PUC DOCKET NO. 30706

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR A COMPETITION TRANSITION CHARGE (CTC)	§ § § §	BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS

DIRECT TESTIMONY

OF

AMY ROSCHELLE

ON BEHALF OF THE

GULF COAST COALITION OF CITIES

MARCH 16, 2005

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I. INTRODUCTION AND SUMMARY

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

A. My name is Amy Roschelle. I am employed by Synapse Energy Economics, Inc., 22 Pearl Street, Cambridge, Massachusetts, 02139. I am employed as a business consultant for Synapse Energy Economics. Synapse is a research and consulting firm specializing in electricity industry regulation, planning and analysis. Synapse works for a variety of clients, with an emphasis on consumer advocates, regulatory commissions, and environmental advocates.

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

A. I am testifying on behalf of the Gulf Coast Coalition of Cities ("GCCC").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony addresses issues related to the Application of CenterPoint Energy Houston Electric, LLC ("CEHE" or "Company") for a Competition Transition Charge ("CTC"). I also address GCCC's rate case expenses. In this proceeding, GCCC is particularly interested in seeing that Texas customers have fair and reasonable electric rates.

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Q. PLEASE SUMMARIZE THE RESULTS OF YOUR REVIEW.

A In this case, two fundamental issues are being addressed: 1) the principle amount of money that should be recovered under the CTC, and 2) the process of recovery, including the rate of return during the recovery period. My testimony focuses on the latter. Specifically, I focus on the rate of return that is used to determine how much customers must pay each year until the CTC is paid off.

I believe that in setting a value for the recovery of expenses through a CTC, the Public Utility Commission of Texas ("PUC" or "Commission") intends not only to ensure that CenterPoint recovers costs associated with CEHE's true-up balance and rate case expenses, but also to ensure a reasonable CTC recovery process. In particular, I am concerned with the 8.65% rate of return that CEHE assumes in calculating the Total CTC Recovery over the next 14 years. Not only is this rate of return based on an outdated weighted average cost of capital, but more importantly, the value does not reflect the certainty of recovery of the specific CTC balances that are being discussed in this case. In other words, the return proposed by the Company far exceeds the level that is warranted, given the low risk of CTC non-recovery.

Q. WHAT SPECIFIC ACTIONS DO YOU RECOMMEND THE COMMISSION TAKE?

A. I recommend that the Commission apply a return to CEHE's CTC financing calculations that is commensurate with the certainty of CTC recovery. Specifically, I recommend that the Commission use a return between 6.24%

(CEHE's 2005 average cost of debt) and 7.38% (my estimate of CEHE's maximum 2005 WACC.)

Q. PLEASE DESCRIBE HOW YOUR TESTIMONY IS ORGANIZED.

A. My testimony is organized into 7 major topics. Section I, containing an introduction and summary, is found above. Section II describes my qualifications. Section III discusses the certainty of CTC recovery. Section IV discusses CEHE's cost of equity calculations. Section V discusses CEHE's 2005 WACC calculation. Section VI summarizes my recommendations. Section VII discusses GCCC's rate case expenses associated with Docket Nos. 29526, 30485 and 30706.

II. QUALIFICATIONS

Q. **PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. I hold an MBA in Management Sciences from the Massachusetts Institute of Technology ("MIT") Sloan School of Management, a Master of Science in Materials Science and Engineering from UCLA, and a Bachelor of Science in Materials Science and Engineering from MIT.

From 1997-2000, I worked for the Gillette Company as a Process and Product Engineer. I then went to business school full-time for two years. Thereafter, I worked briefly for a startup company called GreenFuel in an operations role. I then joined the technology transfer arm of the Massachusetts General Hospital, where I focused on technology strategy, grant writing, and product development initiatives. In May 2003, I joined Synapse Energy

Economics. Since that date, I have worked on issues relating to economic analysis and environmental impact of technologies and polices, power plant valuation, utility resource planning and portfolio management, financial analysis and cost of equity calculations, evaluation of water use, air emissions of electricity generation, and other topics including marketing/business development, project management, consumer advocacy, and technology strategy within the energy industry.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A PUBLIC UTILITY COMMISSION?

A. Yes. I have testified on financial issues before both the California Public Utilities Commission and the Vermont Public Service Board. My complete resume is provided at the end of this testimony as Exhibit AR-1.

III. CERTAINTY OF CTC RECOVERY

Q. IN FINANCE, HOW DOES ONE DETERMINE AN APPROPRIATE RATE OF RETURN?

A. A basic tenet of finance is that a higher level of risk of investment is associated with a correspondingly higher required rate of return. In other words, required return should be commensurate with risk. If risk is low, then the return on that financial product should, correspondingly, be low.

For utilities, rates of return are set to meet two related purposes. First, the overall return needs to be sufficient to attract needed new capital, both debt and equity; this is so that the utility can provide service. Second, the rate of return needs to provide an "opportunity" for the utility to earn a return on equity suitable

for a business with similar risks provided there is prudent and economical management.

Q. WHAT IS THE COMPANY'S POSITION CONCERNING SPECIFIC RISKS THAT ARE INHERENT IN THE RECOVERY OF THE CTC COSTS?

A. In response to a GCCC discovery question on this issue, James S. Brian of CEHE stated, "There are several types of risk associated with the CTC, including regulatory, financial, and legislative risks, which are essentially the same kinds of risks that would exist in a standard transmission and distribution cost of service case."[1]

Q. DO YOU AGREE WITH THIS ASSESSMENT OF CTC RECOVERY RISK?

A. No, I disagree with this assertion. The CTC recovery bears very low risk to CEHE and does not entail even the minimal risk associated with revenue recovery for transmission and distribution assets.

Q. HOW SIGNIFICANT ARE THE FINANCIAL RISKS OF RECOVERY OF CHARGES UNDER THE RIDER CTC?

A. Financial risks are minimal, since under Texas law and the PUC's Substantive Rules, the CTC is a non-bypassable charge, with limited exception.[2] Retail customers and retail customer classes cannot "avoid the obligation to pay the amount of stranded costs allocated to that customer class."[3] Also, CEHE's

[1] See Exhibit AR-2 (CenterPoint Response to GCCC RFI 2-1).
[2] PURA § 39.253(i); PUC Substantive Rule § 25.345(d). Certain on-site generation installed or permitted before December 31, 1999 is excepted.
[3] PURA § 39.253(i).

proposed annual true-up process ensures that adjustments will be made to offset changes to predicted billing determinants.[4] Thus, there is very little revenue recovery risk faced by CEHE under the current structure.

Q. HOW SIGNIFICANT ARE FUTURE REGULATORY OR LEGISLATIVE RISKS?

A. Risks associated with future changes to legislation are present in all cases before the PUC. While it is possible that the move to retail competition could be reversed, in that unlikely event, I would not foresee an accompanying reversal of the requirement to recover stranded costs. Lastly, it is unlikely that CEHE faces significant regulatory risks absent a change in legislation on stranded cost recovery, since regulatory rules are premised on prevailing Texas law. In sum, there is great certainty that the unrecovered CTC asset balance will be recovered by CEHE.

Q. HOW DO THE RISKS ASSOCIATED WITH REVENUE RECOVERY UNDER THE CTC COMPARE TO RISKS ASSOCIATED WITH REVENUE RECOVERY UNDER THE PROPOSED TRANSITION CHARGE RIDER TC2 IN THE SECURITIZATION CASE?

A. The minimal risks of revenue recovery from captive ratepayers are similar for each of these rate collection mechanisms. The allocation mechanisms are almost identical.[5] Both charges are non-bypassable, with limited exceptions. The primary difference is that in the securitization case, CEHE obtains the payout up

[4] Direct Testimony of James Purdue, at 8-10.
[5] *Id.*, at 3-4.

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front, while the bond issuer would obtain the revenue stream from Rider TC2. For the CTC, CEHE would directly collect the revenue stream.

In the securitization case, the targeted return is approximately 4.5%. For comparison, I am conservatively recommending a CTC return of between 6.24% and 7.38%.

Q. WHAT RETURN DOES CENTERPOINT PROPOSE TO APPLY TO CTC COST RECOVERY?

A. CenterPoint proposes a return of 8.65%. In its proposed procedure, an 8.65% carrying charge is applied to the unrecovered CTC asset balance each month until the balance is paid off. Customers pay this additional cost in return for not paying off the entire balance up front. An annual return of 8.65%, however, is too high given the certainty that customers will pay off the total amount in a timely manner.

Q. WHERE DOES CENTERPOINT'S PROPOSED 8.65% RETURN COME FROM?

A. 8.65% is the weighted average cost of capital approved by the PUC in Docket 22355 *Approval of Unbundled Cost of Service Rate (UCOS) for Reliant Energy.* The UCOS decision came out in October 2001, based on testimony filed in the year 2000.

Q. IS 8.65% STILL A VALID ANNUAL RETURN FOR CEHE?

A. No. Testimony supporting the 8.65% return is now five years old. Economic conditions have changed dramatically; interest rates have, over the last 5 years, reached 30 year lows; and tax laws have also changed, such that investors require

a lower return on dividend paying stocks. Together, these phenomena lower the cost of equity and hence cost of capital for CEHE, as well as companies like CEHE.

Typically, cost of service rate cases are conducted every few years to account for such changes. It would not be unreasonable, now, for the Commission to apply a current risk-adjusted WACC for CEHE in general.

