the  
23 Companies’ sister utilities in that state, Arizona, California, Colorado,

1 Connecticut, Florida, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts,  
2 Michigan, Minnesota, Nebraska, New Jersey, New York, Oregon, South Carolina,  
3 Texas, Vermont, Washington and Wisconsin also all use the annualized savings  
4 methodology to track savings results. Anytime a methodology differs from the  
5 norm, certain systems and processes have to be customized to accommodate the  
6 different approach. This customization increases costs. Further, because the  
7 Companies' EM&V contractor monitors results in both Pennsylvania and Ohio, it  
8 must implement two different processes to accommodate the non-standard pro  
9 rata accounting methodology in Ohio.

10 **Q. WHY DO YOU BELIEVE THE COSTS OUTWEIGH THE**  
11 **INCREMENTAL ACCURACY CREATED THROUGH THE USE OF THE**  
12 **PRO RATA METHODOLOGY?**

13 **A.** The pro rata methodology creates an impression of accuracy that simply does not  
14 exist. The entire energy efficiency process involves estimates and assumptions,  
15 several of which are for upwards of fifteen or more years. Therefore, given the  
16 additional costs that I just discussed, it is somewhat impractical to focus on this  
17 single aspect of energy efficiency and attempt such precision. Further, the pro  
18 rata methodology does not properly match costs with benefits, because the entire  
19 cost of the program is incurred in the year in which the measure is implemented,  
20 but the savings results straddle two years, unless it is installed on the first day of  
21 the year. Third, the statutory targets continue to increase. The additional  
22 programs that must be included under the pro rata methodology will eventually be  
23 put into place, even under the annualized approach. The costs, however, are

1 incurred later in the process which, as I stated before, may be a good thing given  
2 these difficult economic times. This will result in the costs being spread out over  
3 a longer period of time which will reduce customer bill impacts. And finally, the  
4 Commission recently approved the annualized savings approach for American  
5 Electric Power's Ohio utilities. Because Electric Distribution Utilities ("EDUs")  
6 are all subject to the same statutory requirements, the measurement of results for  
7 purposes of compliance should be consistently applied for all EDUs.

8 **Q. THE COMMISSION HAS STATED IN ITS SEPTEMBER 7, 2011 ENTRY**  
9 **ON REHEARING IN CASE NO. 09-1947-EL-POR ET AL. THAT IF**  
10 **THESE PROGRAMS ARE COST EFFECTIVE, THEN BY DEFINITION**  
11 **CUSTOMERS IN THE AGGREGATE SAVE MONEY WHEN THE**  
12 **COMPANIES DELIVER ENERGY SAVINGS INSTEAD OF**  
13 **ELECTRICITY. DO YOU AGREE?**

14 **A.** Without seeing the Commission's analysis, I cannot say for certain. However, the  
15 Commission's analysis seems to be based on macro economic principles that  
16 involve numerous assumptions. In reality, those customers who actually  
17 participate in the programs *may* save more than they must pay through the  
18 Companies' Riders DSE. But as the MPS demonstrates, there is a significant  
19 percentage of customers who will not participate for various reasons. Perhaps the  
20 customer already has invested in the energy efficiency measure. Perhaps they do  
21 not have the ability to make an initial capital investment in the equipment being  
22 offered through the Companies' programs. Or perhaps the financial paybacks are  
23 not within the financial parameters established for such an investment.

1 Remember, the test required by the Commission to determine the cost  
2 effectiveness of a measure is based on lifetime benefits that may accrue over a  
3 period of fifteen or more years. Most businesses' threshold for investment is  
4 based on a much shorter time frame. Therefore, for those customers who do not  
5 participate in the programs, they have no savings, but they have additional costs.  
6 By accelerating these costs through the pro rata accounting methodology, these  
7 costs must be incurred sooner than they otherwise would, resulting in greater bill  
8 impacts.

