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DE-OHIO EXHIBIT_____

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter of the Application of Duke Energy Ohio for Approval of an Electric Security Plan	)))	Case No. 08-920-EL-SSO
In the Matter of the Application of Duke Energy Ohio for Approval to Amend Accounting Methods	)))	Case No. 08-921-EL-AAM
In the Matter of the Application of Duke Energy Ohio for Approval of a Certificate of Public Convenience and Necessity to Establish an Unavoidable Capacity Charge	)))))	Case No. 08-922-EL-UNC
In the Matter of the Application of Duke Energy Ohio for Approval to Amend its Tariffs	)))	Case No. 08-923-EL-ATA

DIRECT TESTIMONY OF

JUDAH L. ROSE

ON BEHALF OF

DUKE ENERGY OHIO

July 31, 2008

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Judah Rose. I am a Managing Director of ICF International ("ICF"). My business address is 9300 Lee Highway, Fairfax, Va. 22031.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL QUALIFICATIONS.

A. After receiving a degree in economics from the Massachusetts Institute of Technology ("MIT") and a Masters Degree in Public Policy from the John F. Kennedy School of Government at Harvard University, I joined ICF in 1982. I have worked at ICF for over 26 years and am managing director of ICF's wholesale power practice. I have also been a member of the Board of Directors of ICF International and am one of three people (in a consulting firm of approximately 3,000 people) to have been given the honorary title: Distinguished Consultant. For additional details, please see my resume, Attachment A.

Q. DOES ICF HAVE PUBLIC SECTOR CLIENTS?

A. Yes. ICF has been the principal power consultant to the U.S. Environmental Protection Agency ("EPA") continuously for over 30 years, specializing in the analysis of the impact of air emission programs, especially cap and trade programs. We have also worked with the U.S. Department of Energy ("DOE"), the Federal Energy Regulatory Commission ("FERC"), Environment Canada, and numerous foreign governments. We have also worked with state regulators and state energy agencies, including those in California, Connecticut, Kentucky, New Jersey, New York, Ohio, Texas, and Michigan.

Q. DOES ICF HAVE PRIVATE SECTOR CLIENTS?

A. Yes. ICF has provided forecasts and other consulting service for over 30 years to practically every major US electric utility including companies such as Duke, Dominion Power, Delmarva Power & Light, FirstEnergy, Entergy, Florida Power & Light, Southern California Edison, Sempra, PacifiCorp, and Tucson Electric. ICF also provides assistance to financial institutions including Credit Suisse and Merrill Lynch, power marketers including Mirant and BP, fuel companies including Peabody Coal Company and Rio Tinto, and independent power producers such as Kelson Energy and NRG. ICF also works with Regional Transmission Organizations ("RTOs") and similar organizations including the Midwest Independent Transmission System Operator ("MISO"), the Electric Reliability Council of Texas ("ERCOT") and the Florida Regional Coordinating Council ("FRCC").

Q. WHAT TYPE OF WORK DO YOU TYPICALLY PERFORM?

A. I have extensive experience in assessing wholesale power market conditions -- including the MISO and PJM marketplaces -- and related financial, environmental, transmission and fuel market issues. This work often supports strategic decision-making for utilities, developers and the financial community. In fact, we have supported the financing of tens of billions of dollars of new and existing electric generating power plant investment, refinancing and acquisition via the provision of due diligence independent market assessment services.

Q. HAVE YOU TESTIFIED PREVIOUSLY IN OHIO?

A. Yes. I have filed the following testimony: (1) Second Supplemental Testimony

on Behalf of Duke Energy Ohio Before the Public Utility Commission of Ohio, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA, February 28, 2007, (2) Supplemental Testimony "Retail Generation Rates, Cost Recovery Associated with the Midwest Independent Transmission System Operator, Accounting Procedures for Transmission and Distribution System, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA for Cincinnati Gas & Electric, May 20, 2004, and (3) "Retail Generation Rates, Cost Recovery Associated with the Midwest Independent Transmission System Operator, Accounting Procedures for Transmission and Distribution System, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA for Cincinnati Gas & Electric, April 15, 2004.

Q. DO YOU HAVE OTHER EXPERT TESTIMONY EXPERIENCE IN THE ELECTRIC POWER SECTOR?

A. Yes, I have testified in many legal and regulatory proceedings related to the power sector. I have testified before or made presentations to the Federal Energy Regulatory Commission (FERC), an international arbitration tribunal, federal courts, arbitration panels, and to state regulators and legislators in seventeen other states not including Ohio: Arizona, Arkansas, California, Florida, Indiana, Kentucky, Louisiana, Massachusetts, Minnesota, New Jersey, Nevada, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina and Texas. I provided expert testimony on financial issues in the Calpine bankruptcy and restructuring proceedings which concluded a few months ago. In addition, I have authored numerous articles in industry journals and spoken at scores of industry

conferences. For specific details, please see my resume in Attachment A.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of Duke Energy Ohio.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe: (1) the price-to-compare under Duke Energy Ohio's (DE-Ohio) Energy Security Plan (ESP), (2) the pricing under the Competitive Market Option (CMO) which is designed to estimate the costs of a retail offering for a Competitive Retail Energy Service (CRES) provider and retail market prices, (3) a comparison between the ESP price-to-compare and the CMO price, (4) the proposed MISO capacity charge, (5) the risks facing DE-Ohio including the effect of the ESP on these risks, and (6) my methodology for future estimation of the caps on return for equity under an ESP combined with an example based on current data of what the caps would be.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is organized in six remaining sections. The next (second) section summarizes my testimony. The third section describes DE-Ohio's ESP. The fourth section discusses the CMO. The fifth section compares the CMO and the ESP prices. The sixth section discusses the risks to DE-Ohio's deregulated business including the effect of the ESP on these risks. The seventh section discusses my proposed methodology for estimating the caps on ROE and presents the results of applying this methodology to illustrate its application.

II. SUMMARY OF TESTIMONY

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The key conclusions of my testimony are:

- **ESP versus CMO** – DE-Ohio is proposing an ESP for default service for 2009-2011. The price-to-compare is estimated to be ¢6.7/kWh on a customer weighted average basis for 2009-2011. This price is by-passable and customers can choose a CRES supplier rather than take service under the ESP.

  I estimate that the costs to CRES suppliers for providing retail service in 2009 based on recent wholesale prices to be ¢9.2/kWh to ¢11.3/kWh. Thus, the ESP price is below the expected market price. Note, the ESP is even below a weighted average of the RSP and the CMO, even though this does not appear to be a requirement of an ESP.

- **Market Price and CMO** – The market price cost estimate of ¢9.2/kWh to ¢11.3/kWh is based on the CMO methodology which has previously been presented to the Commission. This estimate is based on published wholesale prices, customer load shape and related data, and formulas for estimating costs of serving customers. The CMO price was estimated for each customer class. The CMO price includes an estimate of the cost of MISO's new capacity requirement. The range reflects the effects of more or less conservative procurement policies of CRES providers.

- **Business Risks and the ESP** – The CMO price is very sensitive to wholesale market prices. These prices have been very volatile over the

last ten years. Thus, while the CMO price is above the ESP price-to-compare based on current market conditions, the CMO price could fall below the ESP price if prices revert to historical levels. This is significant because the DE-Ohio ESP price does not include provisions for adjustments based on market conditions that protect DE-Ohio from loss of revenue. Accordingly, there could be large migration from the ESP to market supply in the event prices decrease. Thus, the ESP could fail to provide revenue protection in the event prices fall, the very situation hedges are designed to prevent.

The ESP does not significantly change the risks facing the deregulated business of DE-Ohio. And the new electric restructuring law creates added risk because DE-Ohio is at risk for refunds if it significantly over-earns, and is unable to increase its prices, except through certain tracking mechanisms, if it under-earns. Seventy percent of DE-Ohio's assets are in this business activity. Even in the absence of the ESP, DE-Ohio could hedge its position in the power markets via sales in the retail or wholesale markets. Further, these hedges could involve a requirement that a minimum quantity be purchased. Thus, DE-Ohio remains exposed to the same level of risks as those facing a deregulated power company. These risks derive from uncertainty in prices, costs, and execution risks. These business risks are comparable to deregulated power companies, not regulated utilities. Conversely, the regulated portion of DE-Ohio's

business which represents 30 percent of DE-Ohio's assets have the risks of a regulated business.

- **ROE Testing Requirements** – There are two circumstances in which there is a test required on the ROE of a utility with an ESP. The first is under R.C. 4928.143(E), which pertains to likely future earnings and applies if the ESP extends beyond the third year. I propose that the test be based on a required rate of return and propose a methodology for determining this return level. The methodology involves a weighted average of deregulated and regulated returns. I use a statistical approach to determine whether earnings are significantly in excess of the required earnings of comparable companies. Even though R.C. 4928.143(E) does not pertain to DE-Ohio's proposal since it is less than four years, the same test is part of the tests proposed for R.C. 4928.143(F).

  Under R.C. 4928.143(F), if the provisions of the ESP are adjusted so that they affect earnings, I conservatively propose a test based on the average of the required rate of return and the actual annual returns of comparable companies; a less conservative approach would involve only the actual rate of return. Note, in the event the provisions of the ESP do not change and there is no adjustment to the provisions of the ESP that can affect earnings, no ROE test is required. This may be because the market test confirms that the ESP derived earnings are below those of comparable companies because the price is below the market price.

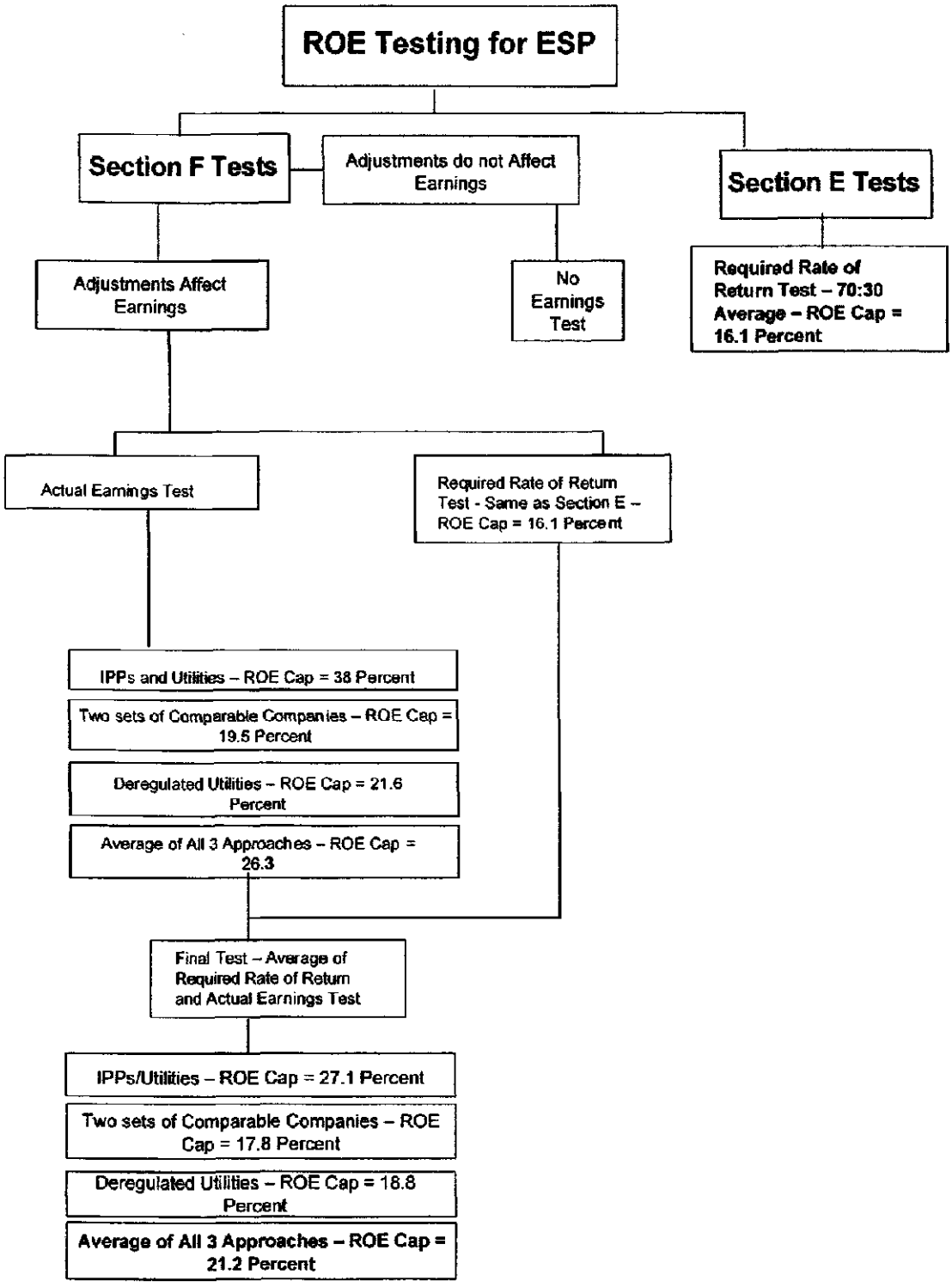
- **Example of Applying Tests** – I provide an example of what the results would be associated with my proposed ROE cap methodology. This helps explain the methodology in anticipation of its future use by the Commission. The required return on equity for the unregulated assets of DE-Ohio was estimated to be 14.8 percent. This is based on the returns for five deregulated IPP companies that have publicly traded stock: Calpine, NRG, Dynegy, Reliant, and Mirant. This is 2.3 percent higher than the 12.5 percent required return I estimated for 35 highly regulated power companies. The weighted average required ROE based on DE-Ohio's business split of 70 percent/30 percent was 14.1 percent. The required return was estimated using the Capital Asset Pricing Model (CAPM). This analysis corrected for variation in the financial structure among the comparable companies, and is based on a targeted debt share of 45 percent for the deregulated and 55 percent for the regulated. The estimate was also comparable to estimates made by the U.S. Energy Information Administration, Bloomberg, Value Line, and MSCI Barra.

  I also estimated a confidence interval to determine what return would be significantly in excess of the required return. This indicates that a return of 16.1 or higher percent would be significantly in excess on a 70:30 weighted average basis.

  I also propose a methodology for the annual earnings test. This would be used under R.C. 4928.143(F) if there are adjustments to the provisions of the ESP in that year that can affect earnings. The resulting cap is based on

2007 earnings and also uses a statistical approach to ensure the test determines whether earnings are significantly in excess. Furthermore, this is the average of three sets of annual earnings results based on 2007 data: (1) 38 percent based on a 70:30 combination deregulated power companies and highly regulated utilities, (2) 19.5 percent based on a 70:30 weighting of companies with comparable business risk using unlevered beta and similar financial risks to the two business activities (deregulated and regulated), and (3) 21.6 percent when a group of utilities are used with significant amounts of deregulated assets. When conservatively combined equally with the required rate of return cap of 16.1 percent, the average results in a ROE cap of 21.2 percent. Thus, under R.C. 4928.143(F), I use three sets of companies to balance two considerations. First, a small sample size can occur if only one of the groups is used. Second, the degree of comparability can decrease as the number of groups increases. This balancing occurs because the best data has a small sample size. This in turn is an issue for the annual earnings test which is more disposed to sample size problems since the underlying data is one year's only. In contrast, large amounts of data are available for the required rate of return estimates. My proposed tests and the results are summarized in Exhibit 1. The proposed methodology results in a cap of 21.2 percent for R.C. 4928.143(F) and 16.1 percent for R.C. 4928.143(E).