Q. IS THE COST OF CAPITAL IN A COST OF SERVICE RATE CASE DECISION THE RIGHT METRIC TO USE IN THE CTC CASE?

A. Yes and no. The cost of capital is a general return required by a company in order to make capital budgeting projects worthwhile. Stated differently, in order to be able to collect capital for investments, a company has to be able to offer investors a reasonable return on their investments. This return is known as the cost of capital.

In the true-up order, the Commission ruled that the WACC would be used as the interest rate for stranded costs. It is important, however, to keep in mind that the WACC value reflects CEHE's full set of business risks. The CTC asset recovery, however, bears almost no risk to investors. Overall, I regard CEHE's current WACC to be an overly generous return on the unrecovered CTC asset balance. I recommend that the Commission use a return that is between 6.24% (CEHE's 2005 average cost of debt) and 7.38% (my estimate of CEHE's maximum 2005 WACC). These numbers are discussed further below.

IV. CEHE'S COST OF EQUITY CALCULATIONS

Q. WHEN WAS CEHE'S WACC LAST SET?

A. CEHE is the T&D subsidiary of CenterPoint. CenterPoint's WACC, and hence CEHE's WACC, was last set by the PUC in 2001, based on testimony from 2000 in PUC Docket 22355 *Approval of Unbundled Cost of Service Rate (UCOS) for Reliant Energy.*[6] At that time, the appropriate WACC was determined to be 8.65%.

Q. IS 8.65% STILL A VALID RETURN FOR CEHE?

A. No. Testimony supporting the 8.65% return is now five years old. Economic conditions have changed dramatically. In the last five year period interest rates have reached 30 year lows and remain much lower than they were in 2000, despite some recent increases; and tax laws have also changed, such that investors require a lower return on dividend paying stocks. Together, these phenomena lower the cost of equity and hence cost of capital for CEHE, as well as for companies comparable to CEHE.

Q. PLEASE SHOW HOW INTEREST RATES HAVE CHANGED OVER THE PAST 5 YEARS.

A. Please refer to Exhibit AR-3 attached. Since 2000, short-term interest rates have dropped from 6.0% to an average of 1.4% in 2004. (A low of 1.03% on average was hit in 2003.) From 1995 to 2000, interest rates ranged from 4.78 to 5.66%. The last cost of equity study for CenterPoint was, therefore, conducted during a time of very different economic conditions.

[6] CenterPoint is the successor to Reliant Energy, which was restructured in 2002 as a result of the Texas law requiring electric utilities to separate their generating, transmission and distribution, and retail sales functions.

Q. PLEASE SHOW HOW THE CHANGES IN TAX LAWS AFFECT THE COMPANY'S COST OF EQUITY.

A. Under the tax laws that were in effect in 2001, corporate dividends were taxed at approximately 30%. Corporate dividends are now capped at 15%. As a result, investors get to keep a greater percentage of dividends that they receive from their investments. Recognizing this, investors are willing to receive a lower stock price appreciation in return for keeping a greater percentage of dividend payouts. For dividend paying equities, investors require a lower risk premium for stocks relative to a risk-free investment. This lowers the cost of equity for corporations that pay dividends. For an example, see Exhibit AR-4. This result is important, as it demonstrates that, all other things being equal, CenterPoint's 2001 WACC is now too high and should be recalculated.

Q. HOW DOES ONE CALCULATE A CURRENT COST OF EQUITY FOR CEHE?

A. The primary approach to use in developing a cost estimate for common equity capital for CEHE is the discounted cash flow ("DCF") method applied to a group of electric utilities that are similar to CEHE.

As a check, one can also apply the Capital Asset Pricing Model ("CAPM") to the comparables group. While the interest rate component of the CAPM analysis reflects current conditions, the risk premium component is based on long-term risk premiums of stocks over bonds and varies from time to time. Accordingly, the CAPM-derived estimates may be less reliable than the DCF results.

V. CEHE'S 2005 WACC CALCULATION

1. DCF METHODOLOGY

Q. PLEASE OUTLINE THE DCF APPROACH YOU USED.

A. The DCF method estimates the return required from an investment in common stocks by finding the rate of return or discount rate that is implied by the current price of the stock and the dividends expected to be paid by the stock. For example, if an investor is willing to pay $100 for a stock paying a dividend of $10 per year in perpetuity, then the required return that is implied by the relationship between the price and the dividend stream is 10%. In this example, the *dividend yield* of 10% is all that needs to be considered. In practice, dividends tend to increase over time and it is necessary to add a term to the DCF equation to account for the *growth* of dividends in the future. Where a constant growth rate is assumed, the formula for the DCF calculation is:

$$k = D_1/P_0 + g$$

where

k is the required return;
D_1 is the dividend in the next year;
P_0 is the current price of the stock; and
g is the growth rate.

This formula boils down to the addition of the current dividend yield (adjusted for one year's expected growth of dividends) and the growth rate.

2. SELECTION OF A RISK-COMPARABLE GROUP OF COMPANIES FOR CENTERPOINT

Q. DID YOU APPLY THE DCF METHOD TO A GROUP OF COMPANIES?

A. Yes. However, I could not find a large enough group of T&D-only companies. Instead, I applied the DCF method to a group of companies that are similar to

CenterPoint, the parent company of CEHE. In particular, I chose a group of ValueLine mid-cap electric companies.

Q. EXPLAIN YOUR RATIONALE FOR USING VALUE LINE MID CAPS AS YOUR GROUP OF COMPARABLES?

A. The Mid Caps, as a group, at least give us a starting point to evaluate CenterPoint and CEHE. As Brealey and Myers state:

> **The company cost of capital is defined as the expected return on a portfolio of all of the company's existing securities. Each project should, in principle, be evaluated at its own opportunity cost of capital. The company's cost of capital is a useful starting point for setting discount rates for unusually risky or safe projects. It is easier to add to, or subtract from, the company cost of capital than to estimate each project's cost of capital from scratch.**[7]

Q. ARE THE MID CAP COMPANIES COMPARABLE TO CEHE IN TERMS OF INVESTOR-PERCEIVED RISK?

A. No. The Mid Cap companies are overall, more risky than CEHE. As a T&D only company, CEHE faces much less risk than those companies that also own and operate generation facilities. It is difficult to identify companies that are pure T&D electric companies. Most of the companies on my list operate a substantial number of generation assets in addition to their T&D operations.

[7] Brealey and Myers, Principles of Corporate Finance, 7th edition, p. 223-224.

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Q. IS THERE EVIDENCE THAT UNBUNDLED T&D COMPANIES IN THE ELECTRIC RELIABILITY COUNCIL OF TEXAS ("ERCOT"), LIKE CEHE, ARE EXPOSED TO LESS RISK THAN THOSE IN OTHER JURISDICTIONS?

A. Yes. As stated by the PUC in its Consolidated Interim Order in Docket No. 22355:

> **The following observations support the assertion that the Texas market is significantly different from other jurisdictions and should result in lower risk for the TDU's: (1) complete separation of generation and T&D functions, thus virtual elimination of commodity risk; (2) a requirement on retail electric providers ("REPs") to be the point of sales for retail customers; (3) Commission-approved substantive rules related to registration and financial requirements to minimize a possibility of a REP default on payments for contracted services; and (4) PUC Substantive Rule 25.193 to ensure speedy recovery of transmission expenditures related to expansion of the transmission network. Therefore, the Commission concludes these favorable market and regulatory conditions in Texas should result in a lower business risk to Texas TDUs.[8]**

Q. DID RISK CONSIDERATIONS LEAD YOU TO SELECT A SUB-GROUP OF THE VALUE LINE ELECTRIC UTILITY COMPANIES RATHER THAN THE WHOLE GROUP?

A. Yes. I used as my "universe" of companies those electric utilities that are described as "Mid Cap" by Value Line, which means that their market capitalization is greater than $1 billion and less than $5 billion. CenterPoint falls into this category. Not including CenterPoint, the Value Line Investment Survey lists twenty-six electric utility companies as Mid Cap.

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[8] *Approval of Unbundled Cost of Service Rate (UCOS) for Reliant Energy,* PUC Docket No. 22355, Consolidated Interim Order, August 23, 2001, at 22-23.

Q DID YOU APPLY ANY FURTHER SCREEN TO THESE MID CAP COMPANIES?

A. Yes. I eliminated those companies that did not have positive earnings and dividend growth according to Value Line. Since the DCF method requires projections of dividends (or earnings as a proxy for dividends), negative growth projections can be problematic. In this group of companies, eleven of the twenty-six companies did not show positive dividends and earnings. This left fifteen companies on my comparable company list. The list of Mid Cap companies and the screening process is shown in Exhibit AR-5 attached to my testimony.

Q. ARE THE MID CAP COMPANIES COMPARABLE TO CEHE IN TERMS OF INVESTOR-PERCEIVED RISK?

A. Yes. All are Mid Cap electric companies with a similar set of risks, similar debt ratios, similar interest coverage ratios, and, overall, similar business risks according to Morningstar. See Exhibit AR-6.

3. IMPLEMENTATION OF THE DCF APPROACH

Q. WHAT SOURCES OF DATA DID YOU USE?

A. I obtained share prices for current and recent months from Yahoo Finance dated March 7, 2005 and current dividends from Value Line. As an estimator of dividend growth in the future, I used Value Line's five-year earnings forecasts contained in their December 3, 2004, December 31, 2004, and February 11, 2005 issues. A review of the dividends and earnings of my group of comparable companies showed that dividend payout, which averages 61%, is not excessive. This implies that it should not be difficult for these utilities to sustain dividend

increases in step with earnings increases, consistent with strengthening their balance sheets. Value Line predicts that as a group, these companies will increase their dividends approximately in line with their earnings. See Exhibit AR-7.