9 **Q. BUT ON A MACRO ECONOMIC LEVEL, WOULDN'T THE OVERALL**  
10 **PRICE OF ELECTRICITY BE LESS IF CUSTOMERS PARTICIPATED**  
11 **IN ENERGY EFFICIENCY PROGRAMS?**

12 **A.** There are a number of variables that must be factored into any analysis of the  
13 impacts on wholesale electricity prices. And, again, without seeing the  
14 Commission's analysis on which it bases its conclusion, I cannot say for sure.  
15 But, remember, wholesale prices are affected by the amount of energy efficiency  
16 and peak demand reduction that is *guaranteed*. Many of the programs allow  
17 customers to opt out of, or override programs. Without absolute certainty that the  
18 reductions will take place, potential suppliers must account for this contingency,  
19 which creates risk, thus increasing the price of electricity over what it might  
20 otherwise be. Moreover, as I already mentioned, there are a significant number of  
21 customers who will not participate in the energy efficiency programs for various  
22 reasons. Without significant participation, wholesale price impacts will be  
23 minimal.

1 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

2 **A.** Yes, it does.

## George Fitzpatrick

Mr. Fitzpatrick's professional experience includes over 35 years within the utility management and electric/gas management consulting fields. Mr. Fitzpatrick's areas of expertise include: economic and econometric analysis for energy and peak forecasting, load research, integrated resource planning, demand side management and related areas, as well as nuclear and fossil generating plant life cycle economics, operating costs and performance modeling and overall utility investment prudence analyses. He has testified extensively throughout the U.S. before the FERC and state regulatory commissions, in both direct and rebuttal roles. Areas in which he has provided testimony include:

- Lifecycle economic analysis of nuclear generation investments
- Nuclear generation operating costs and performance modeling
- Nuclear and total utility operating performance standards
- Integrated Resource Planning
- Electric and Gas Demand Side Management / Energy Efficiency (DSM/EE) Program Assessment, Implementation and Evaluation
- Comparative lifecycle economics of competing utility investments
- Econometric/statistical-based Peak Load and Energy / Sales Forecasting
- Other Econometric and Statistical Studies on Utility- related Issues
- Weather Normalization Studies
- Strategic Planning
- Load Research Program Sample Design, Implementation and Analysis
- Rate Design
- Cost of Service Studies
- Renewable Program Evaluation
- Performance Standard design and statistical construction
- SAIDI / SAIFI-related statistical investigations

During Mr. Fitzpatrick's consulting career he has provided services to over 50 electric and gas utility clients both in the U.S. and abroad. However, there are a number of clients that have utilized his services on an ongoing basis over the years as a senior management consultant and/or expert witness. These clients include:

- American Electric Power Corp.
- Arizona Public Service Company (Pinnacle West)
- Bermuda Electric Light Company Limited
- Centerpoint Energy
- Consolidated Edison Company of New York
- El Paso Electric Company
- Entergy
- FirstEnergy
- Freeport Electric
- Georgia Power Company (Southern Company)

### EXECUTIVE MANAGING DIRECTOR

**Specialization:**  
DSM Planning, Implementation and Evaluation; Nuclear Lifecycle Economic, Cost and Performance Analyses; Load & Energy Forecasting; Econometric & Statistical Analysis; 30 Years of Expert Testimony Experience

#### Education

- St. John's University, M.B.A., Economic Theory, 1972
- St. John's University, B.A., Economics, 1969
- C.W. Post College, course work toward an MS, Management Engineering

Mr. Fitzpatrick has also completed course work in Engineering Economics, Load Research, Demand Forecasting, Box-Jenkins Forecasting Techniques, logistic curve analyses; two and three stage multiple regression techniques; advanced econometric modeling and the utilization and interpretation of multiple regression models and associated analytical techniques

**Total Years Experience**  
30

#### Professional Associations

- Association of Energy Engineers
- American Statistical Association
- American Economic Association
- Mathematical Association of America
- Omicron Delta Epsilon
- Advisor to American Management Association



- Guam Power Authority
- KeySpan Energy
- National Grid
- New England Electric System
- Niagara Mohawk Power Corp. (National Grid)
- New York Power Authority
- Ontario Power Generation
- Public Service Company of Oklahoma
- San Diego Gas & Electric
- TXU Electric (TXU)
- Union Gas Co. Ltd.
- United Illuminating Co.
- Westar Energy (and its three predecessor companies)

He has also served his client base as a negotiator, often playing a key role in the negotiation of multi-million dollar, short and long term utility power supply and franchise contracts (e.g., Ft Bliss, White Sands Missile Range, University of Texas, and El Paso Water Utilities and El Paso Electric Vs. the City of Las Cruces).