EXHIBIT 1


ROE Testing for ESP
Section F Tests
Adjustments do not Affect Earnings
Section E Tests
Adjustments Affect Earnings
No Earnings Test
Required Rate of Return Test – 70:30 Average – ROE Cap = 16.1 Percent
Actual Earnings Test
Required Rate of Return Test - Same as Section E – ROE Cap = 16.1 Percent
IPPs and Utilities – ROE Cap = 38 Percent
Two sets of Comparable Companies – ROE Cap = 19.5 Percent
Deregulated Utilities – ROE Cap = 21.6 Percent
Average of All 3 Approaches – ROE Cap = 26.3
Final Test – Average of Required Rate of Return and Actual Earnings Test
IPPs/Utilities – ROE Cap = 27.1 Percent
Two sets of Comparable Companies – ROE Cap = 17.8 Percent
Deregulated Utilities – ROE Cap = 18.8 Percent
Average of All 3 Approaches – ROE Cap = 21.2 Percent

III. DE-OHIO'S ESP

Q. WHAT IS YOUR UNDERSTANDING OF DE-OHIO'S ESP FILING?

A. DE-Ohio is seeking authorization for an Electric Security Plan (ESP) under which it will provide default retail service for its customers for 2009-2011. Under this plan, DE-Ohio provides a rate that is more favorable as compared to the expected results that would otherwise apply under section 4928.142 of the Revised Code – i.e., compared to expected retail market prices. The ESP plan is discussed in greater detail in the testimony of Sandra Meyer and Paul Smith. It is presented here primarily as part of the comparison between ESP prices and expected market prices.

Q. HOW IS DE-OHIO'S ESP PLAN STRUCTURED?

A. DE-Ohio's ESP pricing structure has two main components. The first part is a price-to-compare, which can be avoided by switching to a Competitive Retail Energy Service (CRES) provider. The second part are the unavoidable charges associated with DE-Ohio's obligations as Provider of Last Resort (POLR) service.[1] The POLR charge is in place regardless of the retail default service authorized by the Commission. The costs of new power plants authorized by the Commission represent a new component of the unavoidable charges.

[1] DE-Ohio does collect some avoidable POLR charges through PTC-BG, currently known as "little g."

Q. WHAT IS THE PROPER COMPARISON BETWEEN THE ESP AND MARKET PRICES?

A. The proper comparison is between the ESP price-to-compare and the retail market price offered by CRES suppliers. The unavoidable charges are unique to DE-Ohio which alone has the POLR obligation which includes serving entities that CRES providers decline to serve.

Q. WHAT ARE THE COMPONENTS OF DE-OHIO'S ESP PRICE-TO-COMPARE?

A. The ESP Price-To-Compare (PTC) has five main components:

- **PTC-BG** – This is base generation.
- **PTC-IA** – This is the base generation inflation adjustment set at 3 percent per annum.
- **PTC-FPP** – This is the Fuel and Purchase Power Tracker
- **PTC-AAC** – This is a tracker for Environmental, Security and Tax Law changes

Note, there is no adjustment in provisions for the 2009 to 2011 period, e.g., no decrease in price in response to market conditions, no increase that is not tied to recovery of costs, etc.

Q. WHAT IS THE PRICE-TO-COMPARE UNDER THE ESP?

A. The estimated customer weighted average charges are shown below in Exhibit 2 for 2009 - 2011. This estimate was provided by DE-Ohio witness Paul Smith. The simple average for the period is ¢6.71/kWh or $67.1/MWh.

EXHIBIT 2

Prices Under the ESP – 2009 – 2011 - Customer Weighted Average ($/MWh)

Bypassable Generation Charges Price-to-Compare (PTC)	Acronym	Projected		
		2009	2010	2011
Base Generation	PTC-BG	33.00	34.00	35.00
Base Generation Inflation Adjustment	PTC-IA	0.00	0.70	1.40
Fuel & Purchased Power	PTC-FPP	23.80	27.10	30.10
Environmental, Security & Tax Law	PTC-AAC	5.70	5.50	5.00
Total Price-to-Compare		62.50	67.30	71.50

Source: Duke Energy Ohio

IV. THE COMPETITIVE MARKET OPTION

Q. WHAT IS THE COMPETITIVE MARKET OPTION (CMO)?

A. The CMO is a transparent and formulaic recreation of the costing activities of CRES providers, and therefore can be used to estimate expected retail market prices.

Q. WHAT ARE THE KEY INPUTS?

A. Under the CMO, the retail service provider develops a service offer for each consumer based principally on three inputs:

- **Wholesale Prices** – The starting point is published forward wholesale power prices for the products that would need to be purchased in the marketplace at the time the service provider is arranging for a service offering. The most important product that would be purchased is on-peak and off-peak power supply by month, resulting in the need for 24 wholesale product prices per year. This is because these products are the

most observable and liquidly traded forward products in the wholesale power markets. The forward power purchases allow providers to manage the risks of meeting the requirements of customers. At the time of contracting to supply power, CRES providers offset the forward power sale to customers ("the short") with a forward power purchase ("the long"), and hence, limit the risks of providing retail service.

- **Consumer Load Shapes** – The second key input is the consumer's load shape which is an estimate of the expected consumer demands over time. While this is a critical parameter, the retail provider is also responsible for unexpected variances in load, i.e., the provider is providing full firm requirements service. Thus, other customer data is also used as discussed below.
- **Formulas/Model for Tailoring Price to Consumer** – A third set of inputs are formulas/models used to create a retail price based on wholesale market prices and customer load shapes. These formulas account for load uncertainty including the potential for unexpected customer demand to occur when wholesale prices are spiking, and the other costs of serving retail load.

Q. HAS THE CMO BEEN PREVIOUSLY PRESENTED TO THE COMMISSION?

A. Yes, the CMO option has been presented to the Commission several times over the last five years as an alternative to DE-Ohio's Rate Stabilization Plan (RSP).

Q. WHAT ARE THE COMPONENTS OF THE CMO THAT WERE ALSO PREVIOUSLY PRESENTED TO THE COMMISSION?

A. The components of the CMO option previously presented to the Commission include:

- **Energy Price** – The first and largest component of the CMO price is the Energy Price. This is the purchase weighted average of wholesale power prices for monthly on-peak and off-peak supply. There are two sets of weights that are considered: (1) expected MWh sales volumes, and (2) expected peak monthly demands (MW) times the hours of the month which creates a larger MWh volume. Using the monthly peaks is also referred to as block pricing while using the sales volumes as weights is referred to as non-block pricing. For example, under block pricing, a consumer with a 1 MW peak for on-peak hours would require 390 MWh for a month with 390 on-peak hours.[2] Under non-block pricing, if the customer had a peak load factor of 70 percent, the purchase would be 273 MWh. The two different approaches to estimating the Energy Price (i.e., using either monthly MWh sales volumes or monthly peak demands times the hours in the month) reflect a range of likely procurement policy of CRES providers given uncertainty in load and the difficulty of matching a continuously changing load with blocks of power. If the CRES provider buys blocks equal to average demand in about half the hours, expected demand will exceed supply, whereas under a purchase based on expected

[2] 5x16 on-peak results in 47.5 percent of hours as on-peak – 720 x 0.475 = 390.

peak, the company has enough to cover all but the demands above the expected monthly peak.

- **Ask-Adder** – The ask-adder can be thought of as a broker's fee. This is based on DE-Ohio's experience that it pays more than the index price of power when it is a purchaser, and receives less when it is a seller. This factor increases costs.

- **Covariance Adjustment** – This factor accounts for the covariance between customer load variation and price variation. Loads which move with the price – i.e., are correlated with the price, have high covariances and vice versa. For example, a load that increases during summer peaks when prices are the highest has a high covariance and vice versa. This covariance increases costs of service above what would be indicated by expected prices and demands and/or creates risks of costs exceeding revenues for a period. Therefore, procurement needs to be designed to reliably provide sufficient coverage for the potential of unexpectedly high prices during the summer peak coinciding with unexpectedly high customer demand.

- **Energy Losses and Adjustments** – This factor captures energy and demand losses in the transmission and distribution system. This is similar to traditional existing tariffs.

- **Supply Management Fee** – This fee includes the cost of scheduling, balancing, procurement and risk management, hourly adjustment, load following, natural consumer migration (in and out), managing odd lots and

floats between billing cycles, and is initially proposed at 5 percent of energy cost.

- **Operating Risk Adjustment** – This adjustment covers potential commodity-related risks, including: (1) booking and settlement, (2) modeling/forecasting methods, (3) contracts and delivery, (4) security and personnel, (5) programming, faulty data, meter reading, (6) information systems and telecommunications, (7) legal, regulatory and political issues, (8) economic downturns, and (9) natural disasters. This does not include sales general and administrative costs. This estimate was based on Value Line estimates of operating margin for 2002-2007 for all industries which equaled 18.1 percent.
- **Credit Fees (Uncollectible Accounts)** – Currently uses 1.1 percent applied to all consumers. In fact, returning consumers may have more credit issues, and hence, this may be conservative.

Q. WHAT ARE THE PARAMETERS FOR THESE COMPONENTS?

A. The parameters for estimating these components are summarized in Exhibit 3. The largest cost factor as noted is the energy price index. The second largest is for operating risks. The third largest adjustment for most customers is the covariance adjustment, though for some customers, this is small.

EXHIBIT 3

CMO Rate Components

Components	Current
Market Index of Electricity Prices Energy Cost Adjustments – Ask Adder Energy Cost Adjustments – Covariance Adjustment	 4% Varies[1]
Supply Management Fee	5%
Operating Risk Adjustment[2]	18.1%
Credit Fees	1.1%
Energy Losses	7%

[1] Covariance adjustments are 12% for RS, 10% for DM, 8% to DS, 5% for DP, and 2% for TS based on the 50% percentile rates.

[2] Operating Risk Adjustment is the 2002-2007 average of Annual Average Operating Income over Sales/Revenue for all industries. Source: Value Line Datafile

Q. ARE THERE NEW COSTS OF PROVIDING SERVICE THAT HAVE NOT PREVIOUSLY BEEN INCLUDED IN THE CMO ESTIMATE?

A. Yes, there is the recently proposed MISO Capacity Charge. Under the MISO rules proposed in June 25, 2008 to FERC, Load Serving Entities (LSEs) are required to maintain capacity reserves. If MISO determines that the reserves are inadequate, MISO charges the LSE equal to the MW deficiency times the Cost of New Entrant (CONE) initially proposed to be $80/kW-yr. In other words, the CONE price is the capacity price ceiling. In addition, MISO will conduct each month a market for next month's capacity market. Capacity charges could add up to approximately $25/MWh (¢2.5/kWh) for some customers if the price equals CONE.[3] Low load factor customers, i.e., those with relatively high peaks to sales

[3] $80/kW-yr x 1,000 kW/MW x 1/8,760 hrs/year x 0.5 x 1.05 (supply fee) x 1.181 (operating risk adjustment) x 1.011 (credit fees) x 1.07 (energy losses). Purchase based on reported market prices for capacity rather than from a MISO 234362

volume would have higher capacity costs and high load factor customers would have lower costs.

Q. SHOULD CAPACITY COSTS BE INCLUDED IN THE CMO?

A. Yes.

Q. WHAT FORECAST OF CAPACITY PRICES DO YOU USE IN YOUR ESTIMATES?

A. I used the average PJM prices in the last three auctions for delivery in the PJM regions closest to DE-Ohio (see Exhibit 4). These prices are below the MISO CONE estimate of $80/kW-yr. I did not use MISO prices because the MISO capacity market is new and the rules still have not been finalized. As a result, forward trading of capacity is less developed than for peak and off-peak electrical energy. In contrast, energy has been trading in MISO since May 2005. However, MISO plants can sell into PJM's auction if they obtain firm transmission and this is an option available to DE-Ohio plants. Thus, using this price is reasonable.

EXHIBIT 4
PJM RTO Capacity Prices

Delivery Period[1]	Price ($/kW-yr)
2009	37.2
2010	63.6
2011	40.2
Average	47.0

[1] Based on Summer delivery
Source: PJM

market would result in an ask adder adjustment. This is assumed to be the case since the proposed MISO market is month ahead and forward purchases would be expected to be the largest share.

Q. ARE THERE COSTS NOT INCLUDED IN THE CMO FORMULA?

A. Yes, there are four:

- **Ancillary Services** – Ancillary services are a newly created MISO traded market. These costs are small compared to energy costs, and hence, are not included. This also contributes to putting more emphasis on block pricing.
- **Market Price Tracker (MPT)** – In previous versions of the CMO, there was a market price tracker. This is not proposed for this version of the CMO. The market price tracker represented self insurance against unlimited upside wholesale power price risk and involved ex-post recovery of the costs of market prices above 98th percentile. This dampened monthly rate volatility as costs accrued in a deferral account and MPT costs were spread out over subsequent months. One reason for removing this feature is the evolution of the MISO market to a separate capacity requirement. This tends to decrease the reliance on price spikes as a means to send market signals. The other reason is more emphasis is placed on block pricing.
- **True Up** – As part of the CMO, consumers can exit contracts. This exit is accompanied by undertaking to make a true-up payment in the event the exercise of that option resulted in costs to DE-Ohio (e.g., prices have fallen and DE-Ohio sells the freed-up power at a loss), or a true-up credit if the exit benefited DE-Ohio. To the extent buying and selling involves net costs, this can add costs on net. In the calculations shown below, this

true-up cost is assumed to be zero. This is another reason for giving weight to block pricing.

- **General and Administrative Sales Cost** – the CRES providers' overhead costs for maintaining a retail sales force and back office support.

Q. WHAT ARE THE CMO PRICES ESTIMATED FOR 2009-2011?

A. The estimated CMO prices are shown below for 2009, 2010, and 2011 and average ¢9.2/kWh to ¢11.3/kWh (see Exhibit 5). A range is presented based on two approaches for estimating the direct electrical energy costs of serving retail load: (1) block (monthly peaks) including MISO capacity (2) non-block (monthly MWh volumes) including MISO capacity costs. In 2009, the CMO price is ¢8.8/kWh to ¢10.9/kWh depending on the CRES procurement policy (i.e., block or non-block). In 2010, the prices are nearly ¢1/kWh higher due to higher capacity prices. In 2011, CMO prices are only slightly higher than the 2009 prices because the forward wholesale prices including the capacity price are similar to 2009 levels.

EXHIBIT 5

CMO Price – Weighted Average of All Consumer Classes (¢/kWh)

Year	Non-Block Including Capacity Charge	Block Including Capacity Charge
2009	8.76	10.90
2010	9.68	11.79
2011	9.08	11.19
Average	9.17	11.29

Q. WHAT WHOLESALE ELECTRICAL ENERGY PRICES WERE USED TO ESTIMATE THE CMO PRICES?

A. These CMO prices are based on the 180 day rolling average forward wholesale electrical energy prices for the Cinergy Hub for delivery in 2009-2011 traded between January 1, 2007 and July 13, 2008. The source of this price data is Inter-Continental Exchange (ICE).

Q. WHAT ARE THE LARGEST COMPONENTS OF THE CMO PRICE?

A. In all cases, the largest component of the CMO price is the market index of electrical electricity prices. The second largest is the operating risk adjustment which is still much smaller than the electrical energy index. The third largest is the capacity charge (Exhibits 6-8).

EXHIBIT 6
Summary of CMO Price by Component Before POLR Rider – Weighted Average of all Consumer Classes – 2009 (¢/kWh)

Component	Block Pricing With Capacity Charge	Non-Block Pricing With Capacity Charge
Market Index of Electrical Energy Prices[1]	6.43	5.04
Covariance Adjustment	0.55	0.41
Capacity	0.83	0.83
Ask Adder (4%)	0.31	0.25
Energy Losses and Adjustments (7%)	0.57	0.46
Supply Management Fee (5%)	0.44	0.35
Operating Risk Adjustment (18.1%)	1.65	1.33
Uncollectible Expense (1.1%)	0.12	0.10
Average Energy Charge, excluding POLR Costs	10.90	8.76

[1] Energy price is calculated based on 180 day rolling average price of forwards for Cinergy Hub between 1/1/2007 and 7/13/2008 for delivery in 2009.
Source: Forward wholesale power prices are from ICE.

EXHIBIT 7

Summary of CMO Price by Component Before POLR Rider – Weighted Average of all Consumer Classes – 2010 (¢/kWh)

Component	Block Pricing With Capacity Charge	Non-Block Pricing with Capacity Charge
Market Index of Electrical Energy Prices[1]	6.49	5.11
Covariance Adjustment	0.56	0.42
Capacity	1.41	1.41
Ask Adder (4%)	0.34	0.28
Energy Losses and Adjustments (7%)	0.62	0.50
Supply Management Fee (5%)	0.47	0.39
Operating Risk Adjustment (18.1%)	1.79	1.47
Uncollectible Expense (1.1%)	0.13	0.11
Average Energy Charge, excluding POLR Costs	11.79	9.68

[1] Energy price is calculated based on 180 day rolling average price of forwards for Cinergy Hub between 1/1/2007 and 7/13/2008 for delivery in 2010.
Source: Forward prices are from ICE.