Q. IN IMPLEMENTING THE DCF APPROACH, PLEASE EXPLAIN HOW YOU CALCULATED CURRENT DIVIDEND YIELD.

A. For each company, I obtained the 2005 projected dividend from Value Line dated December 3, 2004, December 31, 2004 and February 11, 2005. I then projected that dividend value forward one year further to reflect a year's growth. I then averaged the latest current spot prices for the companies' stocks as of March 7, 2005 with the beginning-of-month prices for the four months December 2004 to March, 2005, *i.e.* I calculated the simple average of the five data points.

Q. PLEASE COMMENT ON YOUR USE OF AVERAGE STOCK PRICES FOR RECENT MONTHS RATHER THAN RELYING EXCLUSIVELY ON THE LATEST "SPOT" STOCK PRICES.

A. There has been considerable debate about this issue over the years. On the one hand, it is desirable to stabilize the stock price data by averaging over a period of time. On the other hand, it is useful to incorporate the up-to-date information contained in the latest spot price. In this case, the issue is moot since stock prices have been stable. See Exhibit AR-8.

Q. PLEASE EXPLAIN HOW YOU ESTIMATED DIVIDEND GROWTH FOR THE MID CAP GROUP OF ELECTRIC UTILITIES.

A. As noted earlier, I used Value Line earnings forecasts as the best indicator of future dividend growth. As can be seen in Exhibit AR-9, the earnings growth projections average 4.9% per year.

Q. HOW DO THESE DIVIDEND YIELD AND GROWTH PROJECTIONS TRANSLATE TO YOUR SUGGESTED ROE?

A. Recall that the standard DCF formula is as follows:

$$k = D_1/P_0 + g$$

where k is the required return;
D_1 is the dividend in the next year;
P_0 is the current price of the stock; and
g is the growth rate.

For the comparable group of companies, a summary calculation follows. Please see Exhibit AR-7 for a more detailed calculation by company.

$D_1/P_0 = 1.36/32.39 = 0.042$ or 4.2%.
g = .049 or 4.9%, which is the growth term.
From the above, k = 0.042 + 0.049= 0.091 or 9.1%.

Therefore, a reasonable cost of equity for CenterPoint based on my comparable companies is 9.1%.

4. CAPM APPLICATION

Q. DID YOU DEVELOP ANY EQUITY COST ESTIMATES USING OTHER METHODS?

A. Yes. I used the CAPM approach to obtain an alternative estimate as a check on my DCF results. I generally do not believe that this method or other risk-premium approaches are as reliable as DCF, owing partly to the instability of the

risk premium itself. However, I believe it is useful, at a minimum, to use the CAPM method as a check.

Q. PLEASE EXPLAIN THE IDEA UNDERLYING THE CAPM APPROACH.

A. The CAPM method uses a formula to estimate the return required for a stock based upon the risk level of the stock as compared to the market as a whole. Earlier, I described investors' concerns about risk as the fear of losing money, or more generally, uncertainty about the future returns of an investment. Modern portfolio theory has taken the analysis of risk a step further by dividing variability into company-specific and "systematic" components. The idea underlying this distinction is that in a portfolio of investments, it is possible to diversify away company-specific risk by investing in a number of companies. This leaves only variability that *cannot* be diversified away because it reflects the risk that *all* securities share, *i.e.*, the risk that the whole investment market (in practice usually the whole stock market) will rise and fall together.

The CAPM formalizes systematic or market risk in the concept of "beta." The stock market as a whole has a beta of one, by definition. Individual securities range from having a negative beta ("hedge" securities that change in value in the opposite direction to the market), to a positive beta less than one (relatively low-risk securities including most regulated electric utilities) and a positive beta greater than one (relatively risky securities).

The CAPM formula is as follows:

$$k = r_f + (b \times (r_m - r_f))$$

where k is the required rate of return on common equity,
r_f is the risk-free rate of return,
b is the "beta" measure of market risk for these companies, and

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r_m is the required return on the market as a whole.

Note that in this formula (r_m - r_f) is the difference between the expected return on the market and the risk-free rate of return, *i.e.*, it is the risk premium required on the market basket of securities as a whole. When multiplied by the appropriate beta for the group of stocks being analyzed, the risk premium on the market basket is calibrated to the appropriate level for the group of stocks. This calibrated risk premium is added to the risk-free rate to obtain the total return required for this group of stocks.

Q. WHAT SOURCES OF DATA DID YOU USE?

A. I obtained current estimates of the risk-free rate of return using Three-Month Treasury bill and Thirty-Year Treasury bond rates, which (as of March 7, 2005, as reported by Yahoo Finance) are at 2.59% and 4.62% respectively. To these, I added long-term historical risk premiums reported by Ibbotson Associates, in their *2004 Yearbook.* These premiums above Treasury bill and Treasury bond rates range from 5.02-6.54 percentage points. See Exhibit AR-10.

Q. WHAT DOES YOUR CAPM EXERCISE INDICATE WITH REGARD TO THE COST OF COMMON EQUITY FOR CENTERPOINT AND OTHER MID CAP ELECTRIC UTILITY COMPANIES?

A. The average beta for the group of Mid Cap companies that I identified in Exhibit AR-5 is 0.76. A critical variable in the analysis is the long-term risk free rate. Treasury Bills represent the true risk free rate. However, Treasury bill rates have been at historic lows in recent years. I, therefore, chose to expand the analysis by also looking at the risk free rate in terms of long-term government bonds. Using

these two different risk free rate factors, the CAPM result ranges from 9.13 to 9.64%.

Q. PLEASE COMMENT ON THE INTEREST RATE SITUATION.

A. While some might believe that over time interest rates will rise, analysts must avoid "lecturing" the market rather than observing it. What seems to be happening is that the Federal Reserve Board's increases in *short-term* interest rates, along with the uncertain outlook for economic growth, are keeping *long-term* interest rates low, which suggests that the cost of equity capital, which is also long-term, remains low. According to the ValueLine Investment Survey, March 4, 2005,

> **The fact that it [the Federal Reserve] has increased rates in just quarter of a percentage point increments since it started tightening credit in June is indicative of its intent to stay on a slow track. Our sense is that the Fed will remain on its present path. If that is the case, the current rate concerns will prove to have been overstated."[9] Even as short-term interest rates have risen significantly compared with a year ago, long-term rates have not followed suit:**

	March 7, 2004	Year Ago
3-Month Treasury Bills	2.59%	0.95%
30-Year Treasury Bonds	4.62%	4.67%

[9] Value Line Investment Survey, March 4, 2005, at 1835.

5. BEST ESTIMATE OF COST OF EQUITY CAPITAL FOR CEHE

Q. HOW DO YOU PROPOSE TO RECONCILE YOUR ESTIMATES OF COST OF COMMON EQUITY CAPITAL?

A. My DCF calculation yields a cost of equity of 9.1%, while my CAPM calculation yields a range of 9.1 – 9.6%. Overall, I find CenterPoint's current cost of capital to be 9.1%.

Q. SHOULD THIS NUMBER BE ADJUSTED FOR CEHE?

A. Yes. CEHE has lower financial risk than its parent company, CenterPoint. A review of Exhibit AR-11 shows that S&P, Moody's, and Fitch rate CEHE higher than its parent company. CEHE also has a stronger interest coverage ratio (by a factor of two) and carries much less long-term debt. CEHE, therefore, has considerably less risk of experiencing financial distress than its parent company, CenterPoint.

Q. WHAT OTHER FACTORS DID YOU CONSIDER IN MAKING YOUR RECOMMENDATION ON A COST OF EQUITY FOR CEHE?

A. I reviewed certain broader sources of information as a guide to the use of estimates derived from these detailed calculations. First, I note that the actual earned returns on common equity (ROEs) of my comparable group of Mid Cap electric utility companies currently average 11.2% according to Value Line (10.5% without outlier DPL). See Exhibit AR-12. For the broader electric utility industry, Value Line (March 2005) shows actual ROE for 2004 for all electric utilities of 10.5%. I note that market to book ratios for the stocks of my group of companies currently average 170% (161% without outlier DPL). See Exhibit AR-

12. This suggests that their current returns are unnecessarily high. A market to book ratio closer to 100% would be adequate to enable investors to sell their stocks and recover the actual book costs of their investments. Likewise, a market to book ratio closer to 100% would still enable companies to issue stock without diluting book value per share. I also note that CenterPoint's actual 2005 ROE is projected to be an astounding 20.5% by Valueline.

Q. HAVE YOU REVIEWED COMMISSION-ALLOWED RATES OF RETURN ON EQUITY?

A. Yes. Allowed electric returns have generally declined in recent years. Since 2000, average authorized historic ROE's in the electric industry have come down 0.8%. See Exhibit AR-13. As discussed, this is a result of the lower cost of equity required by companies in recent years.

Q. WOULD A 9.1% RETURN ON EQUITY ALLOW CEHE TO MAINTAIN ITS INVESTMENT GRADE FINANCIAL SITUATION?

A. Yes. As Morningstar reports in January of 2005:

> **While the company's [CenterPoint's] return on equity was an impressive 27% in 2003, this ratio was driven almost entirely by CenterPoint's leveraged capital structure. Return on assets was a mere 2%--and a more accurate picture of the company's earnings performance...Using proceeds from the true-up securitization and $2.5 billion in after tax proceeds from the sale of its generating subsidiary (Texas Genco), CenterPoint will be able to pay down a large chunk of its outstanding debt in its continuing effort to repair its financial health."[10] Given this information and Exhibits AR-11 and AR-14 (CONFIDENTIAL), which highlight CEHE's current financial stability and current over earnings, I believe an ROE of 9.1% would be more than adequate for CEHE.**

[10] Morningstar: Analyst Report: January 5, 2005.