## REPRESENTATIVE PROJECT EXPERIENCE

### Expert Testimony & Regulatory Support (Selected Assignments)

#### American Electric Power and Public Service Company of Oklahoma | Docket Nos. 200500516, 200600030, and 200700012

Provided direct and rebuttal expert testimony on the overall prudence of AEP's Integrated Resource Planning processes and results with specific focus on AEP's load forecasting processes and comparative lifecycle economic analyses of supply and demand side alternatives.. Also provided an analysis of the short and longer term potential for cost effective Demand Side Management in the PSO service territory based upon my earlier work on this subject for the entire AEP system and its 11 operating companies.

#### Arizona Public Service Company | Docket Nos. E-01345A-05-0816, E-01345A-05-0826, E-01345A-05-0827

Provided rebuttal testimony on the practical and statistical considerations to address when designing a nuclear plant operating performance standard. This testimony presented the results of his non-linear multiple regression models as they apply to this subject. Further, it referenced his prior work on behalf of Georgia Power Company developing an operating performance standard for Plants Vogtle and Hatch.

#### United Illuminating Company | July 2007 Connecticut Siting Council Filing

Developed econometric-driven peak load and energy sales by class forecasts for the company. Performed a multi-year weather normalization analysis of UI's summer peaks and energy sales. Provided support for UI witnesses in the 2007 Siting Council hearings held in June 2007.

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**United Illuminating Company | October 2008 Connecticut DPUC Docket 08-07-04**

“Application of the United Illuminating Company to Increase its Rates and Charges”—provided direct testimony concerning UI’s long term econometric-based kWh sales and system peak forecasts and UI’s 2000-2008 normalized system peak analyses. Offered perspectives on the structural differences between, and objectives of, long term planning forecasts vs. short term financial forecasts.

**FirstEnergy Pennsylvania Operating Companies | Metropolitan Edison Company / Docket No. M-2009-2092222; Pennsylvania Electric Company / Docket No. M-2009-2112952; Pennsylvania Power Company / Docket No. M-2009-2112956**

Provided direct and supplemental testimony presenting, updating and supporting the Energy Efficiency and Conservation Plans of the Companies developed in response to the requirements of PA Act 129. Also provided rebuttal testimony on a variety of related issues raised by the other parties in the three dockets.

**FirstEnergy Pennsylvania Operating Companies | Metropolitan Edison Company / Docket No. M-2009-2092222; Pennsylvania Electric Company / Docket No. M-2009-2112952; Pennsylvania Power Company / Docket No. M-2009-2112956-Presentation and Defense Of Updated 2011 Plans**

Provided direct and supplemental testimony presenting, updating and supporting the the second round of the Companies’ Energy Efficiency and Conservation Plans updated in response to the requirements of PA Act 129. Plans were approved by the ALJ and Commission as filed.

**FirstEnergy Ohio Operating Companies | Cleveland Electric Illuminating Company / Docket No. Docket No. 09-1947-EL-POR Docket No. 09-1942-EL-EEC Docket No. 09-580-EL-EEC; Ohio Edison Company / Docket No. 09-1948-EL-POR; Docket No. 09-1943-EL-EEC; Docket No. 09-581-EL-EEC; Toledo Edison Company / Docket No. 09-1949-EL-POR; Docket No. 09-1944-EL-EEC; Docket No. 09-582-EL-EEC**

Provided direct testimony presenting, updating and supporting the Energy Efficiency and Peak Demand Reduction Plans of the Companies developed in response to the requirements of S.B. 221.

**Freeport Electric | 1995 Docket No. 95-E-0676, 2001 Docket No. 01-E0965, 2003 Docket No. 03-E-0686**

Provided direct testimony supporting Freeport’s KWH sales and peak demand forecasts in four NYPSC proceedings. Constructed econometric models based forecast methodology by calls along with weather normalization of the test year sales. Provided testimony on the selection of Freeport-specific DSM programs to meet Commission requirements.

### **Arizona Public Service Company | Palo Verde 1, 2, & 3 / Docket Nos. U-1345-85-156 and U-1345-85-367**

Provided direct testimony presenting comparative economic analysis of Palo Verde vs. hypothetical coal unit alternative. Provided econometrically developed estimates of Operation and Maintenance Costs, as well as Capital Additions Costs. Provided independent statistically derived estimates of lifecycle Capacity Factors for the Palo Verde units. Participated in the training of APS witnesses.