EXHIBIT 8

Summary of CMO Price by Component Before POLR Rider – Weighted Average of All Consumer Classes – 2011 (¢/kWh)

Component	Block Pricing With Capacity Charge	Non-Block Pricing With Capacity Charge
Market Index of Electrical Energy Prices[1]	6.56	5.19
Covariance Adjustment	0.56	0.42
Capacity	0.89	0.89
Ask Adder (4%)	0.32	0.26
Energy Losses and Adjustments (7%)	0.58	0.47
Supply Management Fee (5%)	0.45	0.36
Operating Risk Adjustment (18.1%)	1.70	1.38
Uncollectible Expense (1.1%)	0.12	0.10
Average Energy Charge, excluding POLR Costs	11.19	9.08

[1] Energy price is calculated based on 180 day rolling average price of forwards for Cinergy Hub between 1/1/2007 and 7/13/2008 for delivery in 2011.
Source: Forward prices are from ICE.

Q. WHAT IS THE PREMIUM BETWEEN THE RETAIL CMO RATE AND THE ELECTRICAL ENERGY PRICE INDEX?

A. In the above example where prices are weighted by the nine rate classes examined, the 2009 block pricing CMO has, on average, a 70 percent premium above the energy price (see Exhibit 6). In the non-block pricing case, the 2009 average premium across rate classes is 74 percent.

Q. WHAT WAS THE RANGE OF PRICES IN THE CMO ACROSS RATE CLASSES?

A. The CMO can vary significantly across rate classes reflecting different costs of service, especially for block pricing and with inclusion of the capacity charge. For example, using 180 day rolling average wholesale power forwards prices between January 1, 2007 and July 13, 2008 for 2009 delivery, results in a range of ¢8.23/kWh, and ¢14.14/kWh for block prices, or an average of ¢10.9/kWh. This is because of the large variation among the customers with respect to demand characteristics such as load shape, especially the ratio of peak in MW to sales in MWh, and covariance (see Exhibit 9). Thus, the price for TS customers which take power at high voltages and have a flat profile is ¢8.23/kWh in 2009, while small residential has a price of ¢14.14/kWh. The variation is narrower for non-block pricing with MISO capacity charge - ¢7.66/kWh to ¢9.81/kWh in 2009. This is because the non-block pricing does not use peak MW.

EXHIBIT 9

Summary of CMO Average Energy Charge by Customer Class Before POLR Costs With Capacity Price (cents/kWh)

Customer Class	2009		2010		2011	
	Block Pricing	Non-Block Pricing	Block Pricing	Non-Block Pricing	Block Pricing	Non-Block Pricing
DM	11.60	9.15	12.58	10.13	11.88	9.45
DP	8.88	8.12	9.58	8.84	9.17	8.43
DS	10.33	8.84	11.16	9.72	10.59	9.12
DS Large	10.75	8.96	11.61	9.84	11.01	9.23
DS Small	11.26	9.11	12.24	10.11	11.53	9.40
RS	12.91	9.31	14.04	10.48	13.24	9.70
RS Large	12.44	9.04	13.39	10.03	12.74	9.38
RS Small	14.14	9.81	15.60	11.30	14.52	10.22
TS	8.23	7.66	8.84	8.29	8.51	7.98
Simple Average	11.17	8.89	12.12	9.86	11.47	9.21
Weighted Average[1]	10.90	8.76	11.79	9.68	11.19	9.08

[1] Weighted by 2006 forecast total generation by rate class. The three DS and RS customer rate class figures were estimated by applying a weighted average of the representative load of each customer rate class to the aggregate DS and RS generation figures.
Source: Forward prices are from ICE.

Q. WHAT HAPPENS WHEN THE WHOLESALE ELECTRICAL ENERGY PRICE INDEX CHANGES UNDER THE CMO?

A. The CMO retail price moves approximately proportionally to the wholesale price index. Thus, a ten percent increase in weighted average wholesale power prices increases the retail CMO price by approximately ten percent. This is important because wholesale power prices are volatile, and hence, the costs of CRES providers will also be volatile (see Exhibit 10). Spot power prices have moved as much as $21/MWh per year or 50 percent (2004 to 2005). Note, spot and forward prices are correlated, and hence, this is also a good measure of forward price volatility.

EXHIBIT 10

Cinergy Hub Wholesale Spot Power Prices

Year	Type	Cinergy Hub On-Peak (Nominal$/MWh)
1997[1]	Spot	24.3
1998[1]	Spot	57.0
1999[1]	Spot	51.4
2000[1]	Spot	36.4
2001[1]	Spot	35.2
2002[1]	Spot	27.1
2003[1]	Spot	34.2
2004[1]	Spot	42.6
2005[1]	Spot	63.8
2006[1]	Spot	51.9
2007[1]	Spot	60.0
2008[2]	Spot	69.4

[1] Spot prices shown for 1997-2008 2008 YTD. 1997-2008 YTD spot prices are based on a 5x16 peak definition.

[2] 2008 YTD: June 20, 2008. Prior to 2004 prices were reported for the Into Cinergy trading point, which was based on Cinergy utility control area. Prices have been reported for the Cinergy Hub since 2004.

Note: Since 1997-2001 spot off-peak power prices were not available, the prices for these years were estimated based on the 2002 monthly off-peak price shape.

Sources: 1997-2003 (Power Market Week), 2004-2005 (Platts' Megawatt Daily), 2006-2008 YTD (Midwest ISO) for Cinergy Hub.

Q. PLEASE PROVIDE EXAMPLES OF THE EFFECT OF THIS VOLATILITY ON THE CMO.

A. Several examples of the resulting CMO prices using historical wholesale prices are shown and highlight the sensitivity of the CMO price to recent wholesale market conditions. The CMO (block) based on average spot prices 1997 to 2007 is $67.7/MWh (Exhibit 11), but over this period, the price is as low as $36.7/MWh, and as high as $112/MWh (using second quarter 2008 prices), a

range of approximately $75/MWh.

EXHIBIT 11
CMO Prices

Scenario	Cinergy Hub On-Peak Wholesale Spot[1] Price ($/MWh)	All Hours Wholesale Spot Price ($/MWh)	Weighted Average CMO[2] Across 9 Rate Classes ($/MWh)	
			Block	Non-Block
1997	24.3	18.0	36.7	28.4
1998	57.0	42.3	87.5	65.7
1999	51.4	38.2	83.0	63.4
2000	36.4	27.0	55.6	42.9
2001	35.2	26.1	53.3	41.5
2002	27.1	20.1	40.9	31.7
2003	34.2	24.5	50.1	38.8
2004	42.6	33.1	66.1	51.6
2005	63.8	48.7	98.0	76.4
2006	51.9	40.4	81.2	63.5
2007	60.0	46.0	92.6	72.0
Repeat 1997 – 2007	44.0	33.1	67.7	52.4
Q1 2008 Spot (5x16)	67.3	54.9	107.4	84.7
Q2 2008 Spot (5x16)	74.0	56.5	112.0	87.1

[1] Sources: Platts' Power Markets Week (1997-2003), Platts' Megawatt Daily (2004-2005), Midwest ISO (2006-2008 Q1 & Q2 Spot 5x16). Nominal dollars. Prior to 2004 prices were reported for the Into Cinergy trading point, which was based on Cinergy utility control area. Prices have been reported for the Cinergy Hub since 2004.
[2] Excludes POLR charge and capacity charges.
Notes: (1) Since 1997-2001 spot off-peak power prices were not available, the prices for these years were estimated based on the 2002 monthly off-peak price shape.

Q. WHY IS THIS SIGNIFICANT?

A. Lower CMO prices can cause customers to migrate away from default service.

The implications of this are discussed further in the next section.

V. COMPARISON OF ESP AND CMO

Q. HOW DO THE CMO PRICES COMPARE TO THE PRICE-TO-COMPARE UNDER THE ESP?

A. The 2009 to 2011 customer weighted average CMO block prices are higher by 68 percent or by ¢4.58/kWh, and for non-block by ¢2.44/kWh or 36 percent (Exhibit 12).

EXHIBIT 12
Customer Weighted Average Prices – (¢/kWh) **

Year	ESP	CMO Block[1]	CMO Non-Block[1]	Difference (ESP-CMO Block)	Difference (ESP-CMO Non-Block)
2009	6.25	10.90	8.76	-4.65	-2.51
2010	6.73	11.79	9.68	-5.06	-2.95
2011	7.15	11.19	9.08	-4.04	-1.93
Average	6.71	11.29	9.17	-4.58	-2.44

[1] Includes MISO capacity charges.

Q. WHAT HAPPENS TO THE COMPARISON IF IT IS BASED ON A WEIGHTED AVERAGE OF DE-OHIO'S RSP AND THE CMO?

A. The ESP is still lower than the weighted average for the average of the RSP and the CMO block pricing and is equal to the weighted average of the RSP and CMO non-block pricing (See Exhibits 13-14).

Q. WHY DID YOU PRESENT THIS COMPARISON?

A. My understanding is that the comparison should be between the ESP and CMO. Nonetheless, I have been informed that others have a different understanding and that the comparison would be useful.

EXHIBIT 13

Blended Price Comparison – Block pricing

Year	RSP (¢/kWh)	RSP Weight (%)	CMO (¢/kWh)	CMO Weight (%)	Weighted Average RSP and CMO (¢/kWh)	ESP (¢/kWh)	Difference ESP vs Weight Average of RSP and CMO (¢/kWh)
2009	5.79	90	10.90	10	6.30	6.25	-0.05
2010	6.13	80	11.79	20	7.26	6.73	-0.53
2011	6.41	70	11.19	30	7.84	7.15	-0.69
Average	6.11	80	11.29	20	7.14	6.71	-0.43

Source: RSP prices are from Duke Energy Ohio.

EXHIBIT 14

Blended Price Comparison – Non-Block Pricing

Year	RSP (¢/kWh)	RSP Weight (%)	CMO (¢/kWh)	CMO Weight (%)	Weighted Average RSP and CMO (¢/kWh)	ESP (¢/kWh)	Difference ESP vs Weight Average of RSP and CMO (¢/kWh)
2009	5.79	90	8.76	10	6.09	6.25	+0.16
2010	6.13	80	9.68	20	6.84	6.73	-0.11
2011	6.41	70	9.08	30	7.21	7.15	-0.06
Average	6.11	80	9.17	20	6.71	6.71	--

Source: RSP prices are from Duke Energy Ohio.

VI. RISKS TO DE-OHIO'S DEREGULATED BUSINESS

Q. WHAT ARE THE KEY BUSINESS RISKS ASSOCIATED WITH DE-OHIO'S DEREGULATED POWER SUPPLY BUSINESS?

A. DE-Ohio, like other deregulated power companies, faces large uncertainty in revenues due to uncertainty regarding future market prices for power, and due to their very long-lived power plants. In order to manage this risk, deregulated companies seek to hedge their forward long positions, especially in the near-term and medium term, i.e., for the prompt months and the prompt one to five years. They hedge by entering into forward power contracts. While forward sales limit risks, they do not eliminate them. The company still faces execution risks, uncertainty in costs which often cannot be fully hedged, and uncertainty in longer term forward power prices, which when combined with the difficulty of long-term (post one to five years) hedging creates large unhedged risks.

Q. WHAT ROLE DOES DE-OHIO'S ESP PLAY IN DE-OHIO'S POWER SUPPLY BUSINESS?

A. The ESP would be a forward contract hedging DE-Ohio's natural long position. DE-Ohio's natural long position arises because DE-Ohio owns long lived power plants and has a long-term interest in retail sales. One of the risks that exist even if DE-Ohio's proposed ESP is approved, is that customers migrate from default service to CRES providers. In fact, DE-Ohio's customers can choose an alternative supplier at any time. As a consequence, under the ESP, there is no minimum volume of sales and effectively no hedge protection at the time it is

most needed, i.e., when prices fall. This contrasts with typical sales transactions under which buyers are required to purchase a minimum volume.

Q. WHY IS THERE A SUBSTANTIAL RISK OF LOAD MIGRATION OCCURRING?

A. There is substantial risk for two principal reasons. The first is the high volatility of power market prices. The second is the fact that under the ESP, DE-Ohio cannot adjust its price to reflect changes in market conditions. The availability of prices under the Electronic Bulletin Board do not materially change the fact that the ESP does not protect the company against falling market prices.

Q. HOW VOLATILE HAVE WHOLESALE POWER PRICES BEEN IN THE DE-OHIO AREA?

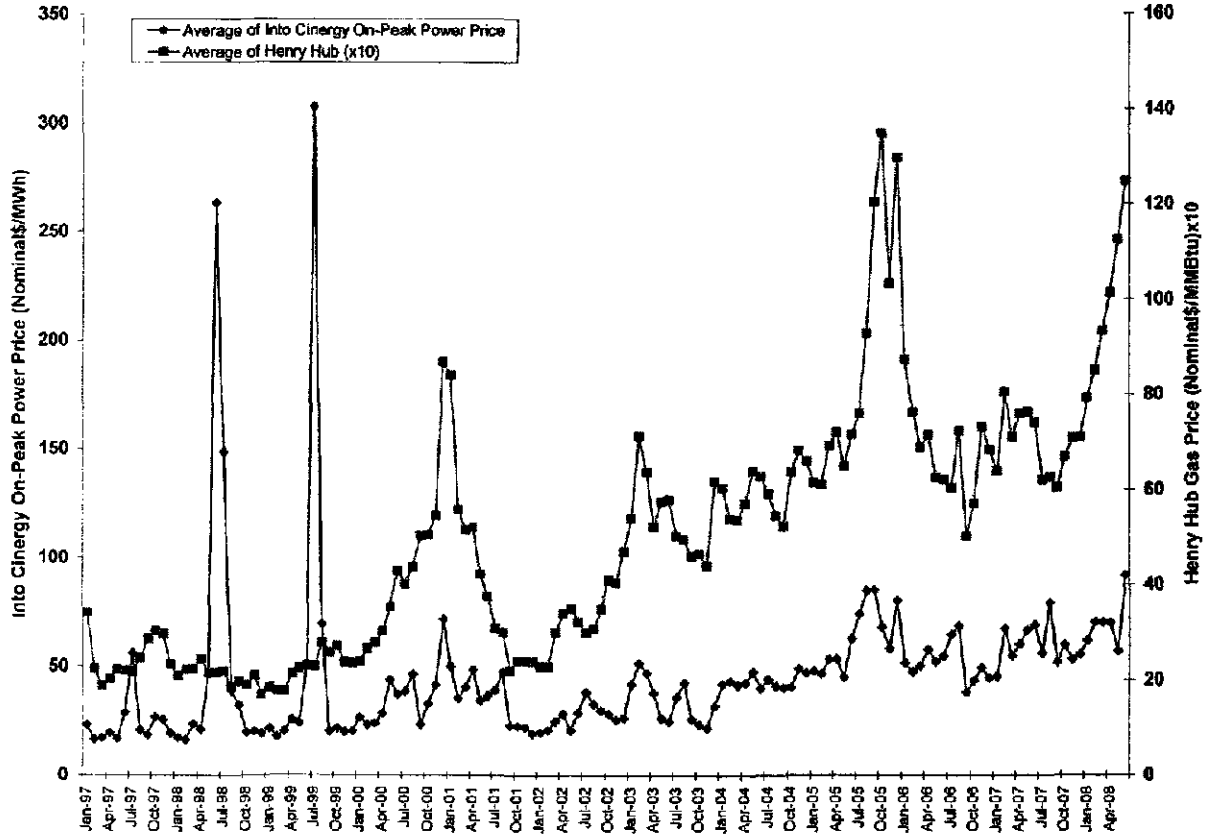
A. As discussed in the previous section, wholesale power prices have been very volatile with large movements occurring even in one year's time. Since wholesale prices are the principal driver of the costs of retail service, and hence, prices, retail prices are also volatile. As a consequence, prices could fall, and the ESP would fail to provide the protection normally associated with hedge positions.