Q. DID YOU REVIEW OTHER SOURCES OF INFORMATION ON THE COST OF CAPITAL TODAY?

A. Yes. As discussed in the previous section, I reviewed the broad trends in interest rates, leading up to the current interest rates I used in my CAPM analysis. Both long-term and short-term interest rates are low compared with the ten-year period before that. They are also significantly lower than the long-term averages calculated by Ibbotson Associates, which are 3.8% for Treasury Bills and 5.8% for 30-year Treasury Bonds.

Q. HOW DOES THE CONDITION OF THE ELECTRIC UTILITY INDUSTRY AFFECT CEHE'S COST OF CAPITAL?

A. The electric utility industry has, as is well known, been through a period of turmoil associated with partial deregulation and restructuring. This period may not be fully behind us. Utility holding companies that embarked on electricity trading ventures or even those that own significant amounts of generation are particularly vulnerable to market fluctuations. However, utilities like CEHE that are still regulated and likely to remain so for the time being are relatively stable from an investor standpoint.

Q. PLEASE COMMENT ON CEHE'S FINANCIAL SITUATION AND OUTLOOK.

A. Exhibit AR-11 shows CEHE financial outlook relative to CenterPoint. CEHE is stronger on every measure: CEHE has a higher interest coverage ratio, much less long-term debt, and better ratings from the major credit rating agencies relative to its parent company. Moreover, much of CEHE's debt will be repaid with

securitization proceeds. This will both raise CEHE's financial outlook and lower CEHE's cost of debt.

Q. HAVE YOU LOOKED AT CEHE'S COST OF DEBT?

A. Yes. I have calculated CEHE's weighted cost of debt post-securitization to be 6.24%. This is based on the notion that CEHE will pay off a good portion, not to mention its most expensive debt issues, as soon as the bonds for the securitization case are issued. See Exhibit AR-15 (CONFIDENTIAL) for the specific calculations. It is also important to note that as debt is paid down, not only does CEHE's average cost of debt go down, but CEHE's cost of equity is also decreased; lower overall debt results in lower risks of financial distress for CEHE. This further lowers CEHE's cost of equity.

Q. WHAT WACC ARE YOU RECOMMENDING GOING FORWARD FOR CEHE?

A. Based on a cost of equity of 9.1% (determined by my calculations), a cost of debt of 6.24% (based on my calculations), and a 60% debt / 40% equity capital structure (recommended by CenterPoint and supported by CEHE's current capital structure), I recommend a WACC of no more than 7.38% for CEHE. See Exhibit AR-16. This WACC is actually the calculated WACC for CenterPoint overall and should, if anything, be adjusted downward for CEHE.

Q. HAS THE TEXAS PUC APPROVED A WACC SINCE 2001 FOR ANY ELECTRIC UTILITY?

A. Yes. In July 2004 order, the Commission expressed its belief that AEP Texas Central Company should adopt a cost of equity of 10.125% and a capital structure of 60% debt / 40% equity, giving a total WACC of 7.475%.

Q. IS 7.38% THE VALUE YOU RECOMMEND BE USED FOR THE RETURN ON THE UNRECOVERED CTC BALANCE?

A. As I explained earlier, WACC is a general return to be used by CEHE. But each project should really be evaluated at its own opportunity cost of capital and reflect the risk inherent to that project. See Exhibit AR-17. We know that the target return in the securitization case is 4.5%. The average A-rated utility bond carries an interest of 5.3%. The average Baa/BBB-rated utility bond carries an interest of 5.75%. CEHE's average cost of debt is 6.24%. Given these facts and the certainty of recovery, I feel that CEHE's current WACC represents a very generous upper boundary for the rate of return to be used on the unrecovered CTC balance. I recommend that the Commission use a return that is between 6.24% (CEHE's 2005 average cost of debt) and 7.38 (my estimate of CEHE's maximum 2005 WACC.)

Q. HOW ARE CUSTOMERS AFFECTED BY THE RETURN ON THE UNRECOVERED CTC ASSET BALANCE?

A. Using a WACC of 7.38%, a weighted cost of equity of 3.64%, a weighted cost of debt of 3.74%, and a CTC balance of $916,057,179, customers would pay a total of $1,702,854,120 over the period of CTC recovery. See Exhibit AR-18.

Using the outdated WACC of 8.65%, a weighted cost of equity of 4.5%, a weighted cost of debt of 4.15%, and a CTC balance of $916,057,179, customers would pay a total of $1,849,016,135 over the next 14 years in CTC costs.

In other words, using an outdated WACC will have a significant negative effect on customers' bills. They will be forced to pay, at a minimum, an extra $146,162,015.

If securitization does not happen and the CTC balance is increased to 2,690,627,290, the resulting extra cost to customers of using an outdated WACC is, at a minimum, $361,289,084. See Exhibit AR-19. Requiring customers to over-pay based on a return from a 2001 PUC decision is both unfair and unjustified.

VI. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A. Given the low risk involved in the unrecovered CTC asset balance, I recommend the Commission utilize an interest rate of no more than 7.38%. Specifically, I recommend that the Commission use a return that is between 6.24% (CEHE's

current cost of debt) and 7.38% (my estimate of CEHE's maximum 2005 WACC.)

VII. GCCC'S COSTS

Q. PLEASE DESCRIBE THE EXPENDITURES FOR WHICH GCCC IS REQUESTING REIMBURSEMENT IN CONNECTION WITH THE CURRENT PROCEEDING (CTC CASE) AS WELL AS THE PRIOR TRUE-UP CASE AND SECURITIZATION CASE.

A. Pursuant to the requirements of PURA § 33.023, GCCC is requesting reimbursement for expenses directly related to this proceeding, as well as the prior true-up case, and securitization cases. These expenses are similar to expenditures normally and historically incurred by intervening parties in rate cases brought to the PUC by investor owned utilities in the state. The expenses include legal fees, expert witness fees, and associated out of pocket expenditures directly supporting the work of the firms and individuals retained by GCCC to assist in this proceeding.

Q PLEASE EXPLAIN WHY YOU ARE NOW REQUESTING REIMBURSEMENT OF EXPENSES THAT WERE ACTUALLY INCURRED IN PRIOR RELATED DOCKETS.

A. As per the Order in Docket No. 29526, we were instructed to wait until this point in the rate case to describe and request our expenses.

Q. WHAT IS THE TOTAL OF GCCC RATE CASE EXPENSES THROUGH FEBRUARY, 2005?

A. Through February 28, 2005, GCCC's rate case expenditures total $512,354.28. Table 1 sets out the professional fees and expenses charged by the consultants and lawyers through February, 2005.

Table 1. GCCC Fees and Expenses through February, 2005

CONSULTANTS/ATTORNEYS	FEES	EXPENSES	TOTAL
John Mavretich	$20,000.00	0	$20,000.00
Synapse Energy Economics	$130,073.85	$5,947.33	$136,021.18
Lloyd Gosselink	$317,203.00	$39,130.10	$356,333.10
Total	$467,276.85	$45,077.43	$512,354.28

Q. ARE GCCC'S ACTUAL EXPENSES INCURRED THROUGH FEBRUARY, 2005 REASONABLE AND NECESSARY?

A. Yes.

Q. ON WHAT DO YOU BASE YOUR CONCLUSION?

A. My company, Synapse, has had consultant and/or expert witnesses serve to intervenors in well over one hundred proceedings over the past two decades. We are familiar with the manner in which various companies and agencies create a structure for the management of litigation, including the hiring and supervision of outside experts. This has made me and my company familiar with the mechanisms for monitoring and controlling litigation expenses. We can estimate the degree and

amount of effort necessary and appropriate for the analysis of various litigation issues.

Mr. Biewald, Mr. Talbot, Mr. Fagan, and I, as the four individuals who have testified for GCCC, have provided sworn testimony affirming that all amounts billed to GCCC are accurate and contain no out of pocket expenditures considered to be luxury items.

Q. WHAT IS THE TOTAL OF GCCC'S EXPENSES ESTIMATED FOR THE PERIOD FROM THE MARCH 2005 THROUGH THE COMPLETION OF ALL THREE PROCEEDINGS?

A. From March 1, 2005 through the end of the proceeding Cities estimates an additional $325,696.32 in rate case expenditures will be necessary. Table 2 sets out the estimated fees and expenses by consultants and legal firm.

Table 2. GCCC Going Forward Costs

CONSULTANTS/ATTORNEYS	ESTIMATED AMOUNT
Synapse Energy Economics	$25,000
Lloyd, Gosselink	$300,696.32
TOTAL	$325,696.32

Q. ARE THE ESTIMATED FEES AND EXPENSES SHOWN IN TABLE 2 REASONABLE?

A. Yes. Again, based upon the sworn testimony of the GCCC's consultants and the affidavit of GCCC's lead legal counsel, and my experience, it is my opinion that GCCC's estimated rate case expenses are reasonable. See Exhibit AR-21.