### **El Paso Electric Company | Palo Verde 1 & 2 / Texas - Docket No. 7460**

Provided direct testimony on lifecycle economics of nuclear vs. coal alternative. Provided direct testimony on decisional prudence of company to enter into nuclear investment. Provided load forecast of company's future energy and peak demand needs. Participated in the training of Company witnesses.

### **El Paso Electric Company | Palo Verde 1, 2, & 3 / Docket Nos. 8892, 9069 and 9165**

Provided Direct Testimony presenting comprehensive industry analysis and statistical analysis of Nuclear Performance Standards. Presented statistically derived optimal Performance Standard for Palo Verde Units 1, 2, and 3. Provided Rebuttal Testimony discussing theoretical and statistical flaws in intervenor's Performance Standard proposal.

### **Georgia Power Company | Plant Hatch and Plant Vogtle / Georgia - Docket Nos. 3554-U and 3673-U**

For the Vogtle Financing Case, the Vogtle Rate Case and the Hatch Rate Case: Provided rebuttal testimony on comparative economics of Plant Vogtle, provided rebuttal testimony (with presentation to Commission) on Vogtle's economics, and statistically derived projections of Vogtle's performance and Hatch O&M Costs, participated in witness training, and developed internal statistically-based O&M and Capital Additions "Targets" for Plant Hatch and Plant Vogtle.

### **Georgia Power Company | Plant Hatch and Plant Vogtle / Docket No. 3840-U**

Provided Rebuttal Testimony that pointed out methodological and statistical flaws in Staff consultant's Performance Standard proposal. Presented parameters for a statistically unbiased, optimal Performance Standard.

### **Long Island Lighting Company | Shoreham / New York-Docket No. 28252**

Provided rebuttal testimony on most likely performance of Shoreham Unit. Provided testimony on most likely Operation and Maintenance Cost levels and Capital Additions Cost level for Shoreham based upon econometric analysis of nuclear industry. Provided testimony on demand-side vs. supply-side alternatives for the Long Island Lighting Company.

**Westar Energy | 2005-2007 KCC Docket Nos. 05-WSEE-981-RTS and 07-WSEE-616-PRE**

In the 2005 docket, provided direct and rebuttal testimony on the subjects of distribution reliability and reliability-based performance standards. Developed a series of statistical analyses that set performance standards for five utility performance metrics: SAIDI, SAIFI, EFOR, Answered Calls and Meters Read. Developed daily 1998-2004 SAIDI and SAIFI non-linear multiple regression-based weather normalization models for use by the Company.

In the 2007 docket provided both direct and rebuttal testimony on the subjects of peak and energy forecasting, DSM program potential and budgeting, and peak and energy weather normalization analyses.

**Western Resources | 1996 KCC Docket No. 193,307-U96-WSRE-101-DRS**

Provided expert testimony and supporting statistical analysis for test year, class weather normalization, as well as, primary and secondary economic benefits of key customer discounted contracts.

**Western Resources Inc. and Kansas Gas and Electric Company | 2000 KCC Docket No. 01-WSRE-436**

Sponsored two adjustments necessary to normalize operating revenues and expenses for the test year. Performed a review of KPL's and KGE's sales and peak demand forecasting methodology. This review was performed to evaluate its accuracy and unbiasedness since this forecast, in part, supports the Company's decisions to install new capacity. Also performed a statistical review of KPL's and KGE's peak demand normalization methodology, which is necessary to analyze the accuracy of the KPL's and KGE's peak demand forecasts.

**Kansas Gas and Electric Company | Wolf Creek / Kansas City Power and Light Company/Kansas-1984 Docket Nos. 84-KG&E-197-R-142, O98-U / Missouri Docket #ER-85-128, EO-85-185**

Provided rebuttal testimony on lifecycle economics of nuclear vs. coal alternative. Provided first-year and lifecycle statistically based estimates of Wolf Creek's Operation and Maintenance Costs and Capital Additions Costs. Provided first-year and lifecycle estimates of Wolf Creek's Capacity Factors. Participated in the preparation of KG&E witnesses on the subjects of statistics, econometrics, forecasting, and engineering economics.