Q. WHY ARE WHOLESALE POWER PRICES VOLATILE?

A. There are a number of reasons why wholesale power prices are volatile. It is useful to highlight the fact that two important drivers of wholesale power pricing in the DE-Ohio area are natural gas prices, and electricity demand and supply at the system summer peak. Natural gas prices are known to be volatile and are correlated with oil prices which in turn are volatile. Wholesale prices in the DE-

Ohio region are correlated with natural gas prices (see Exhibit 15). Between January 2000 and June 2008, wholesale power and natural gas prices had a correlation coefficient of 0.84.

EXHIBIT 15
Monthly Cinergy Hub On-Peak and Henry Hub Spot Prices – 1997 – 2008 YTD[1]
(Nominal$/MWh)



[1]2008 YTD: June 20, 2008; Sources: MISO, Platt's Megawatt Daily, Platt's Power Markets Week, and Platt's Gas Daily

Q. UNDER THE RECENT LEGISLATION, WILL THE STATE BE TAKING STEPS TO AUGMENT COMPETITION?

A. Yes. For example, the commission will adopt rules to encourage and promote large scale governmental aggregation of load in the state. This will facilitate competition and increase the potential for customer migration in response to lower prices.

Q. CAN DE-OHIO ADJUST ITS ESP DEFAULT SERVICE IN RESPONSE TO RETAIL POWER MARKET CONDITIONS?

A. As noted earlier, DE-Ohio cannot adjust its ESP price in response to changes in the retail power market. The ESP price can change reflecting pre-set automatic clauses or via pass through of certain pre-specified costs, but DE-Ohio cannot adjust its price in response to retail market conditions.

Q. WHAT HAPPENS IF CUSTOMERS DO NOT MIGRATE?

A. DE-Ohio still faces three types of earnings risks. First, DE-Ohio faces risks related to unexpected costs and sales volumes, e.g., customer demand is higher than expected, while environmental compliance costs rise. Second, unlike other deregulated companies, DE-Ohio cannot rely on the ESP as a long-term hedge. This is because the Commission can test any ESP plan in its fourth year causing the price to reset, e.g., to lower levels if prices fall. The only exception is the unavoidable charge associated with new unit construction and other POLR related costs. Third, the company is exposed to Commission determination that earnings on common equity are significantly in excess of the return that is likely to be

earned by publicly traded companies, including utilities, that face comparable business and financial risks.

Q. IN LIGHT OF THE ESP STRUCTURE, HOW WOULD YOU DESCRIBE THE RISKS FACING DE-OHIO'S BUSINESS?

A. Two comments are in order. First, some of the risks facing the company's deregulated activities are typical market risks for an unregulated power company. Such companies face large market risks associated with the volatility of wholesale and retail power prices. These companies regularly attempt to hedge these risks via short to medium contracts, but these contracts usually do not have customer migration risks that increase the exposure to market prices. Thus, the ESP does not fundamentally change DE-Ohio's business risks. DE-Ohio is also subject to an earnings test, which deregulated companies do not face. Second, these risks are not similar to the risks facing traditional regulated utilities. Regulated utilities do not have migration risks and effectively have long-term contracts in which the quantity of sales has much less risk. Furthermore, these companies are much less exposed to market price risks.

VII. RATE OF RETURN UNDER ESP

Q. HOW IS THIS SECTION ORGANIZED?

A. This section has six sub-sections. The first sub-section discusses the requirements regarding Return on Equity (ROE) testing for an ESP. The second sub-section presents a methodology for estimating required rates of return on equity using the Capital Asset Pricing Model (CAPM). The third sub-section implements the CAPM as an example of how the methodology is proposed to be used in future

proceedings. While a methodological approach is recommended, the specific result is not since it is assumed the analysis and testing would be conducted in future years as needed. The fourth sub-section discusses the approach for ensuring that earnings are significantly in excess as opposed to simply in excess. The fifth sub-section presents tests for actual earnings. The sixth sub-section presents a combined test of actual earnings and required earnings.

ROE REQUIREMENTS FOR AN ESP

Q. WHAT ARE THE REQUIREMENTS REGARDING LIMITATIONS ON EARNED RETURN ON COMMON EQUITY UNDER AN ESP?

The requirements regarding ROE vary. In the event the ESP lasts more than three years, R.C. 4928.143(E) applies. Under Section E, in the fourth year, and if applicable in every fourth year thereafter a market test is conducted and:

> *The Commission shall also determine the prospective effect of the electric security plan to determine if that effect is substantially likely to provide the electric distribution utility with a return on common equity that is significantly in excess of the return on common equity that is likely to be earned by public traded companies, including utilities, that face comparable business and financial risk, with such adjustments for capital structure as may be appropriate*[4].

Even though the proposed ESP of DE-Ohio does not last more than three years, the test is the same as one of the two tests under R.C. 4928.143(F). Hence, I

[4] 1139 - 1146

effectively make a proposal for a methodology for its implementation. In the event there are adjustments to the provisions of the ESP, at the end of each year covered by the plan, Section F applies:

> *....following the end of each annual period of the plan, if any such adjustments resulted in excessive earnings as measured by whether the earned return on common equity that was earned during the same period by publicly traded companies, including utilities, that face comparable business and financial risk, with such adjustments for capital structure as may be appropriate. Consideration also shall be given to the capital requirements of future committed of future committed investments in this state.*[5]

Thus, the first step to implementing Section F is to determine whether there were any adjustments in that year to the provisions of the plan that could affect earnings. The adjustments would not include pass through of costs (e.g., fuel costs) since they cannot affect earnings. The adjustments would also not affect recovery of earnings if they were otherwise determined not to be excessive. Examples of adjustments that would trigger the Section F tests is an adjustment of an ESP charge that is not a pass through of costs, not tied to otherwise approved recovery of capital and otherwise not known in advance, and might be in response to market conditions. In this case, a test would be needed to determine if the adjustments could have resulted in excessive earnings. Conversely, in the event there are no adjustments to the provisions that could have resulted in excessive

[5] 1169 – 1180.

earnings, no tests are required. The absence of tests under Section F when there are no adjustments affecting earnings makes economic sense because a company with an approved ESP under Section C(1) has pricing and all other terms and conditions below the expected results under Section 4928.142. Since the ESP pricing is below market, and lower than the price obtained from companies with comparable business and financial risks, the earnings cannot be excessive.

Q. HOW SHOULD THE COMMISSION IMPLEMENT THE TESTS THAT APPLY UNDER SECTIONS E AND F?

A. Under Section E, there is a need to compare likely future earnings with a measure of appropriate likely future earnings. I propose that likely future earnings be compared with a required rate of return coupled with statistical adjustments that would implement the provision requiring that earning must not be significantly in excess of what comparable public companies would likely earn rather than equal to what they would likely earn. Under Section F, because there appears in my view the need to give consideration to the capital requirements of future committed investments in the state, part of the test should be the same as in Section E. I believe this is a conservative reading of the requirements, and results in a significant lowering of the estimated ROE. Specifically, I propose 50 percent weight be given under Section F to the required rate of return since both appear to have equal weight. In all circumstances with adjustments, conservative or not under Section F, consideration must be given to actual earnings in a given year. I propose such a test. This test has sub-tests because an actual year earnings creates issues related to sample size that the required rate of return tests do not have.

Furthermore, these tests are also coupled with statistical adjustments designed to ensure the ROE cap only applies when earnings are significantly higher than for comparable companies.

Q. WOULD THE TESTS NEED TO EXPLICITLY ADDRESS BUSINESS AND FINANCIAL RISKS OF COMPARABLE COMPANIES WITH PUBLIC TRADED EQUITY?

A. Yes.

Q. WHAT ARE THE BUSINESS RISKS FACING DE-OHIO?

A. DE-Ohio's business risks are derived from the types of business activities in which it engages. These can be divided into regulated activities, such as distribution and transmission, and deregulated activities associated with power supply in the wholesale and retail markets.

Q. HOW MUCH OF DE-OHIO'S ACTIVITIES FALL INTO EACH OF THESE TWO CATEGORIES?

A. 70 percent of DE-Ohio's asset value is from deregulated generation assets, and 30 percent is from regulated transmission and distribution assets.[6] Hence, the split based on asset values is 70:30.

Q. WHAT ARE THE BUSINESS RISK CHARACTERISTICS OF ITS DEREGULATED GENERATION ACTIVITIES?

A. The business risk characteristics of DE-Ohio's power supply business is primarily determined by the types and location of its generation assets. DE-Ohio's generation assets are fossil fired - 48 percent of its capacity is coal-fired and 52

[66] Source: Duke Energy
234362

percent is natural gas-fired[6]. Its generation assets are regionally concentrated in Ohio, Indiana, Illinois, or Pennsylvania and within either the MISO or PJM footprint.

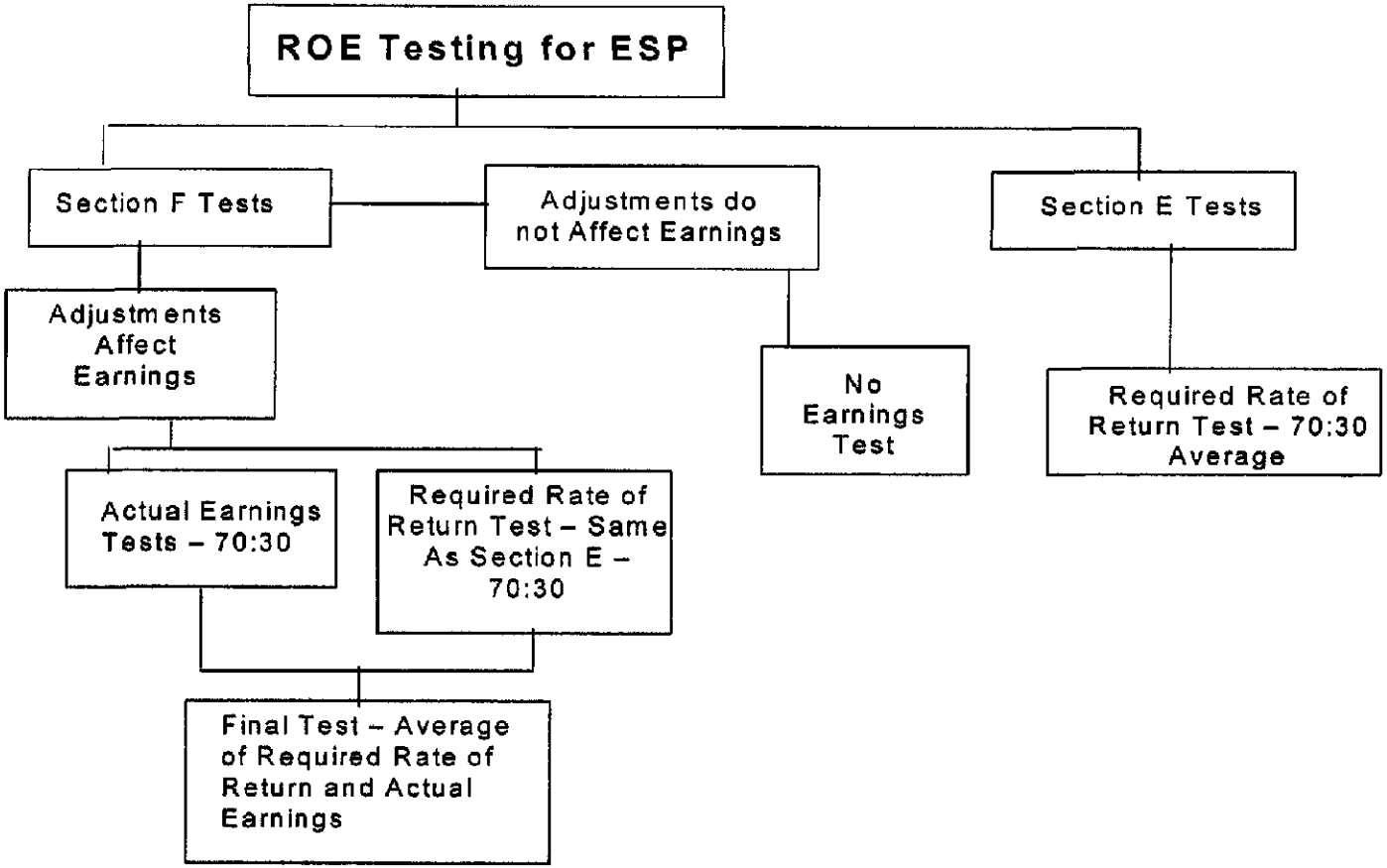
Q. WHAT ARE THE FINANCIAL RISKS FACING COMPANIES?

A. There are two key types of financial risks affecting the earned return on common equity. The first is the amount of leverage or debt incurred by the company as debt increases the risk of the common equity. The second is the company's size as larger companies tend to have less risk.

Q. CAN YOU SUMMARIZE THE TESTS YOU PROPOSE?

A. Yes. Exhibit 16 summarizes the tests for Section F and E.

EXHIBIT 16



Note: All tests employ a confidence interval. 70:30 refers to fact that nearly all tests make separate estimates for regulated and non-regulated business and combine them using a 70:30 weighted average.

CAPM AND REQUIRED RETURNS ON EQUITY

Q. HOW CAN PUBLICLY TRADED STOCK PRICES BE USED TO ESTIMATE REQUIRED RATES OF RETURN ON EQUITY?

A. A widely used approach is to use the Capital Asset Pricing Model (CAPM). In this approach, the required rate of return is proportional to the risk of investing in the company.

Q. HOW ELSE CAN CAPM BE HELPFUL?

A. CAPM can identify companies with comparable risks. This can be useful when identifying companies for the annual earnings test.

Q. CAN THE CAPM APPROACH BE USED TO ADDRESS BOTH COMPARABLE BUSINESS AND FINANCIAL RISKS?

A. Yes.

Q. HOW ARE RISKS MEASURED UNDER THE CAPM APPROACH?

A. There are five main steps involved in measuring risks under the CAPM approach. The first step is identifying companies with comparable business risks. The second step is statistically estimating the levered beta of a stock through directly observable stock prices. The levered beta is defined as the covariance of the stock returns with the returns of the overall market portfolio[7] divided by the variance of the overall market portfolio's returns. Beta measures the systemic risk, i.e., that part of the risk that is correlated with the market or macroeconomic conditions. The unsystemic risk (or unique risks or company specific risks) are not rewarded

[7] In its example discussed in the next subsection, ICF has considered the S&P 500 portfolio of stocks as the market portfolio.

for in the beta as such risks can be diversified away by holding a portfolio of stocks.

Q. HOW IS BETA INTERPRETED?

A. The levered beta of the stock market is one. Companies with beta greater than one means that returns are more variable than the overall stock market, e.g., a given percent price increase in the overall stock market results, on average, in an even greater percentage increase in the individual stock's price. Similarly, a given percent price decrease in the overall stock market results in an even greater percentage decrease for the stock. In contrast, a low beta stock's returns move less on a percentage basis on average than the overall stock market. The required rate of return is higher for more volatile stocks (i.e., high beta stocks) since investors need to be compensated for the higher risks of holding high volatility stocks and vice versa.

Q. WHAT IS THE THIRD STEP?

A. The third step involves estimating business risk separate from the effects of capital structure. This can be useful when comparing business risks across activities as well as assessing the effects of alternative leverage levels. Capital structure matters because, as discussed earlier, it affects the risks of equity. The two principal components of a capital structure are debt and common equity. The higher the leverage or debt share of a company, the higher the required rate of return on equity, all else equal. Thus, companies have business risks and financial (or leverage related) risks, and the goal is to properly account for both. To adjust for capital structure, the levered beta is converted to an unlevered beta – i.e., an

unlevered beta is estimated assuming 100 percent common equity. This eliminates the effect of leverage (i.e., debt) and allows the business risk to be separately estimated and compared for companies with different observable capital structures.