Q. PLEASE SUMMARIZE GCCC'S TOTAL REQUEST FOR CONSULTING FEES AND EXPENSES.

A. GCCC seeks a finding that consulting fees and expenses totaling $181,021.18 are reasonable.

Q. PLEASE EXPLAIN WHY GCCC'S TOTAL REQUESTED CONSULTING COSTS ARE REASONABLE?

A. These are important cases, in which the Companies have filed extensive testimony and exhibits and have requested several billion dollars in cost recovery. The issues are complex, and the true-up of the Companies' costs and the recovery through both the securitization case and the CTC case is very important for the Companies and for electricity customers in the State of Texas.

Q. PLEASE IDENTIFY SYNAPSE ENERGY ECONOMICS AND ITS ROLE IN THIS PROCEEDING AND RELATED PROCEEDINGS.

A. Synapse was retained by the GCCC for consulting services for all three parts of the CenterPoint True-Up proceedings, the true-up proceeding, the securitization case, and the CTC case. Synapse has represented consumer interests in previous PUC dockets. Specifically, we worked for the Office of Public Utility Counsel in Docket 24835, *Petition of Reliant Energy, Incorporated for Approval of Environmental Cleanup Costs* and Docket 28818, *Petition of Entergy Gulf States, Inc. for Certification of an Independent Organization for the Entergy Settlement Area of Texas.* Synapse is a consulting firm with over a dozen professionals specializing in analysis of electric power issues. Synapse has six senior staff,

each with more than two decades of experience with public utility planning and ratemaking issues.

1. **The True-up Case:** In the true-up case, PUC Docket No. 29526, Bruce Biewald, president, and Neil Talbot, senior associate, testified on behalf of the GCCC. Bruce Biewald has more than twenty years of experience consulting on energy issues, and he has testified in excess of 80 proceedings, in more than one half of the states in the U.S., in two Canadian provinces, including Federal and State courts. His qualifications are summarized at the beginning of his true-up testimony and in Exhibit AR-20. Mr. Talbot holds degrees in law, economics, and finance, and has more than thirty years of experience consulting on energy issues. His qualifications and experience are summarized in the beginning of his testimony in the true-up case, and in his resume attached to that testimony as Exhibit AR-20. Myself and Geoff Keith were the key Synapse staff who assisted the witnesses in the true-up case. I hold a BS and MS in materials science and engineering from MIT and UCLA, respectively, as well as an MBA from the MIT Sloan School of Management. Mr. Keith holds a Bachelor of Arts degree from Tufts University and a Masters degree in Environmental Studies from Brown University. He has more than seven years experience analyzing energy and environmental technical and policy issues.

The issues Synapse addressed in the True Up case included environmental control costs, excess mitigation credits, capital structure, and the control premium.

2. **The Securitization Case:** In the Securitization case, PUC Docket No. 30485, Neil Talbot and Bob Fagan testified on behalf of the GCCC. As discussed

above, Mr. Talbot holds degrees in law, economics, and finance, and has more than thirty years of experience consulting on energy issues. Bob Fagan, a Senior Associate with Synapse, holds an M.A. from Boston University in Energy and Environments Studies and a B.S. from Clarkson University in Mechanical Engineering. He has more than nineteen years of experience in the energy field. He has testified in three transmission rate and code proceedings in Ontario and Alberta and has supported testimony of others in numerous FERC proceedings. His qualifications are summarized at the beginning of his testimony in the securitization case, and his resume is attached as Exhibit AR-20. Synapse addressed excess mitigation credits, the amount to be securitized, and the structure of the securitization in this proceeding.

3. **The CTC Case:** In the competition transition charge case herein, PUC Docket No. 30706, I am testifying on behalf of the GCCC, specifically with regard to the rate of return to be used in the CTC recovery.

Q. WHAT ARE THE TOTAL CHARGES THROUGH FEBRUARY 2005 FOR SERVICES PROVIDED TO GCCC BY SYNAPSE?

A. As summarized in Table 1 above, through February 2005, Synapse has charged $136,021.18 for these cases. These charges are comprised of professional fees of $86,985.10 and expenses of $4,922.87 in Docket No. 29526, professional fees of $39,627.50 and expenses of $1,024.46 in Docket No. 30485, and professional fees of $3,461.25 in Docket No. 30706. These amounts, as reflected in the attached summary tables Exhibit AR-22, reflect adjusted expense reductions of $25.08.

Q. PLEASE EXPLAIN THE ADJUSTED EXPENSE REDUCTIONS.

A. In Docket No. 29526, one copy charge in the amount of $12.79 was inadvertently included in both the May 31, 2004 and the June 30, 2004 invoices. In Docket No. 30485, a meal in the amount of $37.29 was included, which is $12.29 in excess of the Commission's accepted practice of limiting meal expenses to a maximum of $25.00 per person. These two amounts have been subtracted from the above totals.

Q. ARE THE HOURLY RATES CHARGED TO THE GCCC IN THIS CASE BY SYNAPSE COMPARABLE TO THE FEES CHARGED BY OTHER CONSULTING FIRMS?

A. Yes. The hourly rates charged for this project are the normal billing rates of Synapse. Specifically, the key individuals working on this case and their hourly charge rates are as follows: Neil Talbot at $150 per hour, Bruce Biewald at $150 per hour, Bob Fagan at $150 per hour, Amy Roschelle at $135 per hour for testimony and $125 per hour for support to Bruce Biewald and Neil Talbot, and Geoff Keith at $125 per hour. These hourly rates are comparable and in many cases lower than the hourly rates charged by other regulatory consultants with similar experience. The hourly rate charged GCCC is the same or lower than charged other clients for similar services.

Q. HAS SYNAPSE PERFORMED THE SERVICES ON BEHALF OF GCCC IN THIS CASE IN A PROFESSIONAL, TIMELY, AND EFFICIENT MANNER?

A. Yes. Synapse has at all times represented the GCCC in this case in a professional, timely, and efficient manner.

Q. DESCRIBE EFFORTS MADE TO KEEP EXPENSES REASONABLE.

A. Synapse has developed a budget for the work in this case, and our agreement with the GCCC caps the consulting charges at that budget level. We monitor the progress and charges as we proceed in order to ensure that the work is on track, timely and efficient.

Q. ARE THE FEES AND EXPENSES CHARGED TO GCCC BY SYNAPSE PROPERLY SUPPORTED?

A. Yes. Synapse submits monthly invoices to the GCCC which include a description of the services provided, the number of hours billed by individual, the hourly rate, and a detailed itemization of expenses charged to the project. These invoices are being included in my workpapers.

Q. HAS ANY MEMBER OF SYNAPSE BILLED 12 OR MORE HOURS IN ANY ONE DAY ON THIS CASE?

A. No.

Q. DO THE CHARGES BY SYNAPSE INCLUDE ANY UNREASONABLE CHARGES FOR TRAVEL, LODGING OR MEALS?

A. No. Travel expenses related to this project were held to reasonable levels. In the instance where a meal was charged in excess of $25.00, we had adjusted the amount of $12.29 in excess of the established $25.00 limit per individual.

Q. DO THE CHARGES INCLUDE ANY LUXURY ITEMS SUCH AS LIMOUSINE SERVICE, SPORTING EVENTS, ALCOHOLIC DRINKS, MOVIES OR OTHER ENTERTAINMENT?

A. No.

Q. HAVE YOU ESTIMATED SYNAPSE'S CHARGES FOR THE REMAINDER OF THIS CASE INCLUDING ANY APPEALS?

A. Yes, I have. I estimate that the total consulting charges for the remainder of this case will be $25,000. When combined with charges incurred through February 2005, this results in total request for Synapse Energy of $181,021.18 for these cases.

Q. PLEASE IDENTIFY JOHN MAVRETICH AND EXPLAIN HIS ROLE AND COSTS IN THIS CASE.

A. John Mavretich is a consultant to the GCCC. He has reviewed the filing and advised the GCCC attorneys on various issues in this case. His hourly billing rate is $125 per hour and his costs total $20,000.00. Mr. Mavretich's hourly rate and costs are reasonable considering that he has more than two decades of experience with public utility planning and ratemaking issues.

Q. PLEASE SUMMARIZE GCCC'S REQUESTED LEGAL FEES AND EXPENSES.

A. GCCC's request a finding that GCCC's legal fees and expenses of $657,029.42 are reasonable.

Q. PLEASE EXPLAIN WHY GCCC'S TOTAL LEGAL COSTS ARE REASONABLE?

A. GCCC's law firm, Lloyd Gosselink Blevins Rochelle & Townsend, P.C. ("Lloyd Gosselink") has attorneys with many years of experience in utility regulation and administrative law. They have represented municipalities in many rate cases and other utility related proceedings.

GCCC's lead counsel, Thomas Brocato, has over 14 years of utility law experience and has participated in over 200 rate proceedings. Lloyd Gosselink has advised the GCCC in the review of the CenterPoint True-up filing. The attorneys have aided in evaluation of the filing, and assisted in conducting discovery. In addition they have reviewed GCCC's prefiled testimony, participated in the numerous hearings, briefed the issues, reviewed the Proposals for Decision, attended Open Meetings, and have participated in appeals filed in District Court and the Texas Supreme Court.

Q. HAVE YOU REVIEWED THE LEGAL INVOICES SUBMITTED ON BEHALF OF GCCC?

A. Yes, I have.

Q. PLEASE SUMMARIZE YOUR REVIEW OF THE INVOICES.

A. The invoices submitted by Lloyd Gosselink set out in detail the legal services rendered in this case. This includes the identity of the person working, the date, amount of time worked, and description of work performed. In addition a listing of the out of pocket expenses incurred and back-up documentation for expenses are included.