**Atlanta Gas Light - Georgia (1997)**

Worked with senior management to develop testimony for a performance based rate plan in support of the unbundling of gas service.

**El Paso Electric Company - Texas (1997-1998)**

Developed unbundling strategy and performance based rate plan in support of ongoing Texas PUC workshops on the unbundling of electric service.

**Empire District - Missouri (1992)**

Provided econometric rebuttal testimony critiquing MPSC Staff's direct testimony on Empire District's forecast. Staff accepted rebuttal testimony and the Company's forecast was accepted for use in the rate case.

**Minnegasco | Docket No. G-008/GR-92-400 (1993 - 1994)**

Developed a set of econometrically derived, short run forecasts for Minnegasco's major customer classes. Provided direct expert testimony regarding the use of these forecasts as a factor in determining the need for and magnitude of Minnegasco's requested rate increase. Assisted in preparation of cross-examination of intervening parties.

On rebuttal, supported the implementation of weather normalization adjustments and discussed the effects of an adjustment on varying classes of customer use.

All testimony was accepted by Staff.

**Missouri Public Service (MOPUB) - (1992)**

Provided econometric-based rebuttal testimony critiquing MPSC Staff's direct case criticizing MOPUB's forecast. Rebuttal testimony resulted in Staff stipulating to the use of the Company's forecast.

**Arizona Nuclear Power Project - Palo Verde**

Developed computer software to facilitate budget tracking and comparison. Developed econometric-based target estimation models of Operation and Maintenance Costs. Developed target estimation of Capital Additions Costs based upon econometric modeling. Developed forced and planned outage statistical models to be used in regulatory proceedings for all participants as well as for internal outage planning. Acted as Advisor to Palo Verde Participant's Engineering and Operating Committee on Palo Verde Cost and Performance budget targeting.

**Long Island Lighting Company (1974-1979)**

Testified as an expert witness, usually in both the direct and rebuttal phases, in the following New York State Public Service Commission proceedings: Docket Numbers: 26733, 26829, 26985, 27136, 27154, 80003, 27319, 27374, 27375, 28223, 28252, on subjects such as econometric and econometric-end use Electric and Gas Peak and Energy Forecasts, Load Research studies for cost-of-service analysis, Load Management, Cogeneration, Conservation and statistical studies for weather normalization of gas send out and electric energy requirements data.

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## Demand-Side Management Program Design, Implementation, & Evaluation

### Overview

George Fitzpatrick has over 35 years experience in performing DSM/EE technical and economic potential assessments, program implementation and program evaluations for his electric and gas utility clients. His strong economic, statistical and ESCO business background has enabled him to advise clients on effective DSM/EE initiatives, provide unbiased evaluations of both electric and gas supply and demand side resources, operate successful ESCO's on behalf of his utility clients and finally manage the evaluation of over 300 DSM/EE programs.

Over this same 35 year span he has served as an expert witness on a number of subjects related to the DSM/EE practice area. It should be noted that his long professional career as an expert witness attests to the fact that he is a knowledgeable professional who has and continues to offer reasonable perspectives on the subjects to which he provides expert testimony. This same ethic carries over to his conduct of consulting assignment for clients.

The following paragraphs provide a representative sample of the DSM/EE work that he has performed over his professional career:

### American Electric Power

In 2004-5 he directed an eleven operating company DSM/EE measure assessment that included the estimation of the economic and load/energy impacts of over 80 measures, customized where appropriate to each of AEP's operating companies. As part of this assignment, he directed the development of conditional demand analyses for the purpose of developing individual service territory-specific impacts for certain weather sensitive measures. This work served as a basis for AEP's decision to more fully engage in DSM/EE activities. Mr. Fitzpatrick also served as AEP's overall IRP prudence and DSM/EE witness in PSO's 2007 Oklahoma IRP-related docket.

### Bermuda Electric Light Company, Ltd.

Directed a 1990-1991 multi-faceted evaluation of the potential for DSM on Bermuda. Conducted in-depth research of various customer classes to determine likelihood of adoption of available DSM technologies. Building on this research, developed a series of pilot programs that were implemented in 1993, as well as evaluation strategies to be employed at the programs' conclusion. Designed and served as the responsible officer for the creation and staffing of a full service energy services company, BESCO, that commenced operation in 1995 and provides, to this day, a full range of energy efficiency, energy security and power protection products and services to residential, commercial and industrial customers in Bermuda.