Q. WHAT IS THE FOURTH STEP?

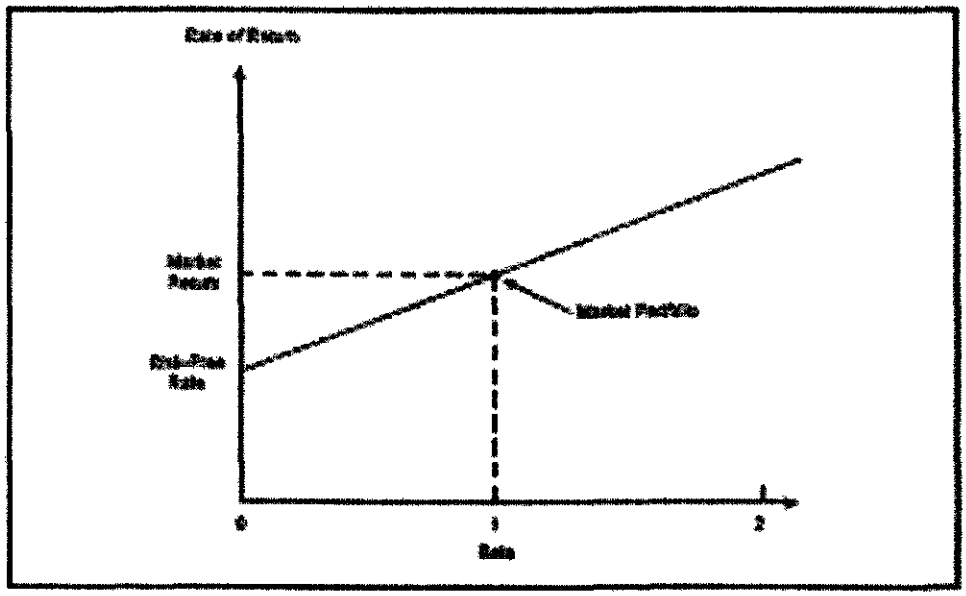
A. The unlevered beta is then converted to a relevered beta based on a targeted capital structure. This process is known as relevering.

Q. WHAT IS THE FIFTH STEP?

A. The required rate of return is estimated based on the relevered beta.

Q. HOW IS THE REQUIRED RETURN ON EQUITY ESTIMATED ONCE THE BETA AND TARGETED CORPORATE LEVERAGE IS ESTABLISHED?

A. The required rate of return is estimated using the CAPM. Specifically, one adds to the risk free rate of return a beta risk premium which equals the beta times the overall excess market rate of return. This is also referred to as market risk premium and is over and above the risk free rate. Hence, the required return has two components: the risk free rate of return and the risk adjusted rate of return. The equation is known as the security market line and is shown below.



Return on Equity = Risk Free Rate of Return + (Beta x Market Risk Premium).

Q. ARE ANY OTHER ADJUSTMENTS REQUIRED?

A. Yes. As discussed further in the next section, an adjustment to the ROE is made based on two factors, company size and base load generation share.

Q. HOW CAN THIS RELEVERED RETURN ON EQUITY BE INTERPRETED?

A. Over the long run, one would expect companies to earn this return. Furthermore, if the expected return is below this return, then investors will not want to invest in this company and the company will fail to fund planned investments.

Q. HOW WOULD ONE FIND COMPANIES THAT HAVE COMPARABLE BUSINESS RISKS THAT ALSO HAVE PUBLIC TRADED COMMON EQUITY?

A. There are two approaches. The first would be to identify pure play companies with business risk comparable to the regulated portion of DE-Ohio's business

companies and pure play companies with comparable risks to DE-Ohio's deregulated business. One could then take a 70:30 weighting of these companies as a measure of the average risk. The second approach would be to identify publicly traded companies that have a similar mix of business risks to DE-Ohio. Thus, these companies can become pure plays for the overall risk of DE-Ohio.

EXAMPLE OF CAPM METHODOLOGY IMPLEMENTATION FOR REQUIRED RATES OF RETURN

Q. WHY DID YOU IMPLEMENT THIS METHODOLOGY?

A. I did it to provide an example of the results that might be obtained in future periods if the future is the same as the past, and to further clarify the methodological approach. Numerical results would be expected to change over time as market and industry conditions change.

Q. WHAT DEREGULATED POWER COMPANIES HAVE PUBLICLY TRADED STOCK?

A. There are five deregulated independent power producers with publicly traded common stock that face comparable risks to DE-Ohio's deregulated business: (1) Calpine, (2) NRG, (3) Dynegy, (4) Reliant, and (5) Mirant. These companies do not have regulated assets, and hence, are close to "pure play" deregulated power companies. The power plants of these companies are also almost exclusively fossil-fired. Since DE-Ohio's power supply activities are very similar to the activities of these companies, they are comparable for purposes of determining appropriate rates of return for this business segment. Note, regulated activities of

DE-Ohio, such as transmission and distribution have risks that are different, and hence, would have their own return levels.

Q. WHAT REGULATED UTILITIES SHOULD BE INCLUDED IN THE SET OF COMPARABLE UTILITY COMPANIES?

A. ICF considered EEI's group of 35 "highly regulated" companies.[8] These companies hold assets that are 80 percent or more regulated.

Q. WHAT IS THE BETA THAT YOU ESTIMATED FOR THE FIVE IPP COMPANIES ON AVERAGE?

A. I estimated the levered beta to be 1.16. In comparison, the overall stock market's beta is 1.0. Thus, this estimate indicates the systemic risks of deregulated power companies is approximately 16 percent greater than the market as a whole.

Q. WHAT IS THE UNLEVERED BETA THAT YOU ESTIMATED?

A. I estimated that the unlevered or equity beta for the deregulated IPP companies was 0.89.

Q. WHAT IS THE RESULTING AVERAGE REQUIRED RATE OF RETURN FOR THE FIVE PUBLIC COMPANIES YOU ESTIMATED?

A. The average annual required rate of return is 14.3 percent. This equals the risk free rate of return of 4.88 percent plus the relevered beta of 1.33 times the market risk premium of 7.1 percent. This reflects a leverage level of 45 percent.

[8] EEI 2007 Financial Review, page 47. Note that EEI lists 44 utilities in the highly regulated class but analysis data was not available for 8 companies as these companies were either subsidiaries of foreign energy companies or were privately owned. I took one company out of highly regulated class based on expert judgment and review of 10K information.

Q. WOULD THIS BE THE FINAL RATE OF RETURN YOU RECOMMEND FOR DE-OHIO'S DEREGULATED BUSINESS?

A. No. I would recommend a return of 14.8 percent. This equals the required rate of return discussed above plus two partially offsetting adjustments. The first upward adjustment is a liquidity premium[9] of 0.81 percent.[10] This reflects the fact that smaller companies require a premium ROE compared to larger companies. The second is a downward adjustment of 0.33 percent for a higher base load share for DE-Ohio compared to the comparable companies. This is because base load assets have less risk.

Q. WHAT IS THE BASIS FOR THE DOWNWARD ADJUSTMENT IN ROE FOR HIGH BASE LOAD SHARE?

A. The basis is part empirical. As shown in Exhibit 17, there is a rough correlation between base load share and unlevered beta. However, given the diversity in mix (base, intermediate, peaking) and the limited number of public IPP companies, a firm conclusion based on statistical analysis is not possible. Thus, there is some expert judgment applied here.[11] Note, ICF modeling of power markets and merchant power plant units makes this adjustment. On a theoretical basis, base load earnings are more stable than peak load since these plants can have earnings

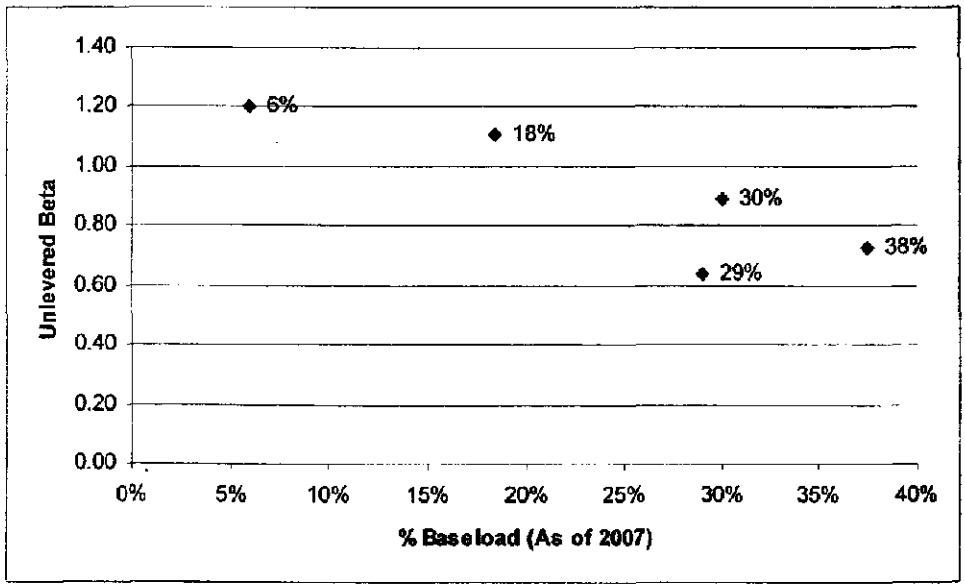
[9] The CAPM does not necessarily capture the size effect. Even after adjusting for the market risks associated with small stocks, the small stocks outperform large stocks. The betas for small companies tend to be greater than the betas for large ones, however even these higher betas do not account for the risks faced by those who invest in them. (page 60, Ibbotson's SBBI Valuation Edition). One explanation of this phenomenon from a trading standpoint is that small firms are not very liquid (have high liquidity betas) and not frequently traded by hedge funds and other financial players and hence there is an illiquidity premium which should be added to the cost of equity. Liquidity is a measure that denotes the ability to trade large quantities quickly, at low cost, and without moving the price.

[10] Based on a rough analysis, I estimated the market capitalization of Duke Energy – Ohio to be $6 billion. This warrants a size premium of 0.81%. See Ibbotson's Publication "Stocks, Bonds, Bills, and Inflation", 2007 Yearbook Valuation Edition, pages 131 and 137.

[11] ICF lowers the ROE for base load assets by 1 percent for a given debt share. Since the average base load share of the companies is 25 percent, and DE-Ohio is 50 percent, its ROE is lowered (0.25/0.75) x 1 or 0.33.

even if capacity prices are suppressed by excess capacity, while natural gas plants have greater margin dependence on capacity earnings. I caveat this by noting that tightening environmental regulations such as potential federal CO_2, mercury MACT, tightened SO_2 and NO_x, and other environmental regulations could increase the base load risk.

EXHIBIT 17
Unlevered Beta of "Pure Play" Deregulated Power Companies and Base Load Capacity Share



Q. ARE THERE REASONS WHY THIS ESTIMATE OF ROE MIGHT BE CONSERVATIVELY LOW?

A. Yes. This estimate might be conservatively low for five reasons. First, as noted the use of the required rate of return is a conservative reading of the requirements, and it is possible that only a actual earnings test is required under section F. Second, the companies identified sell into multiple regional markets, not just Ohio or the Midwest. Hence, they are more geographically diversified which should

decrease risks. Third, these companies primarily sell wholesale. One would expect the risks of retail to be higher since there exists additional risks, e.g., load shape risks, load uncertainty risks, etc. Fourth, the ESP has special migration risks that most forward contracting does not, thereby raising risks. Fifth, the evidence that base load plants have less risk is limited, and the estimate used may overstate the effect. However, I have been unable to fully correct for some of these issues using empirical data.

Q. PLEASE PROVIDE MORE DETAIL ON YOUR ESTIMATE OF BETA AND THE REQUIRED RATE OF RETURN.

A. More details on my estimate of beta and the required rate of return include:

- I used the most recent five years of data in accord with recommended practice. Thus, I had approximately 25 company years of data.[12]
- I used weekly returns. Thus, I had approximately 1,300 company weeks of data.
- In estimating the unlevered beta, I used a variant to the Hamada equation by also incorporating the riskiness of debt or employing "debt betas". Debt betas were calculated by converting the debt yield to maturities to an equivalent debt beta value using the CAPM. The Hamada equation is normally used to unlever betas to separate out the financing risks associated with the firm and assumes that debtholders bear no risk or debt

[12] One exception was NRG where 4.5 years of data was used. This is because from June 2003 to December 2003 stock price data was sporadic or not available at all.

beta is zero [13]. However, this equation could not be used because in some periods, some of the firms were highly leveraged. This, in turn, was due to the financial distress at these companies. Further, the distress and associated data is valuable empirical data on the high risks facing these companies. Put another way, these companies experience very strong decreases in returns on equity when power prices fall, and it is important to capture sufficiently long periods to capture business cycles. Note, DE-Ohio also loses the benefit of the ESP hedge in the event prices fall, and this similarity further emphasizes the importance of this data and the comparability of these companies to DE-Ohio.

- The targeted capital structure is 45 percent. This is based on the current average IPP industry debt share of approximately 35 percent adjusted for the higher base load share which enables greater leverage.
- The risk free interest rate used was 4.88 percent corresponding to the average 20 year Treasury bond yield to maturity between June 30, 2008 and June 30, 2003.
- I estimated the market risk premium based on the average 1926-2006 long horizon equity risk premium of 7.1 percent[14] as opposed to using a shorter time duration. Another possibility would be using shorter-term averages

[13] While no debt (other than Treasury) is riskless, use of the Hamada equation is a reasonable assumption for a stable, on-going concern where we can assume that all of the firm's business risk is borne by the equityholders. However, for firms that are highly leveraged or have default risk, we feel that debtholders in addition to the equityholders bear the business risks of the firm and that the return on the debt is strongly correlated with the return on the assets. Given that a number of our Peer Group companies either defaulted or had highly speculative credit ratings, incorporating the riskiness of the debt is more appropriate.

[14] See Ibbotson's Publication "Stocks, Bonds, Bills, and Inflation", 2007 Yearbook Valuation Edition, pp. 80-86.

(for example, 1986-2006) but a shorter-term average can be affected considerably by one or more unique observations. Longer term averages provide more stable results.

- I used the following data sources for information on the returns of stocks[15]: Bloomberg, Value Line, and AAdvantage Data.

Q. HOW DOES YOUR ESTIMATE COMPARE TO THE U.S. GOVERNMENT ESTIMATE?

A. A U.S. Energy Information Administration (EIA) study assumed that the risks of the deregulated power supply business were comparable to that of the airline and telecommunication industries.[16] Using this approach, results in an unlevered beta very similar to ICF's estimate.

Q. HOW DID YOUR BETA ESTIMATES COMPARE TO ESTIMATES FOR OTHER INDUSTRIES?

A. We estimated from Value Line data the unlevered betas for the following industries that are commodity driven, and have high capital costs: (1) paper, (2) railroad, (3) petroleum, (4) chemicals, (5) semiconductor, (6) metals and mining, (7) coal, (8) heavy construction, (9) steel, and (10) pharmaceuticals. The unlevered betas were on average 1.1. Thus, our estimate of 0.89 appears reasonable if not low. Note that Valueline also uses 5 years of weekly data to estimate the levered beta for industry component firms.

[15] Bond data is also from these sources.
[16] See EIA Publication titled "Electricity Market Module of the National Energy Modeling System", July 2007 234362

Q. WHAT DO YOU CONCLUDE FROM THESE COMPARISONS?

A. This comparison supports my view that the ICF estimates of beta are reasonable if not conservative.

Q. WHAT DID YOU ESTIMATE FOR REGULATED ELECTRIC UTILITIES?

A. ICF estimated for EEI's group of 35 "highly regulated" companies an unlevered beta of 0.55. The relevered beta equal to 0.96 versus 1.33 for the deregulated companies. The targeted debt share is 55 percent. ICF's estimate of the required ROE for the regulated utilities class is lower than for deregulated IPPs: 12.5 percent versus 14.8 percent[17] (see Exhibit 18) for the deregulated companies. This reflects the fact that the risks of the deregulated companies are higher than that of regulated companies.

Q. WHAT DID THE COMBINATION OF THE REGULATED AND UNREGULATED APPROACHES INDICATE?

A. The following results reflect a 70:30 weighting of the deregulated and regulated results:

- Unlevered beta of 0.79.[18]
- Relevered beta at 45 percent debt 1.22.[19]
- Required return of 14.1 percent.[20]

[17] 55 percent debt with size/liquidity premium of 0.81 percent.
[18] 0.7 x 0.89 + 0.3 x 0.55 = 0.79
[19] 0.7 x 1.33+ 0.3 x 0.96 = 1.22.
[20] 0.7 x 14.8 + 0.3 x 12.5 = 14.1.

A. My results are summarized in Exhibit 18. Deregulated companies require a return on equity approximately 2.3 percent higher than regulated utilities.

EXHIBIT 18
Return on Equity

Comparable Companies	Required Return on Equity (%)
Deregulated IPP	14.8
Highly Regulated EEI Utilities	12.5
Weighted Average	14.1

Source: Derived by ICF using Value Line and Bloomberg data.