Q. DID YOUR REVIEW OF THE INVOICES RESULT IN ANY DISCREPANCIES? IF SO PLEASE EXPLAIN.

A. It was discovered that on Lloyd Gosselink's July 30, 2004 invoice there was a $39.00 overcharge for copy charges and a $39.00 undercharge for courier services associated with Docket No. 29526. These offsetting charges have no impact on GCCC's requested recovery amount. In addition, it should be noted that a rate increase for Mr. Brocato's rate from $200.00 to $205.00 per hour went into effect on January 1, 2005. Simultaneously, a rate increase for billable paralegal time, from $85.00 to $95.00, went into effect. While this change was reflected on the January invoices for Docket Nos. 29526 and 30706, it was not on the January invoice for Docket No. 30485. This lag in rate increase was due to an administrative support procedure in the firm's billing system. The rate increase in Docket No. 30485 was therefore delayed by one month.

While it is not reflected on the individual invoices, it is also important to note that in an effort to control expenses, Lloyd Gosselink has reduced the standard rates charged for copies from twenty to ten cents, and faxes from one

dollar to twenty cents a page in these proceedings, which over a period of eighteen months and numerous proceedings is substantial.

My conclusion that GCCC's requested legal expenses are reasonable is based on my experience, my understanding of the services performed, as well as the importance and magnitude of this true-up case, and on the sworn affidavit of GCCC's lead counsel. As set out in the affidavit of Thomas Brocato, attached as Exhibit AR-21, there is still much legal work to be done.

Q. WHAT IF THE ABOVE ESTIMATES OF THE COSTS TO COMPLETE THIS CASE PROVE TO BE OVERSTATED?

A. To be clear, GCCC is requesting to be reimbursed only for reasonable expenses actually incurred for these cases.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATION REGARDING GCCC'S CHARGES IN THIS CASE.

A. Based on my and Synapse's experience as regulatory consultants, the actual charges to date and estimated charges for completion of this case including any appeals are reasonable in light of the scope and complexity of this case and the issues addressed by Synapse, when compared to charges for similar services provided by other regulatory consulting and law firms. GCCC's total request of $838,050.60 is reasonable and necessary in order to ensure proper review of several key aspects of the billions of dollars in costs that CenterPoint is seeking to recover and securitize in this case. The Commission should approve the charges by Synapse.

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

2 A. Yes. Thank you.

Amy Beth Roschelle

Business Consultant
Synapse Energy Economics, Inc.
22 Pearl Street, Cambridge, MA 02139
(617) 661-3248 ext. 27 • fax: (617)-661-0599
www.synapse-energy.com
aroschelle@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. Business Consultant. May 2003 - Present.
Consulting on economic analysis and environmental impact of technologies and polices, power plant valuation, resource planning and portfolio management, financial analysis, evaluation of water use and air emissions of electricity generation, and other topics including marketing/business development, project management, consumer advocacy, and technology strategy within the energy industry.

Project Topics:

- Weighted average cost of capital
- Best practices in procurement of default electric service
- Portfolio management practices
- Laddering theory and practice
- Generating options and financial instruments
- Relationship between contract duration and contract price
- Regulated return on equity
- Stranded costs and control premiums
- Stranded costs and capital structure
- Underground transmission lines
- Resource planning
- End-user electricity options
- Electricity rate trends
- Advanced metering technologies
- Renewables and advanced energy efficiency technologies
- Renewable Portfolio Standards
- Renewable costs and environmental externalities
- Natural gas supply and LNG terminals
- Wind financing
- Health affects of diesel generators
- Health affects of particulate matter
- EPA Modeling assumptions with respect to the Clean Air Act.
- Auctions and auction strategies

Papers:

- "Portfolio Management and the Use of Generation Options and Financial Instruments," NRRI Journal of Applied Regulation, November 2004.
- "Best Practices in Procurement of Default Electric Service," Electricity Journal, October 2004.
- "Long-term Power Contracts: The Art of the Deal," Public Utilities Fortnightly, August 2004.
- "Energy Efficiency: Still a Cost-Effective Resource Option," prepared for the USAEE/IAEE Conference, Washington, DC July 2004.
- "Strategies for Procuring Residential and Small Commercial Standard Offer Supply in Maine," April 2004
- "The 2003 Blackout: Solutions That Won't Cost a Fortune," Electricity Journal, November 2003.
- "FERC's Transmission Pricing Policy: New England Cost Impacts," October 2003
- "Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers," September, 2003

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Testimony:

- Currently testifying on the behalf of the Gulf Coast Coalition of Cities regarding Centerpoint's ROE and its relation to a competition transition charge, April 2005.
- Testified on the behalf of AARP regarding Central Vermont Public Service's allowed return on equity, November 2004.
- Testified on the behalf of the Union of Concerned Scientists regarding California's Long-term Resource Plans, September 2004.
- Assisted in preparation of testimony regarding Texas Centerpoint Stranded Cost True-up Filing, May 2004.
- Assisted in preparation of testimony regarding Ohio Market Based Standard Service Offer, April 2004.
- Assisted in preparation of comments on the California Natural Gas Utilities' Phase 1 Proposals regarding natural gas supply, March 2004.
- Assisted in prepration of testimony regarding return on equity in regard to Central Vermont Public Service Memorandum of Understanding, November 2003.

Meetings/Conferences:

- Panelist on Renewable Technologies, Costs, and Environmental Externalities: Economic Impact Analysis of NJ's Proposed 20% Renewable Portfolio Standard, Rutgers University's Center for Energy, Economic & Environmental Policy, February 2005.
- NEPOOL Reliability Committee Meetings, monthly 2003 - 2004.
- USAEE: Energy (In)Security in the US, December 2003
- Edison Energy Institute: Emerging Issues in New England, November 2003.
- New York State Energy Research and Development Authority: PM2.5 Conference, October 2003.
- Renewable Modeling Conference, April 2004.
- Restructuring Roundtable.

Clients: Massachusetts Office of Attorney General, Connecticut Office of Consumer Counsel, Maine Office of the Public Advocate, New Hampshire Office of Consumer Advocate, Regulatory Assistance Project, Union of Concerned Scientists, AARP, Connecticut towns, PJM Independent System Operator, Massachusetts Audubon Society, Arkansas Public Service Commission, Natural Resource Defense Counsel, CHOKE, Illinois CUB, US Public Interest Research Group, Gulf Coast Coalition of Cities, Ohio Office of Consumer Counsel, Ratepayers for Affordable Clean Energy, US Environmental Protection Agency, Industrial Economics, Reliant Energy, Pennsylvania Office of Consumer Advocate, enXco, Town of Rockingham, New Jersey's Division of Ratepayer Advocate, Tellus Institure.

Center for Integration of Medicine and Innovative Technologies, Cambridge, MA. Project Specialist. February – May 2003. Experience with technology strategy, grant writing, and product development. Led effort to raise $2.5M to fund the tissue engineering initiative at MIT, Draper, and MGH Evaluated proposals for new medical technologies in terms of potential for long-term patient impact Coordinated technology implementation plans and progress of currently funded research initiatives

Greenfuel Corporation, Cambridge, MA. Director of Operations. Summer 2002
Experience raising capital and preparing/implementing business plans. Developed and implemented strategies for venture capital funding and market share growth. Led $3 million project proposal initiative to fund initial product development. Negotiated all legal and employee issues including incorporation and stock plan incentives. Managed investor/board relationships and coordinated corporate decision-making process.

National Park Service, Washington, DC. Business Plan Initiative Consultant. Summer 2001
Financial analysis, marketing, operations experience. Produced a 40-page business plan detailing funding needs and shortfalls for the most visited park in the National Park Service. Prepared park-wide operational standards to be used as performance management tools. Analyzed $25 million budget and recommended strategies for efficient resource allocation and alternative funding-source identification. Developed and re-branded park literature for distribution to congressional representatives, outside agencies, the National Park Foundation, and the 20 million annual visitors to the National Mall.

The Gillette Company, Boston, MA
Process Engineer. 1997-2000
Project management and consumer product experience. Managed overall operations of the corporate measurement laboratory to ensure worldwide product standardization. Streamlined product flow by implementing information management system to automatically prioritize, monitor, and analyze test results. Reduced overtime substantially by creating metrics to understand personnel efficiency and machine utilization. Led multidisciplinary Safety, Health, and Environment Team to international standards (ISO) approval.

Product Engineer. Cross-functional team and new product experience. Organized product for distribution to critical marketing consumer-use tests. Insured that product specifications conformed to overall product definition. Partnered with operations team to schedule prototype builds and analyses. Linked Mach3 blade and cartridge engineering teams by attaining hands-on technical expertise in each area.

Siemens AG, KWU, Erlangan, Germany. Researcher, MIT Coop Program. Summer 1992.
Nuclear Power Generation Division. Worked in multidisciplinary team to design, test and enhance performance of novel high temperature superconducting materials.

Mobil Solar Energy Corporation, Billerica, MA. Researcher, MIT Coop Program. Summer 1991.
Evaluated the process of manufacturing solar cells in an effort to boost process yields. Performed edge strain/strength tests on laser cut cells to determine fracture pattern and process handling sensitivities.