### **Consolidated Edison Company of New York, Inc.**

Project Manager for a 1981 Conservation Assessment Study which included designing a methodology and performing analysis to impact Conservation measures in the residential and commercial sectors to meet requirements imposed by New York PSC in Case No. 28223.

### **El Paso Electric Company's Energy Service Business Unit (ESBU)**

From 1996-2001, Mr. Fitzpatrick served as the General Manager of El Paso Electric's ESBU, a full service ESCO that he conceived, staffed and managed until this unit was spun off as a wholly-owned subsidiary of EPE. Although a consultant to EPE, Mr. Fitzpatrick had full operating authority and served as authorized agent of the company for contracting and procurement matters. This profitable business unit designed and negotiated long term power supply contracts that had value adding components such as large chilled water storage plants (University Of Texas-El Paso), emergency backup generation for water and wastewater facilities (El Paso Water Utilities), innovative time of use rates that provided for increased security for military installations and pipeline operations (e.g., Ft Bliss, Holloman Air Force Base, White Sands Missile Range, NASA, Diamond Shamrock, shopping centers, office parks and the like.

### **Jersey Central Power & Light (JCP&L)**

Performed a 2006-7 assessment and recommended a portfolio of targeted peak load management initiatives to achieve significant reductions of electric loads on both a substation and system wide basis. These programs served as a significant component of JCP&L's submission to the New Jersey Energy Master Plan (2007).

### **Long Island Lighting Company (LILCO)**

Directed a 1993 research project focusing on the right-sizing of LILCO's DSM program in the face of maturing market conditions, as well as on the measurement of the extent to which LILCO's programs had successfully moved the market to energy efficient technologies. Research includes an assessment of the impacts of pure market forces on DSM and the role of rebates and information in overall market capture for DSM technologies.

Project Manager for LILCO's 1992 Research and Development Initiative entitled, "Institutional Barriers to Conservation in Master-Metered, Tenant-Occupied Commercial Office Space." The project involved estimating the market conservation potential, identifying institutional barriers through focus groups and interviews with landlords and tenants, and establishing a pilot program and blueprint lease to implement in order to enhance DSM measures in the relevant market.

Directed the comprehensive evaluation of LILCO's 1987 Conservation and Load Management Programs. This evaluation is contained in a three-volume report, which has been called the "most comprehensive" effort to date in this area.

Directed the evaluation of LILCO's 1988 and 1989 Conservation and Load Management Programs. Directed the preparation of a June 1988 Load Management Study. Specific responsibilities included estimating Load Management reductions included in LILCO's Load Forecasts by major components.

### **Minnegasco**

Served as the Senior Management Advisor to Minnegasco's DSM/Load Research Program from 1993 through mid-1995. Responsibilities included contract negotiations with consultants, supervision of consultant's activities, and resolution of technical issues, and on-site presence as required to effectively oversee all Load Research-related activities.

### **New York Power Authority (NYPA)**

Served as the Senior Management Advisor (1992-present) for NYPA's \$1 Billion High Efficiency Lighting Program (HELP) and its successor programs having primary responsibility for drafting and negotiating DSM cost sharing umbrella contracts with New York State and New York City, serving as project executive during the program's 18 month startup and directing multiple implementation contractor management and quality assurance efforts.

Analysis on behalf of NYPA of Energy Systems Research Group's (ESRG) Conservation Assessment Report submitted in FERC Case No. 2729: Prattsville Pumped Storage Facility.

Supervised the development of an evaluation of potential Load Management strategies for the NYPA's municipal customers, including a cost/benefit analysis and specific Load Management test programs.

### **New York Power Pool**

Analyzed the conservation forecasts contained within the Member Systems' individual long-range forecasts and evaluated all parties' conservation forecasts and analyses.

### **New York State Electric & Gas Corporation (NYSEG)**

Served as Responsible Officer for NYSEG's 1991 & 1992 Commercial / Industrial Process and Impact Evaluations. Served as Responsible Officer in the development of NYSEG's June 1994 DSM Market Transformation Study.