DETERMINING WHEN ROE IS SIGNIFICANTLY IN EXCESS

Q. WHY DID YOU DISTINGUISH BETWEEN RETURNS ON EQUITY SIGNIFICANTLY IN EXCESS VERSUS RETURNS EQUAL TO A GIVEN LEVEL?

A. There are two reasons. First, it is my understanding that a significance test is required, i.e., returns on equity should not be "significantly" in excess of the return on common equity likely to be earned or required to be earned. Second, the underlying approach is based on comparing DE-Ohio to companies that do not have capped annual earnings or if they are capped they also have earning support when they are low. Companies that face the one-sided earnings cap should earn more on average than companies without this cap to maintain comparability. For example, consider a simplified example of a company with a required return of 15 percent and one-third chance of three ROEs each year of 5, 15, and 25 percent. The expected return is 15 percent. A company penalized by a cap of 15 percent

when earnings are 25 percent earns 11.66 percent on average. The higher the cap, the less likely the distortion, and hence, only capping earning when they are significantly in excess guards against the distortion of estimating a required rate of return and applying a cap equal to that level.

Q. HOW DID YOU APPLY THE SIGNIFICANCE TEST TO THE EARNINGS CAP?

A. I used a statistical approach to measuring significance. Specifically, I created a confidence interval whose width is proportional to the statistical significance of the estimates. Using this approach, earnings are capped at the high end of the confidence interval.

Q. DID YOU ESTIMATE A CONFIDENCE INTERVAL FOR YOUR EXPECTED RETURN BASED ON YOUR DEREGULATED COMPANY ANALYSIS?

A. Yes. I estimated a standard error of levered beta estimate of 0.32.[21] I then created a confidence interval around my estimate of 14.8 percent. At a 95 percent confidence interval, this translated to an expected return range of 12.1 to 17.0 percent.

Q. DID YOU ESTIMATE A CONFIDENCE INTERVAL FOR YOUR EXPECTED RETURN BASED ON YOUR REGULATED COMPANY ANALYSIS?

[21] I assumed normal distribution for the error process which was estimated in a way to correct for hetereoskedasticity and serial correlation.

A. Yes. I estimated a standard error of levered beta of 0.09. This resulted in a confidence interval of 11.0 to 13.9 percent.

Q. DID YOU CREATE A 70:30 COMBINATION OF THESE ESTIMATES?

A. Yes. The result was 11.8 to 16.1 percent (see Exhibit 19). Thus, DE-Ohio should not be found to be earning significantly in excess of the appropriate rate of return unless its return exceeds 16.1 percent. This applies to those tests related to required rate of return.

EXHIBIT 19
Significance and ROE

Comparable Companies	Required Return on Equity (%)	Standard Error (%)	95 Percent Confidence Interval
Deregulated	14.8	0.32	12.1 – 17.0
Highly Regulated Electric Utilities	12.5	0.09	11.0 – 13.9
Weighted Average (70:30)	14.1	0.25	11.8 – 16.1

Source: Derived by ICF using Value Line and Bloomberg data.

Q. HAS THE COMMISSION APPLIED A SIMILAR STATISTICAL APPROACH IN THE PAST?

A. Yes, in Case No. 94-153-GE-PIP confidence intervals were used to calculate several columns of the amended data report.

Q. PLEASE SUMMARIZE YOUR METHODOLOGY FOR REQUIRED RATES OF RETURN AND THE ASSOCIATED ROE CAP.

A. The methodology for estimating required rate of return and the associated confidence intervals is summarized in Exhibit 20. This approach has nine main steps.

EXHIBIT 20
CAPM Required Rate of Return Methodological Summary

Step #	Step Activity
1	Identify Comparable Companies (Deregulated Activity, Regulated Activity)
2	Estimate Levered Beta For Each Activity
3	Estimate Unlevered Beta For Each Activity
4	Estimate Relevered Beta For Each Activity
5	Estimate Required Rate of Return For Each Activity
6	Adjust for Size and Fuel Mix
7	Create Weighted Average Regulated and Deregulated
8	Estimate Standard Error
9	Create Confidence Interval

ANNUAL EARNINGS TEST

Q. HOW COULD ONE IMPLEMENT THE ANNUAL EARNINGS TEST UNDER SECTION F?

A. Annual earnings of the deregulated and regulated companies in 2007 are shown in Exhibit 21. We show two sets of earnings for deregulated companies: (1) including Calpine whose earnings were negative, and (2) excluding Calpine. The result of the test after a 70:30 weighted for the two types of business activities is that earnings are in excess when they are greater than 33 to 38 percent.

EXHIBIT 21 <CONFIDENTIAL>
Annual Earnings Test – 2007 (%)

Company	ROE	Standard Error of ROE Estimate[1]	Confidence Interval
Deregulated			
With Calpine	1.3	17.7	-48 to 50
Without Calpine	16.1	8.4	-11 to 43
Highly Regulated			
Weighted Average			
With Calpine	3.5	12.6	-31 to 38
Without Calpine	13.9	6.0	-5 to 33

[1] Uses t statistic as appropriate.
Source: Value Line and Company 10-K.

Q. WHY DO YOU SHOW THE RESULT WITH AND WITHOUT CALPINE?

A. This was done to test how sensitive the result was to the removal of a specific company which was an outlier. Also, Calpine was bankrupt in 2007. I use the results for all the companies which is 38 percent. The final result was moderately sensitive in this case.

Q. WHY WOULD ONE WANT TO CONSIDER ALTERNATIVE TESTS RELATED TO THE ANNUAL EARNINGS TEST?

A. The annual earnings test for deregulated companies results in five data points, four if Calpine is excluded. The resulting cap was not highly sensitive to including or excluding Calpine. However, this is a small sample size and contrasts with the required rate of return where there were approximately 25 annual data points (5 companies x 5 years) and 1,300 weekly data points being used (5 companies x 52 weeks as year x 5 years). This also contrasts with the

large number of utility observations in the annual test, i.e., 36 per year. Further, there was recently a proposed merger between two of the companies, Calpine and NRG. While it was not consummated, there is a chance that the number of public IPP companies could contract in future years. Thus, alternative tests create a larger data set for the deregulated business for the annual earnings test. While the data is not as tailored to the estimation of comparable companies as this data set, and adjustments have been made for the small sample size (t statistic), on net increasing the sample is preferred.

Q. HOW COULD A LARGER DATA SET BE OBTAINED?

A. There are two approaches that we considered. The first is to find companies with similar unlevered betas and size and use their annual returns. Unlevered beta measures their business risk and size measures their financial risk. When we did that, we found that the annual average return in 2007 was 17.6 percent and the standard error was 1.7 percent for companies comparable to the deregulated business. This resulted in a confidence interval of 14.1 to 21.1 percent. For companies with risk comparable to the regulated utilities, we found the 2007 average ROE was 8.0 percent with a standard error of 3.6 percent. Thus, the confidence interval is 0.4 percent to 15.6 percent. The 70:30 weighted average is 14.7 percent and the weighted average confidence interval is 10.0 to 19.5 percent (see Exhibit 22). Thus, the ROE cap is 19.5 percent versus 38 percent using the IPPs. The advantage of this test is that it adds to the sample size. The disadvantage is that the business comparability is based on unlevered beta estimates rather than the business activities themselves. On net, however, we

recommend expanding the data set.

Q. HOW ELSE COULD THE DATA SET BE EXPANDED?

A. The second approach was to use utility companies with both large deregulated businesses and regulated businesses. This has the virtue of not requiring a weighting between regulated and deregulated business activities, however, there is the potential that the business risks might be different. We found a set of 10 companies. Their estimated average share of deregulated assets was approximately 50 percent, and hence, below DE-Ohio's 70 percent share. In addition, some of the companies had earnings heavily derived from nuclear power or non-power activities. The average 2007 return was 17.7 percent. The standard error was 1.8 percent, and hence, the confidence interval was 13.7 to 21.6 percent (see Exhibit 22). On net, we recommend expanding the data set to include these companies in spite of the less than full comparability.

EXHIBIT 22
Alternatives to Annual Earnings of IPP Companies (%)

Companies	2007 Average ROE	Standard Error	Interval Confidence	
			Low	High
Companies with Similar Unlevered Beta and Size; 70:30 weight	14.7	2.3	10.0	19.5
Utility Companies With large Deregulated Share; 100 percent weighting	17.7	1.8	13.7	21.6

Source: Value Line and ICF.

SECTION F – COMBINED EARNINGS AND REQUIRED RATE OF RETURN TEST

Q. HOW WOULD THE RESULTS OF THE EARNINGS TESTS BE COMBINED WITH THE REQUIRED RATE OF RETURN ANALYSIS UNDER SECTION F?

A. I propose that they would be combined to give equal consideration. Note, as discussed, this is a conservative reading of Section F that greatly decreases the ROE cap under Section F. An alternative would be not to include the required rate of return or decrease the weight given to it.

Q. WHAT WOULD THE RESULT BE FOR THE SECTION F TEST IF THE ACTUAL EARNINGS TEST WAS BASED ON EQUAL WEIGHTING OF ALL THREE EARNINGS APPROACHES AND COMBINED WITH THE REQUIRED RATE OF RETURN?

A. The resulting average is 21.2 percent (see Exhibits 23-24). Hence, the ROE cap under Section F would be 21.2 percent.

EXHIBIT 23
Section F Test

Approach	Confidence Interval – Actual Earning	Required Rate of Return	Average Cap
Weighted Average Deregulated IPP and Highly Regulated	-31 to 38	11.8 to 16.1	27.1
Comparable Companies[1]	10.0 to 19.5	11.8 to 16.1	17.8
Utilities With Deregulated Assets	13.0 to 21.6	11.8 to 16.1	18.8
Average of 3 Approaches	-2.0 to 26.3	11.8 to 16.1	21.2

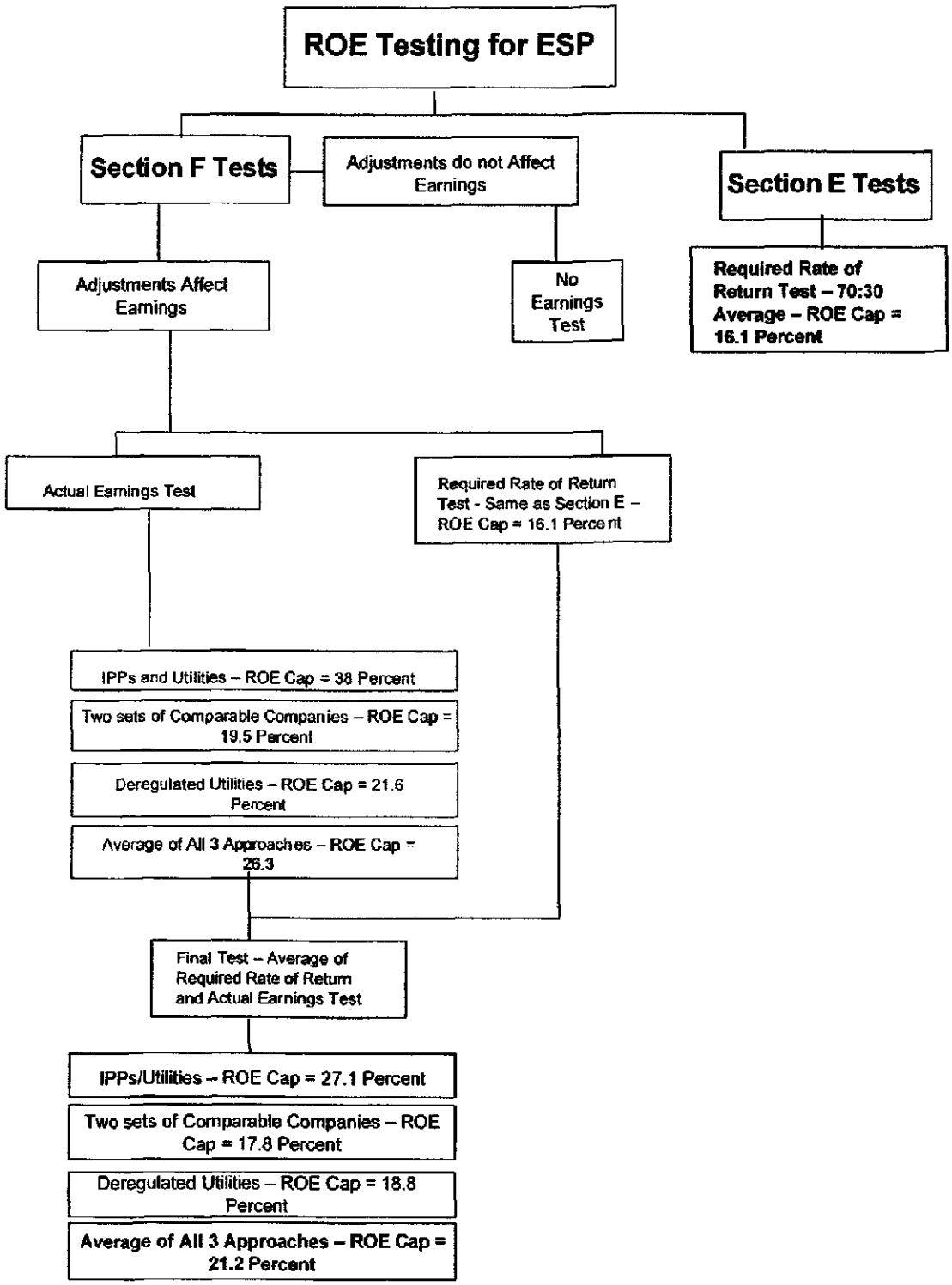
[1] Similar unlevered Beta and size.

CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

EXHIBIT 24


ROE Testing for ESP
Section F Tests
Adjustments do not Affect Earnings
Section E Tests
Adjustments Affect Earnings
No Earnings Test
Required Rate of Return Test – 70:30 Average – ROE Cap = 16.1 Percent
Actual Earnings Test
Required Rate of Return Test - Same as Section E – ROE Cap = 16.1 Percent
IPPs and Utilities – ROE Cap = 38 Percent
Two sets of Comparable Companies – ROE Cap = 19.5 Percent
Deregulated Utilities – ROE Cap = 21.6 Percent
Average of All 3 Approaches – ROE Cap = 26.3
Final Test – Average of Required Rate of Return and Actual Earnings Test
IPPs/Utilities – ROE Cap = 27.1 Percent
Two sets of Comparable Companies – ROE Cap = 17.8 Percent
Deregulated Utilities – ROE Cap = 18.8 Percent
Average of All 3 Approaches – ROE Cap = 21.2 Percent

ATTACHMENT A

Resume

JUDAH L. ROSE

EDUCATION

1982 M.P.P., John F. Kennedy School of Government, **Harvard University**

1979 S.B., Economics, **Massachusetts Institute of Technology**

EXPERIENCE

Judah L. Rose joined ICF in 1982 and currently serves as a Managing Director of ICF International. Mr. Rose has more than 25 years of experience in the energy industry, with emphasis on electric power, generation and transmission. Mr. Rose directs ICF International's wholesale power Line of Business (including assistance to electric utilities, financial institutions, law firms, government agencies, fuel companies, and IPPs). Mr. Rose is one of ICF's Distinguished Consultants, an honorary title given to three of ICF's 1,800 employees, and has served on the Board of Directors of ICF International as the Management Shareholder Representative. Mr. Rose co-manages ICF's IPM© (Integrated Power Model). Mr. Rose has supported the financing of tens of billion dollars of new and existing power plants and is a frequent counselor to the financial community on power issues. Mr. Rose has also served as lead negotiator, power plant appraiser, and he frequently provides expert testimony and litigation support in power-related court cases. Mr. Rose received a M.P.P. from the John F. Kennedy School of Government, Harvard University, and an S.B. in Economics from the Massachusetts Institute of Technology.

Mr. Rose has publicly testified in scores of state and other legal proceedings, addressed approximately 100 major energy conferences, authored numerous articles published in Public Utilities Fortnightly, the Electricity Journal, Project Finance International, and written numerous company studies on power, coal, and gas related issues, and managed large consulting projects. Mr. Rose has also appeared in TV interviews. Details are provided below.