EDUCATION
MIT Sloan School of Management, MBA, Management Sciences, Cambridge, MA, 2002.
University of California, Los Angeles, MS, Materials Science and Engineering, Los Angeles, CA, 1995
Massachusetts Institute of Technology, BS, Materials Science and Engineering, Cambridge, MA, 1993

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PUC DOCKET NO . 30706

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR A COMPETITION TRANSITION CHARGE (CTC)	§ § § § §	BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS

Contact: Paul Gastineau

(713) 207-7347
Fax: (713) 207-9840

March 08, 2005

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Request No: GCCC2-1

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

PUC DOCKET NO. 30706

Gulf Coast Coalition of Cities

Q. Please explain the specific risks associated with recovery of the CTC? Why should the CTC be recovered at a rate similar to the weighted average cost of capital used for standard cost of service cases? Does recovery of the CTC face similar risks? Please explain.

A. The CTC should be recovered at the utility's weighted average cost of capital. To do otherwise would ignore the Commission's rules, its prior rulings on carrying costs, and the supreme court's teachings on carrying costs.

There are several types of risk associated with the CTC, including regulatory, financial and legislative risks, which are essentially the same kinds of risks that would exist in a standard transmission and distribution cost of service case. Therefore, the CTC should be recovered at a rate similar to the weighted average cost of capital in a cost of service case.

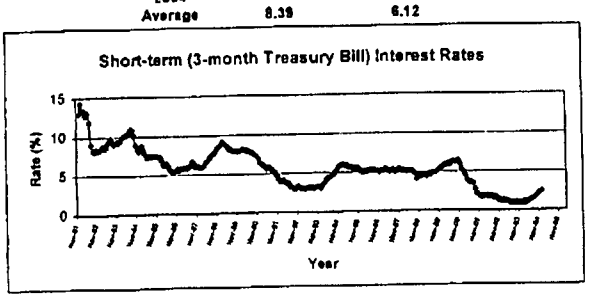
Furthermore, unlike the transition charge (TC) filing, the CTC is not tied to any specific financing and is not made irrevocable by statute. In fact, in a securitization proceeding such as Docket No. 30485, the CTC assumes a conventional financing cost to ensure that the TC is cost-effective for ratepayers.

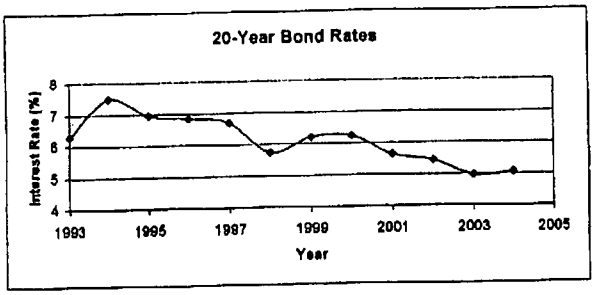
Sponsor: James S. Brian

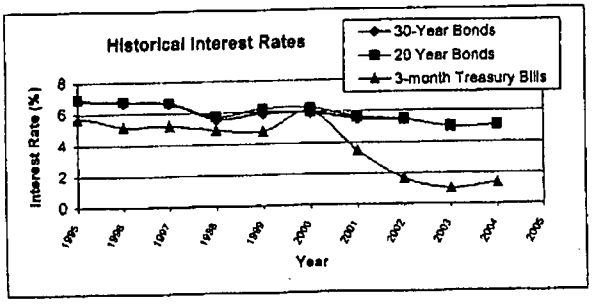
Attachments: None

Historical Interest Rates from the Federal Reserve

	30 year bond rates (1977-2004) %	20 year bond rates (1993-2004 %	3 month treasuries (1990-2004) %
1977	7.75		
1978	8.49		
1979	9.28		
1980	11.27		
1981	13.45		
1982	12.76		
1983	11.18		
1984	12.41		
1985	10.79		
1986	7.78		
1987	8.59		
1988	8.96		
1989	8.45		
1990	8.61		7.75
1991	8.14		5.54
1992	7.67		3.51
1993	6.59	6.29	3.07
1994	7.37	7.49	4.37
1995	6.88	6.95	5.66
1996	6.71	6.83	5.15
1997	6.61	6.69	5.20
1998	5.58	5.72	4.91
1999	5.87	6.2	4.78
2000	5.94	6.23	6.00
2001	5.49	5.63	3.48
2002	5.43	5.43	1.64
2003		4.96	1.03
2004		5.04	1.40
Average	8.39	6.12	







Effect of tax change on ROE

a) Scenario 1. Dividend tax rate = 30%

Capital gains appreciation rate = 20%

Long-term treasury yield = 3.8%

Dividend yield = 4%

And assume that an investor in the stock market wants to end up with an after-tax return on equities that is 8% higher than the after-tax yield on treasury bills.

After tax return on treasury bills = 3.8% * (1-.30) = 2.7%

After tax return on equities = 2.7% + 8.0% = 10.7%

The total shareholder return on equity depends on both the return on the dividend component and return on the share price appreciation component.

Expected Return = (Dividend Yield * tax on dividends) + (share price appreciation * tax on capital gains)

10.7% = (4% * (1-.3)) + share price appreciation * (1-.20)

10.7% = 2.8% + share price appreciation *.8

Required share price appreciation under old tax laws = 9.9 %

OR

Pre-tax Expected Return = 4% + 9.9% = 13.9%

In other words, in order to earn a 8% risk premium over treasury bills, investors will demand a pre-tax risk premium of 5.9%.

b) Scenario 2. Dividend tax rate = 15%

Capital gains appreciation rate = 20%

Long-term treasury yield = 3.8%

Dividend yield = 4%

And assume that an investor in the stock market wants to end up with an after-tax return on equities that is 8% higher than the after-tax yield on treasury bills.

After tax return on treasury bills = 3.8% * (1-.30) = 2.7%

After tax return on equities = 2.7% + 8.0% = 10.7%

The total shareholder return on equity depends on both the return on the dividend component and return on the share price appreciation component.

Return = (Dividend Yield * tax on dividends) + (share price appreciation * tax on capital gains)

10.7% = (4% * (1-.15)) + share price appreciation * (1-.20)

10.7% = 3.4% + share price appreciation *.8

Required share price appreciation under new tax laws = 9.1%

OR

Pre-tax expected return on equity = 4% + 9.1% = 13.1%

In other words, in order to earn a 8% risk premium over treasury bills, investors will demand a pre-tax risk premium of 5.1%.

To summarize, in this example, investors would have required a risk premium over treasury bills of 5.9% under the old dividend tax laws, whereas currently, the same investors would require a risk premium over treasury bills of 5.1%.

Given this information, now assume a risk-free rate of 3.8% and a company beta of .76, and plug these numbers into the CAPM calculation, where,

Cost of Equity = risk-free rate + beta * equity risk premium

Scenario 1: Pre-tax Cost of equity = risk-free rate + beta * equity risk premium = 3.8 + .76 * 5.9 = 8.3%

Scenario 2: Pre-tax Cost of equity = risk-free rate + beta * equity risk premium =3.8 + .76*5.1 = 7.7%.

Therefore, the dividend tax law change reduces the cost of equity for the company in this example from 8.3% to 7.7%.

This result is important, as it demonstrates that, all other things being equal, CenterPoint's 2001 WACC is now too high and should be recalculated.

Note: Example is based on Damodaran, Aswath, "Dividends and Taxes: An Analysis of the Bush Dividend Tax Plan," March 23, 2003.

This approach appears reasonable.

CEHE Comparables based on size, positive earnings growth and dividends. Selection of Comparable Company Group of Mid Cap Electric Utility Companies

Value Line Mid Cap Companies	Exclude Companies Without Positive Earnings and Dividends Projections	Remaining Group of Companies
Allegheny Energy	xx	
Allete	xx	
Alliant Energy	xx	
CMS Energy	xx	
DPL		xx
Duquesne Light	xx	
Energy East		xx
Great Plains Energy		xx
Hawaiian Electric		xx
IdaCorp	xx	
MDU Resources		xx
Northeast Utilities		xx
NSTAR		xx
OGE Energy		xx
Pepco Holdings		xx
PNM Resources	xx	
Pinnacle West		xx
Puget Energy	xx	
Scana Corp		xx
Sierra Pacific	xx	
Teco Energy	xx	
Unisource Energy		xx
Vectren Corp		xx
WPS Resources		xx
Westar Energy	xx	
Wisconsin Energy		xx
26 Companies	Exclude 11 Companies	15 Companies Remain

NOTES:

(1) Data from Value Line issues dated Dec 3, 2004, Dec 31, 2004, and February 11, 2005

Risk Measures for Mid Cap Group of Electric Utility Companies

Company	Value Line Beta	2004 estimates Debt Ratio (%)	Interest Coverage Ratio	Market Capital-ization (millions)	Morningstar Business Risk
DPL	0.9	58	1.9	3.1	Average
Energy East	0.80	55.5	1.5	3.7	Average
Great Plains Energy	0.80	51.0	6.7	2.3	Below Avg
Hawaiian Electric	0.65	46.0	5.1	2.4	Below Avg
MDU Resources	0.85	33.0	6.6	3.2	n/a
Northeast Utilities	0.75	65.5	1.9	2.4	Average
Nstar	0.70	56.0	2.4	2.7	Below Avg
OGE Energy	0.70	52.5	6.6	2.4	Average
Pepco Holdings	0.85	56.5	2.8	4	Average
Pinnacle West	0.85	49.0	4.6	3.8	Average
Scana Corp	0.70	51.5	2.1	4.4	Average
Unisource Energy	0.65	77.0	2.0	1.1	n/a
Vectren	0.75	48.5	1.5	2	Average
WPS Resources	0.75	49.0	4.6	1.9	n/a
Wisconsin Energy	0.70	52.5	N/A	4	Average
Means or Medians for MidCap Group	**0.76**	**53.43**	**3.58**	**2.89**	**Average**
CenterPoint	**0.55**	**93**	**1.37**	**3.4**	**Average**
CEHE	**N/A**	**56.6**	**2.37**	**N/A**	**N/A**