### **Orlando Utilities Board**

Directed a 2007 comprehensive assessment of the maximum and technically feasible potential for DSM/EE measures in the OUB service territory. Measures were evaluated based upon lifecycle economics from varying stakeholder perspectives. Developed a short list of most applicable measures for the OUB service territory and directed the development of 8,760 hour load shapes for each short-listed measure. This work was utilized in OUB's 2007-2008 IRP filing.



### **Orange and Rockland Utilities (O&R)**

Assessed the potential for and designed an Energy Cooperative Program for O&R's commercial customers. Directed project to assess new regulated and unregulated business opportunities to diversify O&R from its core business.

### **Rochester Gas & Electric Corporation**

Served as Responsible Officer for RG&E's 1990-94 DSM Evaluations. Represented RG&E in all DSM-related interactions with PSC Staff.

### **Westar Energy**

Developed the initial 2006-2007 DSM/EE program menu that included program by program projected impacts and lifecycle economics for consideration by Company senior management. Further developed Westar's peak load and energy forecasts that included both programmatic and free market substitution DSM/EE effects. Worked with the Company and Commission to explore appropriate mechanisms for DSM/EE program implementation and predetermined cost recovery

## **OTHER SPECIALIZED CONSULTING ASSIGNMENTS**

### **Westar Energy**

Mr. Fitzpatrick served as the Principal statistical consultant on a joint Distribution Reliability project with Davies Consulting. This project had as its objective the evaluation of Westar's distribution integrity and repair metrics (i.e., SAIFI and SAIDI) and the development of non-linear multiple regression models to normalize these metrics over time for those major weather elements affecting SAIFI and SAIDI performance. The results of this analysis were presented to both Westar Senior Management and the Kansas Corporation Commission.

Generation Investment Analysis (Westar La Cygne 2 and SDGE SONGS related analysis.)

### **Westar La Cygne 2 Sale Leaseback Analysis**

Provided an industry based statistical study of lifecycle availability and O&M cost Expectation in connection with Westar Sale/Leaseback of the La Cygne 2 Unit.

### **San Diego Gas & Electric | SONGS O&M and Capital Additions**

Served as the technical project manager for the development of several non-linear multiple regression analysis developed to evaluate SONGS mayor cost components as compared to a focused sample of like plants.

### **Freeport Electric**

Served as the principal-in-charge of the statistical analysis to develop the Freeport Electric 2005 Normalized System Peak and the estimation of Freeport's 2006 ICAP peak responsibility for the New York ISO. Also served as the project

manager for the development of Freeport Electric's 2005 Load & Energy Forecasts.

### **Duquesne Light Company**

Served as the Principal-in-charge of the statistical analysis to develop Duquesne Light's 2005 Normalized Summer Peak as well as the development of the major rate class contribution to that peak.

### **El Paso Electric Company**

Developed a business plan for and then implemented an Energy Services Business Unit (ESBU) that had as its mission key customer retention contracting and the provision of value added products and services in the areas of energy efficiency, power quality, standby generation, and "behind the fence" maintenance and support services.

### **Planning & Forecasting (Selected Projects)**

#### **New York State Electric & Gas Corporation (NYSEG) - (1994 -1997)**

Served as Responsible Officer for AEG's development of a Multi-Equational Small Area Forecast Modeling System. This system is used to track monthly sales geographically in the NYSEG system, identifying significant weather normalized monthly variances almost in "real time" so that NYSEG can recognize and react to significant changes in a shorter elapsed time.

#### **Western Resources/Westar (1984 - 2004)**

Provide continuing advisory services to Western Resources (now Westar) on potential methodological upgrades to their forecast and weather normalization methodologies.

#### **Long Island Lighting Company (LILCO)**

Directed the preparation of LILCO's Annual Long Range Peak and Energy Forecasts during the years 1974 - 1979. Constructed the first Engineering End Use and Econometric End Use models for electric forecasting in New York State; utilized Box-Jenkins stochastic and multiple transfer functions for short run electric forecasts; employed two and three stage regression techniques in SIC-based commercial-industrial forecasting.

In 1994, provided advisory services to review adequacy of the econometric methodologies for the capture of "market transformation" DSM and efficiency effects.

#### **Saudi Arabia SCECO East (1995)**

Selected from an international list of experts to perform a comprehensive review of Saudi Arabia's largest utility's overall planning and forecasting procedures, methodologies, and results. This two-phase project also called for the reengineering of these processes once the analytical and fact-finding phase was complete.