PRESS INTERVIEWS

TV: "The Most With Allison Stewart," MSNBC, "Blackouts in NY and St. Louis & ongoing
Energy Challenges in the Nation," July 25, 2006
CNBC Wake-Up Call, August 15, 2003
Wall Street Journal Report, July 25, 1999
Back to Business, CNBC, September 7, 1999

Journals: Electricity Journal
Energy Buyer Magazine
Public Utilities Fortnightly
Power Markets Week

Magazine: Business Week
Power Economics
Costco Connection

Newspapers: Denver Post
Rocky Mountain News
Financial Times Energy
LA Times
Arkansas Democratic Gazette
Galveston Daily News
The Times-Picayune
Pittsburgh Post-Gazette
Power Markets Week

Wires: Bridge News
Associated Press
Dow Jones Newswires

TESTIMONY

Rebuttal Testimony, Judah L. Rose on Behalf of Duke Energy Carolinas, in re: Application of Duke Energy Carolinas, LLC for Approval of Save-A-Watt Approach, Energy Efficiency Rider and Portfolio of Energy Efficiency Programs, Docket No. E-7, Sub 831, July 21, 2008.

Direct Testimony of Judah L. Rose on Behalf of Nevada Power/Sierra Pacific Electric Power Company, Docket No. 1, Public Utilities Commission of Ohio, Application of Nevada Power/Sierra Pacific for Certificate of Convenience and Necessity Authorization for a Gas-Fired Power Plant in Nevada, May 16, 2008.

Rebuttal Testimony of Judah L. Rose on Behalf of the Advanced Power, Commonwealth of Massachusetts, Before the Energy Facilities Siting Board, Petition of Brockton Power Company, LLC, EFSB 07-7, D.P.U. 07-58 & 07-59, May 16, 2008.

Supplemental Direct Testimony on Commissioners' Issues of Judah Rose for Southwestern Electric Power Company, for the Application of Southwestern Electric Power Company for Certificate of Convenience and Necessity Authorization for a Coal-Fired Power Plant in Arkansas, SOAH Docket No. 473-07-1929, PUC Docket No. 33891, Public Utility Commission of Texas, April 22,

2008.

Rebuttal Testimony of Judah Rose, In the Matter of the Application of Tucson Electric Power Company for the Establishment of Just and Reasonable Rates and Charges Designed to Realize A Reasonable Rate of Return on the Fair Value of Its Operations Throughout the State of Arizona, April 1, 2008.

Rebuttal Report of Judah Rose, Ohio Power Company and AEP Power Marketing Inc. vs. Tractebel Energy Marketing, Inc. and Tractebel S.A. Case No. 03 CIV 6770, 03 CIV 6731 (S.D.N.Y.), January 28, 2008

Proposed New Gas-Fired Plant, on behalf of AEP SWEPCO, 2007

Rebuttal Report, Calpine Cash Flows, on behalf of Unsecured Creditor's Committee, November 21, 2007.

Expert Report. Calpine Cash Flows, on behalf of Unsecured Creditor's Committee, November 19, 2007.

Application of Duke Energy Carolina, LLC for Approval of Energy Efficiency Plan Including an Energy Efficiency Rider and Portfolio of Energy, Docket No. 2007-358-E, Public Service Commission of South Carolina, December 10, 2007.

Independent Transmission, Cause No. PUD200700298, Application of ITC, Public Service of Oklahoma, December 7, 2007.

Verified Petition of Duke Energy Indiana, Inc. Requesting the Indiana Utility Regulatory Commission to Approve an Alternative Regulatory Plan Pursuant to Ind. Code §8-1-2.5-1, et. Seq. for the Offering of Energy Efficiency Conservation, Demand Response, and Demand-Side Management Programs and Associated Rate Treatment Including Incentives Pursuant to a Revised Standard Contract Rider No. 66 in Accordance With Ind. Code §§8-1-2.5-1 et seq. and 8-1-2-42(a); Authority to Defer Program Costs Associated with its Energy Efficiency Portfolio of Programs; Authority to Implement New and Enhanced Energy Efficiency Programs, Including the PowerShare® Program in its Energy Efficiency Portfolio of Programs; and Approval of a Modification of the Fuel Adjustment Cause Earnings and Expense Tests, Indiana Utility Regulatory Commission, Cause No. 43374, October 19, 2007.

Rebuttal Testimony, Docket No. U-30192, Application of Entergy Louisiana, LLC For Approval to Repower the Little Gypsy Unit 3 Electric Generating Facility and for Authority to Commence Construction and for Certain Cost Protection and Cost Recovery, October 4, 2007

Direct Testimony of Judah Rose on Behalf of Tucson Electric Power Company, In the

matter of the Application of Tucson Electric Power Company for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of Its Operations Throughout the State of Arizona, July 2, 2007.

Portfolio of New Plants, Testimony on behalf of AEP: SWEPCo, before the Arkansas Public Service Commission, In the Matter of Application of SWEPCO for a Certificate of Environmental Compatibility and Public Need for the Construction, Ownership, Operation, and Maintenance of a coal-fired Base Load Generating Facility in the Hempstead County, Arkansas, dated June 2007.

Rebuttal Testimony, Causes No. PUD 200500516, 200600030, and 20070001 Consolidated, on behalf of Redbud Energy, before the Corporation Commission of the State of Oklahoma, June 2007.

IGCC Coal Plant, CPCN Rebuttal Testimony on behalf of Duke Energy Indiana, Cause No. 43114 before the Indiana Utility Regulatory Commission, May 2007.

Responsive Testimony, Causes No. PUD 200500516, 200600030, and 200700012 Consolidated, on behalf of Redbud Energy, before the Corporation Commission of the State of Oklahoma, May 2007.

Rebuttal Testimony, FPL – CO_2 Emissions, Docket No. 070098-EL, March 2007

Rebuttal Testimony, Electric Utility Power Hedging, on behalf of Duke Energy Indiana, Cause No. 38707-FAC6851, May 2007.

Direct Testimony for Southwestern Electric Power Company, Before the Louisiana Public Service Commission, Docket No. U-29702, in re: Application of Southwestern Electric Power Company for the Certification of Contracts for the Purchase of Capacity for 2007, 2008, and 2009 and to Purchase, Operate, Own, and Install Peaking, Intermediate and Base load Generating Facilities in Accordance with the Commission's General Order Dated September 20, 1983. Consolidated with Docket No. U-28766 Sub Docket B in re: Application of Southwestern Electric Power Company for Certification of Contracts for the Purchase of Capacity in Accordance with the Commission's 'General Order of September 20, 1983, February 2007.

Second Supplemental Testimony on Behalf of Duke Energy Ohio Before the Public Utility Commission of Ohio, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA, February 28, 2007.

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Market Power and the PSEG Exelon Merger on Behalf of the NJBPU Staff, NJBPU, BPU Docket No. EM05020106, OAL Docket No. PUC-1874-05, Supplemental Testimony March 20, 2006.

Market Power and the PSEG Exelon Merger on Behalf of the NJBPU Staff, NJBPU, BPU Docket No. EM05020106, OAL Docket No. PUC-1874-05, Surrebuttal Testimony December 27, 2005.

Market Power and the PSEG Exelon Merger on Behalf of the NJBPU Staff, NJBPU, BPU Docket No. EM05020106, OAL Docket No. PUC-1874-05, November 14, 2005.

Brazilian Power Purchase Agreement, confidential international arbitration, October 2005.

Cost of Service and Fuel Clause Issues, Rebuttal Testimony on behalf of Public Service of New Mexico, Docket No. EL05-151, November 2005.

Cost of Service and Peak Demand, FERC, Testimony on behalf of Public Service of New Mexico, September 19, 2005, Docket No. EL05-19.

Cost of Service and Fuel Clause Issues, Testimony on behalf of Public Service of New Mexico, FERC Docket No. EL05-151-000, September 15, 2005.

Cost of Service and Peak Demand, FERC, Responsive Testimony on behalf of Public Service of New Mexico, August 23, 2005, Docket No. EL05-19.

Prudence of Acquisition of Power Plant, Testimony on behalf of Redbud, September 12, 2005, No. PUD 200500151.

Proposed Fuel Cost Adjustment Clause, FERC, Docket Nos. EL05-19-002 and ER05-168-001 (Consolidated), August 22, 2005.

Market Power and the PSEG Exelon Merger on Behalf of the NJBPU, FERC, Docket EC05-43-000, May 27, 2005.

New Air Emission Regulations and Investment in Coal Power Plants, rebuttal testimony on behalf of PSI, April 18, 2005, Causes 42622 and 42718.

Rebuttal Report: Damages due to Rejection of Tolling Agreement Including Discounting, February 9, 2005, CONFIDENTIAL.

New Air Emission Regulations and Investment in Coal Power Plants, supplemental testimony on behalf of PSI, January 21, 2005, Causes 42622 and 42718.

Damages Due to Rejection of Tolling Agreement Including Discounting, January 10, 2005, CONFIDENTIAL.

Discount rates that should be used in estimating the damages to GTN of Mirant's bankruptcy and subsequent abrogation of the gas transportation agreements Mirant had entered into with GTN, December 15, 2004. CONFIDENTIAL

New Air Emission Regulations and Investment in Coal Power Plants, testimony on behalf of PSI, November 2004, Causes 42622 and 42718.

Rebuttal Testimony of Judah Rose on behalf of PSI, Cause No. 42469, August 23, 2004.

Rebuttal Testimony of Judah Rose on behalf of the Hopi Tribe, Case No. A.02-05-046, June 4, 2004.

Supplemental Testimony "Retail Generation Rates, Cost Recovery Associated with the Midwest Independent Transmission System Operator, Accounting Procedures for Transmission and Distribution System, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA for Cincinnati Gas & Electric, May 20, 2004.

"Application of Southern California Edison Company (U338-E) Regarding the Future Disposition of the Mohave Generating Station," May 14, 2004.

"Appropriate Rate of Return on Equity (ROE) TransAlta Should be Authorized For its Capital Investment Related to VAR Support From the Centralia Coal-Fired Power Plant", for TransAlta, April 30, 2004, FERC Docket No. ER04-810-000.

"Retail Generation Rates, Cost Recovery Associated with the Midwest Independent Transmission System Operator, Accounting Procedures for Transmission and Distribution System, Case No. 03-93-EL-ATA, 03-2079, EL-AAM, 03-2081, EL-AAM, 03-2080, EL-ATA for Cincinnati Gas & Electric, April 15, 2004.

"Valuation of Selected MIRMA Coal Plants, Acceptance and Rejection of Leases and Potential Prejudice to Leasors" Federal Bankruptcy Court, Dallas, TX, March 24, 2004 CONFIDENTIAL.

"Certificate of Purchase as of yet Undetermined Generation Facility", Cause No. 42469

for PSI, March 23, 2004.

"Ohio Edison's Sammis Power Plant BACT Remedy Case", In the United States District Court of Ohio, Southern Division, March 8, 2004.

"Valuation of Power Contract," January 2004, confidential arbitration.

"In the matter of the Application of the Union Light Heat & Power Company for a Certificate of Public Convenience and Necessity to Acquire Certain Generation Resources, etc.", before the Kentucky Public Service Commission, July 21, 2003.

"In the Supreme Court of British Columbia", July 8, 2003. CONFIDENTIAL

"The Future of the Mohave Power Plant – Rebuttal Testimony", California P.U.C., May 20, 2003.

"Affidavit in Support of the Debtors' Motion", NRG Bankruptcy, May 14, 2003. CONFIDENTIAL

"IPP Power Purchase Agreement," confidential arbitration, April 2003.

"The Future of the Mohave Power Plant", California P.U.C., March 2003.

"Power Supply in the Pacific Northwest," contract arbitration, December 5, 2002. CONFIDENTIAL

"Power Purchase Agreement Valuation", Confidential Arbitration, October 2002.

"Cause No. 42145 - rebuttal testimony on behalf of PSI. Filed on 8/23/02."

"Cause No. 42200 - in support of PSI's petition for authority to recover through retail rates on a timely basis. Filed on 7/30/02."

"Cause No. 42196 - in support of PSI's petition for interim purchased power contract. Filed on 4/26/02."

"Cause No. 42145 - in support of PSI's petition for authority to acquire the Madison and Henry County plants. Filed on 3/1/2002."

"Analysis of an IGCC Coal Power Plant", Minnesota state senate committees, January 22, 2002

"Analysis of an IGCC Coal Power Plant", Minnesota state house of representative committees, January 15, 2002

"Interim Pricing Report on New York State's Independent System Operator", New York State Public Service Commission (NYSPSC), January 5, 2001

"The need for new capacity in Indiana and the IRP process", Indiana Utility Regulatory Commission, October 26, 2000

"Damage estimates for power curtailment for a Cogen power plant in Nevada", August 2000. CONFIDENTIAL

"Valuation of a power plant in Arizona", arbitration, July 2000. CONFIDENTIAL

Application of FirstEnergy Corporation for approval of an electric Transition Plan and for authorization to recover transition revenues, Before PUCO, Case No. 99-1212-EL-ETP, October 4, 1999 and April 2000.

"Issues Related to Acquisition of an Oil/Gas Steam Power plant in New York", September 1999 Affidavit to Hennepin County District Court, Minnesota

"Wholesale Power Prices, A Cost Plus All Requirements Contract and Damages", July 1999. Testimony to U.S. Bankruptcy Court.

"Power Prices." Testimony in confidential contract arbitration, July 1998.

"Horizontal Market Power in Generation." Testimony to New Jersey Board of Public Utilities, May 22, 1998.

"Basic Generation Services and Determining Market Prices." Testimony to the New Jersey Board of Public Utilities, May 12, 1998.

"Generation Reliability." Testimony to New Jersey Board of Public Utilities, May 4, 1998.

"Future Rate Paths and Financial Feasibility of Project Financing." Testimony to U.S. Bankruptcy Court, April 1998.

"Stranded Costs of PSE&G" Testimony to New Jersey Board of Public Utilities, February 1998.

"Application of PECO Energy Company for Approval of its Restructuring Plan Under Section 2806 of the Public Utility Code." Rebuttal Testimony filed July 1997.

"Future Wholesale Electricity Prices, Fuel Markets, Coal Transportation and the Cajun Bankruptcy." Testimony to Louisiana Public Service Commission, December 1996.

"Curtailment of the Saguaro QF, Power Contracting and Southwest Power Markets." Testimony on a contract arbitration, Las Vegas, Nevada, June 1996.

"Future Rate Paths and the Cajun Bankruptcy." Testimony to the U.S. Bankruptcy Court, June 1997.

"Fuel Prices and Coal Transportation." Testimony to the U.S. Bankruptcy Court, June 1997.

"Demand for Gas Pipeline Capacity in Florida from Electric Utilities." Testimony to Florida Public Service Commission, May 1993.

"The Case for Fuel Flexibility in the Florida Electric Generation Industry." Testimony to the Florida Department of Environmental Regulation (DER), Hearings on Fuel Diversity and Environmental Protection, December 1992.

SELECTED SPEAKING ENGAGEMENTS

Rose, J.L., ICF's New York City Energy Forum, - Market Recovery in Merchant Generation Assets, June 10, 2008.

Rose, J.L., Southeastern Electric Exchange – Integrated Resource Planning Task Force Meeting, Carbon Tax Outlook Discussion, February 21-22, 2008.

Rose, J.L., AESP, NEEC Conference, Rising Prices and Failing Infrastructure: A Bleak or Optimistic Future, Marlborough, MA, October 23, 2006.

Rose, J.L., Infocast Gas Storage Conference, "Estimating the Growth Potential for Gas-Fired Electric Generation," Houston, TX, March 22, 2006.

Rose, J.L., "Power Market Trends Impacting the Value of Power Assets," Infocast Conference, Powering Up for a New Era of Power Generation M&A, February 23, 2006.

Rose, J.L., "The Challenge Posed by Rising Fuel and Power Costs", Lehman Brothers, November 2, 2005.

Rose, J.L., "Modeling the Vulnerability of the Power Sector", EUCI – Securing the Nation's Energy Infrastructure, September 19, 2005

Rose, J.L., "Fuel Diversity in the Northeast, Energy Bar Association, Northeast Chapter Meeting, New York, NY, June 9, 2005.

Rose, J.L., "2005 Macquarie Utility Sector Conference", Macquarie Utility Sector Conference, Vail, CO, February 28, 2005.

Rose, J.L., "The Outlook for North American Natural Gas and Power Markets", The Institute for Energy Law, Program on Oil and Gas Law, Houston, TX, February 18, 2005.

Rose, J.L. "Assessing the Salability of Merchant Assets – What's on the Horizon?", Infocast – The Market for Power Assets, Phoenix, AZ, February 10, 2005.

Rose, J.L. "Market Based Approaches to Transmission – Longer-Term Role", National Group of Municipal Bond Investors, New York, NY, December 10, 2004.

Rose, J.L. "Supply & Demand Fundamentals – What is Short-Term Outlook and the Long-Term Demand? Platt's Power Marketing Conference, Houston, TX, October 11, 2004.

Rose, J.L. "Assessing the Salability of Merchant Assets – When Will We Hit Bottom?, Infocast's Buying, Selling, and Investing in Energy Assets Conference, Houston, TX, June 24, 2004.

Rose, J. L. "After the Blackout – Questions That Every Regulator Should be Asking," NARUC Webinar Conference, Fairfax, VA, November 6, 2003.

Rose, J. L., "Supply and Demand in U.S. Wholesale Power Markets," Lehman Brothers Global Credit Conference, New York, NY, November 5, 2003.

Rose, J.L., "Assessing the Salability of Merchant Assets – When Will We Hit Bottom?", Infocast's Opportunities in Energy Asset Acquisition, San Francisco, CA, October 9, 2003.

Rose, J.L., "Asset Valuation in Today's Market", Infocast's Project Finance Tutorial, New York, NY, October 8, 2003.

Rose, J.L., "Forensic Evaluation of Problem Projects", Infocast's Project Finance Workouts: Dealing With Distressed Energy Projects, September 17, 2003.

Rose, J.L., National Management Emergency Association, Seattle, WA, September 8, 2003.

Rose, J.L., "Assessing the Salability of Merchant Assets – When Will We Hit Bottom?", Infocast's Buying, Selling & Investing in Energy Assets, Chicago, IL, July 24, 2003.

Rose, J.L., CSFB Leveraged Finance Independent Power Producers and Utilities Conference, New York, NY, "Spark Spread Outlook", July 17, 2003.

Rose, J.L., Multi-Housing Laundry Association, Washington, D. C., "Trends in U.S. Energy and Economy", June 24, 2003.

Rose, J.L., "Power Markets: Prices, SMD, Transmission Access, and Trading", Bechtel Management Seminar, Frederick, MD, June 10, 2003.

Rose, J.L., Platt's Global Power Market Conference, New Orleans, LA, "The Outlook for Recovery," March 31, 2003.

Rose, J.L., "Electricity Transmission and Grid Security", Energy Security Conference, Crystal City, VA, March 25, 2003.

Rose, J.L., "Assessing the Salability of Merchant Assets – When Will We Hit Bottom?, Infocast's Buying, Selling & Investing in Energy Assets, New York City, February 27, 2003.

Rose, J.L., Panel Discussion, "Forensic Evaluation of Problem Projects", Infocast Conference, NY, February 24, 2003.

Rose, J.L., PSEG Off-Site Meeting Panel Discussion, February 6, 2003 (April 13, 2003).

Rose, J.L., "The Merchant Power Market—Where Do We Go From Here?" Center for Business Intelligence's Financing U.S. Power Projects, November 18-19, 2002.

Rose, J.L., "Assessing U.S. Regional And The Potential for Additional Coal-Fired Generation in Each Region," Infocast's Building New Coal-Fired Generation Conference, October 8, 2002.

Rose, J.L., "Predicting the Price of Power for Asset Valuation in the Merchant Power Financings, "Infocast's Product Structuring in the Real World Conference, September 25, 2002.

Rose, J.L., "PJM Price Outlook," Platt's Annual PJM Regional Conference, September 24, 2002.

Rose, J.L., "Why Investors Are Zeroing in on Upgrading Our Antiquated Power Grid Rather Than Exotic & Complicated Technologies," New York Venture Group's Investing in the Power Industry—Targeting The Newest Trends Conference, July 31, 2002.

Rose, J.L., Panel Participant in the Salomon Smith Barney Power and Energy Merchant Conference 2002, May 15, 2002.

Rose, J.L., "Locational Market Price (LMP) Forecasting in Plant Financing Decisions," Structured Finance Institute, April 8-9, 2002.

Rose, J.L., "PJM Transmission and Generation Forecast", Financial Times Energy Conference, November 6, 2001.

Rose, J.L., "U.S. Power Sector Trends", Credit Suisse First Boston's Power Generation Supply Chain Conference, Web Presented Conference, September 12, 2002.

Rose, J.L., "Dealing with Inter-Regional Power Transmission Issues", Infocast's Ohio Power Game Conference, September 6, 2001

Rose, J.L., "Where's the Next California", Credit Suisse First Boston's Global Project Finance Capital Markets Conference, New York NY, June 27 2001

Rose, J.L, "U.S. Energy Issues: What MLA Members Need to Know," Multi-housing Laundry Association, Boca Raton Florida, June 25, 2001

Rose, J.L., "How the California Meltdown Affects Power Development", Infocast's Power Development and Finance Conference 2001, Washington D.C., June 12, 2001

Rose, J.L., "Forecasting 2001 Electricity Prices" presentation and workshop, What to Expect in western Power Markets this Summer 2001 Conference, Denver, Colorado, May 2, 2001

Rose, J.L., "Power Crisis in the West" Generation Panel Presentation, San Diego, California, February 12, 2001

Rose, J.L., " An Analysis of the Causes leading to the Summer Price Spikes of 1999 & 2000" Conference Chair, Infocast Managing Summer Price Volatility, Houston, Texas, January 30, 2001.

Rose, J. L., "An Analysis of the Power Markets, summer 2000" Generation Panel Presentation, Financial Times Power Mart 2000 conference, Houston, Texas, October 18, 2000

Rose, J.L., "An Analysis of the Merchant Power Market, Summer 2000" presentation, Conference Chair, Merchant Power Finance Conference, Atlanta, Georgia, September 11 to 15, 2000

Rose, J.L., "Understanding Capacity Value and Pricing Firmness" presentation, Conference Chair, Merchant Plant Development and Finance Conference, Houston, Texas, March 30, 2000.

Rose, J.L., "Implementing NYPP's Congestion Pricing and Transmission Congestion Contract (TCC)", Infocast Congestion Pricing and Forecasting Conference, Washington D.C., November 19, 1999.

Rose, J.L., "Understanding Generation" Pre-Conference Workshop, Powermart, Houston, Texas, October 26-28, 1999.

Rose, J.L., "Understanding Capacity Value and Pricing Firmness" presentation, Conference Chair Merchant Plant Development and Finance Conference, Houston, Texas, September 29, 1999.

Rose, J.L., "Comparative Market Outlook for Merchant Assets" presentation, Merchant Power Conference, New York, New York, September 24, 1999.

Rose, J.L., "Transmission, Congestion, and Capacity Pricing" presentation, Transmission The Future of Electric Transmission Conference, Washington, DC, September 13, 1999.

Rose, J.L., "Effects of Market Power on Power Prices in Competitive Energy Markets" Keynote Address, The Impact of Market Power in Competitive Energy Markets Conference, Washington, DC, July 14, 1999.

Rose, J.L., "Peak Price Volatility in ECAR and the Midwest, Futures Contracts: Liquidity, Arbitrage Opportunity" presentation at ECAR Power Markets Conference, Columbus, Ohio, June 9, 1999.

Rose, J.L., "Transmission Solutions to Market Power" presentation, Do Companies in the Energy Industry Have Too Much Market Power? Conference, Washington, DC, May 24, 1999.

Rose, J.L., "Repowering Existing Power Plants and Its Impact on Market Prices" presentation, Exploiting the Full Energy Value-Chain Conference, Chicago, Illinois, May 17, 1999.

Rose, J.L., "Transmission and Retail Issues in the Electric Industry" Session Speaker, Gas Mart/Power 99 Conference, Dallas, Texas, May 10, 1999.

Rose, J.L., "Peak Price Volatility in the Rockies and Southwest" presentation at Repowering the Rockies and the Southwest Conference, Denver, Colorado, May 5, 1999.

Rose, J.L., "Understanding Generation" presentation and Program Chairman at Buying & Selling Power Assets: The Great Generation Sell-Off Conference, Houston, Texas, April 20, 1999.

Rose, J.L., "Buying Generation Assets in PJM" presentation at Mid-Atlantic Power Summit, Philadelphia, Pennsylvania, April 12, 1999.

Rose, J.L., "Evaluating Your Generation Options in Situations With Insufficient Transmission," presentation at Congestion Management conference, Washington, D.C., March 25, 1999.

Rose, J.L., "Will Capacity Prices Drive Future Power Prices?" presentation at Merchant Plant Development conference, Chicago, Illinois, March 23, 1999.

Rose, J.L., "Capacity Value – Pricing Firmness," presentation at Market Price Forecasting conference, Atlanta, Georgia, February 25, 1999

Rose, J.L., "Developing Reasonable Expectations About Financing New Merchant Plants That Have Less Competitive Advantage Than Current Projects," presentation at Project Finance International's Financing Power Projects in the USA conference, New York, New York, February 11, 1999.

Rose, J.L., "Transmission and Capacity Pricing and Constraints," presentation at Power Fair 99, Houston, Texas, February 4, 1999.

Rose, J.L., "Peak Price Volatility: Comparing ERCOT With Other Regions," presentation at Megawatt Daily's Trading Power in ERCOT conference, Houston, Texas, January 13, 1999.

Rose, J.L., "The Outlook for Midwest Power Markets," presentation to The Institute for Regulatory Policy Studies at Illinois State University, Springfield, Illinois, November 19, 1998.

Rose, J.L., "Developing Pricing Strategies for Generation Assets," presentation at Wholesale Power in the West conference, Las Vegas, Nevada, November 12, 1998.

Rose, J.L., "Understanding Electricity Generation and Deregulated Wholesale Power Prices," a full-day pre-conference workshop at Power Mart 98, Houston, Texas, October 26, 1998.

Rose, J.L., "The Impact of Power Generation Upgrades, Merchant Plant Developments, New Transmission Projects and Upgrades on Power Prices," presentation at Profiting in the New York Power Market conference, New York, NY, October 22, 1998.

Rose, J.L., "Capacity Value – Pricing Firmness," presentation to Edison Electric Institute Economics Committee, Charlotte, NC, October 8, 1998.

Rose, J.L., "Locational Marginal Pricing and Futures Trading," presentation at Megawatt Daily's Electricity Regulation conference, Washington, D.C., October 7, 1998.

Rose, J.L., Chairman's opening speech and "The Move Toward a Decentralized Approach: How Will Nodal Pricing Impact Power Markets?" at Congestion Pricing and Tariffs conference, Washington, D.C., September 25, 1998.

Rose, J.L., "The Generation Market in MAPP/MAIN: An Overview," presentation at Megawatt Daily's MAIN/MAPP – The New Dynamics conference, Minneapolis, Minnesota, September 16, 1998.

Rose, J.L., "Capacity Value – Pricing Firmness," presentation at Market Price Forecasting conference, Baltimore, Maryland, August 24, 1998.

Rose, J.L., "ICF Kaiser's Wholesale Power Market Model," presentation at Market Price Forecasting conference, New York, New York, August 6, 1998.

Rose, J.L., Campbell, R., Kathan, David, "Valuing Assets and Companies in M&A Transactions," full-day workshop at Utility Mergers & Acquisitions conference, Washington, D.C., July 15, 1998.

Rose, J.L., "Must-Run Nuclear Generation's Impact on Price Forecasting and Operations," presentation at The Energy Institute's conference entitled "Buying and Selling Electricity in the Wholesale Power Market," Las Vegas, Nevada, June 25, 1998.

Rose, J.L., "The Generation Market in PJM," presentation at Megawatt Daily's PJM Power Markets conference, Philadelphia, Pennsylvania, June 17, 1998.

Rose, J.L., "Market Evaluation of Electric Generating Assets in the Northeast," presentation at McGraw-Hill's conference: Electric Asset Sales in the Northeast, Boston, Massachusetts, June 15, 1998.

Rose, J.L., "Overview of SERC Power," opening speech presented at Megawatt Daily's SERC Power Markets conference, Atlanta, Georgia, May 20, 1998.

Rose, J.L., "Future Price Forecasting," presentation at The Southeast Energy Buyers Summit, Atlanta, Georgia, May 7, 1998.

Rose, J.L., "Practical Risk Management in the Power Industry," presentation at Power Fair, Toronto, Canada, April 16, 1998.

Rose, J.L., "The Wholesale Power Market in ERCOT: Transmission Issues," presentation at Megawatt Daily's ERCOT Power Markets conference, Houston, Texas, April 1, 1998.

Rose, J.L., "New Generation Projects and Merchant Capacity Coming On-Line," presentation at Northeast Wholesale Power Market conference, New York, New York, March 18, 1998.

Rose, J.L., "Projecting Market Prices in a Deregulated Electricity Market," presentation at conference: Market Price Forecasting, San Francisco, California, March 9, 1998.

Rose, J.L., "Handling of Transmission Rights," presentation at conference: Congestion Pricing & Tariffs, Washington, D.C., January 23, 1998.

Rose, J.L., "Understanding Wholesale Markets and Power Marketing," presentation at The Power Marketing Association Annual Meeting, Washington, D.C., November 11, 1997.

Rose, J.L., "Determining the Electricity Forward Curve," presentation at seminar: Pricing, Hedging, Trading, and Risk Management of Electricity Derivatives, New York, New York, October 23, 1997.

Rose, J.L., "Market Price Forecasting In A Deregulated Market," presentation at conference: Market Price Forecasting, Washington, D.C., October 23, 1997,

Rose, J.L., "Credit Risk Versus Commodity Risk," presentation at conference: Developing & Financing Merchant Power Plants in the New U.S. Market, New York, New York, September 16, 1997.

SELECTED PUBLICATIONS

Rose, J.L., "Should Environmental Restrictions be Eased to Allow for the Construction of More Power Plants? The Costco Connection, April 2001.

Rose, J.L., "Deregulation in the US Generation Sector: A Mid-Course Appraisal", Power Economics, October 2000.

Rose, J. L., "Price Spike Reality: Debunking the Myth of Failed Markets", *Public Utilities Fortnightly,* November 1, 2000.

Rose, J.L., "Missed Opportunity: What's Right and Wrong in the FERC Staff Report on the Midwest Price Spikes," *Public Utilities Fortnightly,* November 15, 1998.

Rose, J.L., "Why the June Price Spike Was Not a Fluke," *The Electricity Journal*, November 1998.

Rose, J.L., S. Muthiah, and J. Spencer, "Will Wall Street Rescue the Competitive Wholesale Power Market?" *Project Finance International*, May 1998.

Rose, J.L., "Last Summer's "Pure" Capacity Prices – A Harbinger of Things to Come, "

Public Utilities Fortnightly, December 1, 1997.

Rose, J.L., D. Kathan, and J. Spencer "Electricity Deregulation in the New England States," *Energy Buyer*, Volume 1, Issue 10, June-July 1997.

Rose, J.L., S. Muthiah, and M. Fusco, "Financial Engineering in the Power Sector," *The Electricity Journal,* Jan/Feb 1997.

Rose, J.L, S. Muthiah, and M. Fusco, "Is Competition Lacking in Generation? (And Why it Should Not Matter)," *Public Utilities Fortnightly,* January 1, 1997.

Mann, C. and J.L. Rose, "Price Risk Management: Electric Power vs. Natural Gas," *Public Utilities Fortnightly,* February 1996.

Rose, J.L. and C. Mann, "Unbundling the Electric Capacity Price in a Deregulated Commodity Market," *Public Utilities Fortnightly,* December 1995.

Booth, William and J.L. Rose, "FERC's Hourly System Lambda Data as Interim Bulk Power Price Information," *Public Utilities Fortnightly,* May 1, 1995.

Rose, J.L. and M. Frevert, "Natural Gas: The Power Generation Fuel for the 1990s." Published by Enron.

EMPLOYMENT HISTORY

ICF Resources Incorporated	Managing Director	1999-Present
	Vice President	1996-1999
	Project Manager	1993-1996
	Senior Associate	1986-1993
	Associate	1982-1986