**Bermuda Electric Light Company, Ltd. (BELCO) - (1994)**

Reviewed BELCO's existing forecasting process and provided a "phase in" solution for enhancing their forecasting systems.

**Freeport Electric (1995-2004)**

Have and continue to prepare Freeport's short and long-term electric peak and energy forecasts. Have presented and defended Freeport's forecasts and weather normalization studies in its last three rate cases.

**Innovative Market Segmentation & Profitability Studies****Western Resources**

Served as Responsible Officer for a Competitive Assessment of Western Resources key customer's responses to cost competition.

**Union Gas Limited 2004**

Performed a detailed evaluation of the Union Gas forecasting methodology and results. Developed a written report containing an evaluation opinion and forecast improvement suggestions. This report was filed with the Ontario Energy Board.

**CINergy**

In 1995, advisor to senior staff in a multi-phase project that had as its objective the meaningful (from a risk-profit perspective) segmentation of CINergy key customer markets and the analysis of profitability of the segments. This was followed by the development of strategies to optimize the use of CINergy's marketing resources to maximize shareholder returns while ensuring the long-term viability of the company.

**Load Research****Westar Energy 2006-2007**

Redesigned Westar's load research program to account for new rate classes and the emerging need to perform conditional demand analyses to support DSM assessment in the future. Redesigned and administered a residential and commercial appliance/ed uses study that linked to the new load research sample designs.

**Electric Power Research Institute**

Advisor to EPRI's Demand Program. Author of RP 1588-3 "Load Data Management and Analysis"; co-author of EPRI Rate Design Study Topic Paper 3: "Issues in Load Research."

**Elizabethtown Gas Company**

Asked by Senior Management to assess Elizabethtown's Load Research Program and develop a set of recommendations that would result in full cost-effective utilization of the Load Research resource, developed study plan, conducted in-

depth technical interviews of potential load research clients, and presented findings and recommendations to all levels of Management.

### **Iowa Power Company**

Directed weather normalization analysis on historical system peak demands. Results from analysis will be utilized in future system peak demand forecasts.

### **Long Island Lighting Company**

Designed and implemented stratified sampling software that employed Dalenius-Hodges and Neyman Allocation techniques with stratum optimization and validation. Also directed LILCO's Load Research Program.

### **New England Power Service Company**

Reviewed NEPSCO's Load Research Data Management and Analysis System from analytical and data perspectives and developed a NEPSCO-specific computer hardware and software plan for implementation.

### **New York Power Authority**

Directed the review of the existing Load Research Program and formulated a Management Plan to specify future needs in the areas of sample design, hardware, software, and staffing.

Assisted in the development of specifications for a microcomputer-based Load Research Data Collection, Editing and Analysis System.

### **New York State Electric & Gas Corporation**

Served as Technical Advisor to the Manager of NYSEG's Load Research Department.

### **Northeast Utilities Service Company**

Performed a comprehensive audit of the technical, software, and organizational aspects of the Northeast Utilities Load Research Program, including the identification of current uses and recommended future cost-effective uses within the company.

Supervised development of a study to analyze load research, weather, and attribute data for the small Commercial and Industrial customer group.

### **Northern States Power Company**

Directed the review of all aspects of NSP's load research process and presented findings in a comprehensive presentation to senior management.

### **Pacific Gas & Electric Company**

Performed a comprehensive audit of the PG&E Load Research Data Management and Analysis System. Also, assessed the value of Load Research to all relevant

departments in the company including recommendations for more cost-effective uses of Load Research data for both current and future applications.

### **Smart Meter Implementation Planning**

Served as the Lead of the regulatory and communications workstream for the FirstEnergy Smart Meter Implementation Plan project. As lead of this workstream, Mr. Fitzpatrick was responsible for planning and implementation regulatory and collaborative communication initiatives, designing and conducting appropriate customer and market research that would serve to aid the construction of the Companies' business case, and interacting with FirstEnergy executives and internal project sponsors and managers on project activities.

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Summary: Testimony (Direct) of George L. Fitzpatrick - Company Exhibit 3 electronically filed by Ms. Carrie M Dunn on behalf of The Cleveland Electric Illuminating Company and Ohio Edison Company and The Toledo Edison Company