NOTES:
(1) Except for Morningstar Business Risk, data are from Value Line dated Dec 3, 2004, Dec 31, 2004, and February 11, 2005

Comparison of Value Line Earnings and Dividends Projections for Mid Cap Electric Utility Companies

Company	Projected Dividend Growth (%/year)	Projected Earnings Growth (%/year)	Difference: Excess/ (Shortfall) of Div. Growth v. Earnings Growth (percentage points)	Dividend Payout Estimate (%, 2004)
DPL	1.5	7.5	-6.0	56
Energy East	6.0	5.5	0.5	65
Great Plains Energy	1.5	4.0	-2.5	75
Hawaiian Electric	1.0	4.0	-3.0	74
MDU Resources	5.5	7.5	-2.0	41
Northeast Utilities	9.5	8.5	1.0	57
Nstar	2.5	3.0	-0.5	63
OGE Energy	1.0	5.0	-4.0	85
Pepco Holdings	16.0	3.5	12.5	61
Pinnacle West	4.5	1.5	3.0	64
Scana Corp	5.5	5.5	0.0	54
Unisource Energy	8.0	5.0	3.0	43
Vectren	3.0	5.0	-2.0	68
WPS Resources	2.0	4.0	-2.0	69
Wisconsin Energy	4.0	4.5	-0.5	40
Averages:	**4.8**	**4.9**	**-0.1**	**61%**

NOTES:
(1) Data from Value Line issues dated Dec 3, 2004, Dec 31, 2004, and February 11, 2005
(2) Projected Dividend and Earnings Growth is for 2001-2003 to 2007-2009

Comparison of Spot Prices and Past Four Months' Prices of Mid Cap Electric Utility Companies

Company	4-Dec-04	5-Jan-05	5-Feb-05	5-Mar-05	4-Month Average	7-Mar-05 Spot Price	Ratio of Spot to Average	5-Point Average
DPL	25.11	25.99	25.48	25.93	25.63	25.95	**1.01**	25.69
Energy East	26.68	26.2	25.72	25.69	26.07	26.21	**1.01**	26.10
Great Plains Energy	30.28	30.31	30.99	30.95	30.63	31.41	**1.03**	30.79
Hawaiian Electric	29.15	29.11	26.62	26.95	27.96	27.30	**0.98**	27.83
MDU Resources	26.68	26.74	26.97	27.65	27.01	28.29	**1.05**	27.27
Northeast Utilities	18.85	18.7	18.67	18.76	18.75	18.88	**1.01**	18.77
Nstar	54.28	56.28	55.5	55.69	55.44	56.68	**1.02**	55.69
OGE Energy	26.51	26.15	25.95	27.09	26.43	27.39	**1.04**	26.62
Pepco Holdings	21.32	21.85	22.04	22.34	21.89	22.93	**1.05**	22.10
Pinnacle West	44.41	41.7	41.75	42.91	42.69	43.25	**1.01**	42.80
Scana Corp	39.4	39.05	38.04	38.8	38.82	38.35	**0.99**	38.73
Unisource Energy	24.11	30.5	30.23	30.1	28.74	30.47	**1.06**	29.08
Vectren	26.8	27.61	27.06	27.5	27.24	27.52	**1.01**	27.30
WPS Resources	49.96	51.1	52.12	53.9	51.77	54.32	**1.05**	52.28
Wisconsin Energy	33.71	34.18	34.72	35.44	34.51	35.73	**1.04**	34.76
AVERAGES:	31.82	32.36	32.12	32.65	32.24	32.98	**1.02**	32.39

NOTES:

(1) Historical prices from Yahoo Finance

Calculation of Investor-Required Return
on Common Equity for Mid Cap Group of
Electric Utility Companies
Using the DCF Method and Value Line Only Earnings Forecasts

Company	Stock Price (Po)	Current Dividend (Do)	Growth Term (G)	Yr-Ahead Dividend (D1)	Yield Term (D1/Po)	Total Return (D1/Po+G)
DPL	25.69	0.98	0.075	1.05	0.041	11.6%
Energy East	26.10	1.13	0.055	1.19	0.046	10.1%
Great Plains Energy	30.79	1.66	0.040	1.73	0.056	9.6%
Hawaiian Electric	27.83	1.24	0.040	1.29	0.046	8.6%
MDU Resources	27.27	0.74	0.075	0.80	0.029	10.4%
Northeast Utilities	18.77	0.67	0.085	0.73	0.039	12.4%
Nstar	55.69	2.30	0.030	2.37	0.043	7.3%
OGE Energy	26.62	1.33	0.050	1.40	0.052	10.2%
Pepco Holdings	22.10	1.00	0.035	1.04	0.047	8.2%
Pinnacle West	42.80	1.91	0.015	1.94	0.045	6.0%
Scana Corp	38.73	1.54	0.055	1.62	0.042	9.7%
Unisource Energy	29.08	0.68	0.050	0.71	0.025	7.5%
Vectren	27.30	1.19	0.050	1.25	0.046	9.6%
WPS Resources	52.28	2.24	0.040	2.33	0.045	8.5%
Wisconsin Energy	34.76	0.87	0.045	0.91	0.026	7.1%
Average=	**32.39**	**1.30**	**0.049**	**1.36**	**0.042**	**9.1%**

NOTES:

(1) Prices rae taken from AR-8.
(2) Current dividend is paid dividend from Value Line Dec. 3, 2004, Dec. 31, 2004, and February 11, 2005.
(3) Growth term is Value Line earnings growth projection – see AR-7.
(4) Year-ahead dividend is estimated as current dividend plus one year's growth.
(5) Yield term is equal to Year-Ahead Dividend divided by Price.
(6) Total Return is equal to Yield Term plus Growth Term.

Type of Company	Risk-Free Rate	Long-Term Market Returns	Long-Term Risk-Free Rates	Long-Term Market Premiums	Multiply by Beta	Risk Premiums for Group	Current Risk-Free Rates	Indicated Returns for Group
Large Companies	T-bond	12.4	5.8	6.6	0.76	5.02	4.62	9.64
Large Companies	T-bill	12.4	3.8	8.6	0.76	6.54	2.59	9.13
				Average of the Above Estimates=				**9.38%**

Notes:

(1) Long-Term Market Returns and Risk-Free Rates from Ibbotson Associates 2004 Yearbook.
Arithmetic averages are used.
"If the cost of capital is estimated from historical returns or risk premiums, use arithmetic averages,
not compount annual rates of return," Brealey and Myers, Principles of Coporate Finance, 7th Edition, p. 157.
(2) Long-Term Market Premium is equal to Market Return less Risk-Free Rate
(3) Beta is from AR-6 above.
(4) Current Risk-Free Rates are from Yahoo Finance, 3/7/05 for 3-month T-bills and 30-yr. T-bonds.

Credit Rating Comparison of CEHE to CNP

	S&P Rating	Moody's Rating	Fitch	Interest Coverage Ratio	Capitalization	% Debt
CenterPoint Energy Houston (CEHE)	BBB	Baa2	BBB	2.83	$6.3 billion	56.6
CenterPoint (CNP)	BBB-	Ba2	BBB-	1.37	$11.2 billion	92.4

Notes:

Data from Standard And Poor's Bond Guide: February 2005, p.47,
and Merchant Bond Record, January 2005, p.53, and
Fitch Ratings, November 12, 2004.

ROE and Market Book Ratios
of Small Cap Electric Utility Companies

Company	Estd. 2005 ROE (%)	5-month Average Share Price	2005 Book Value/ Share	Market: Book Ratio
DPL	20.50	25.69	8.65	297%
Energy East	9.00	26.10	18.95	138%
Great Plains Energy	14.00	30.79	16.20	190%
Hawaiian Electric	11.00	27.83	15.30	182%
MDU Resources	11.50	27.27	15.50	176%
Northeast Utilities	6.50	18.77	18.65	101%
Nstar	13.00	55.69	28.55	195%
OGE Energy	11.00	26.62	14.45	184%
Pepco Holdings	9.00	22.10	18.45	120%
Pinnacle West	9.00	42.80	32.75	131%
Scana Corp	12.00	38.73	23.65	164%
Unisource Energy	9.00	29.08	17.45	167%
Vectren	11.50	27.30	15.00	182%
WPS Resources	11.00	52.28	29.40	178%
Wisconsin Energy	10.00	34.76	22.60	154%
Means for Mid Cap Group	**11.20** **10.54**	**32.39**	**19.70**	**170%**

NOTES:
(1) Share prices are from Yahoo above.
(2) Book values are from Value Line issues of Dec 3, 2004, Dec 31, 2004, and February 11, 2005

: Historical Authorized ROE's

Year	Average Authorized Equity Returns for Electric Utilities (%)
1994	11.34
1995	11.55
1996	11.39
1997	11.4
1998	11.66
1999	10.77
2000	11.43
2001	11.09
2002	11.16
2003	10.97
2004	10.63

Source: Regulatory Research Associates, Inc's "Major Rate Case Decisions - January - June, 2004," Regulatory Focus, Jersey City, NJ, July 8, 2004.

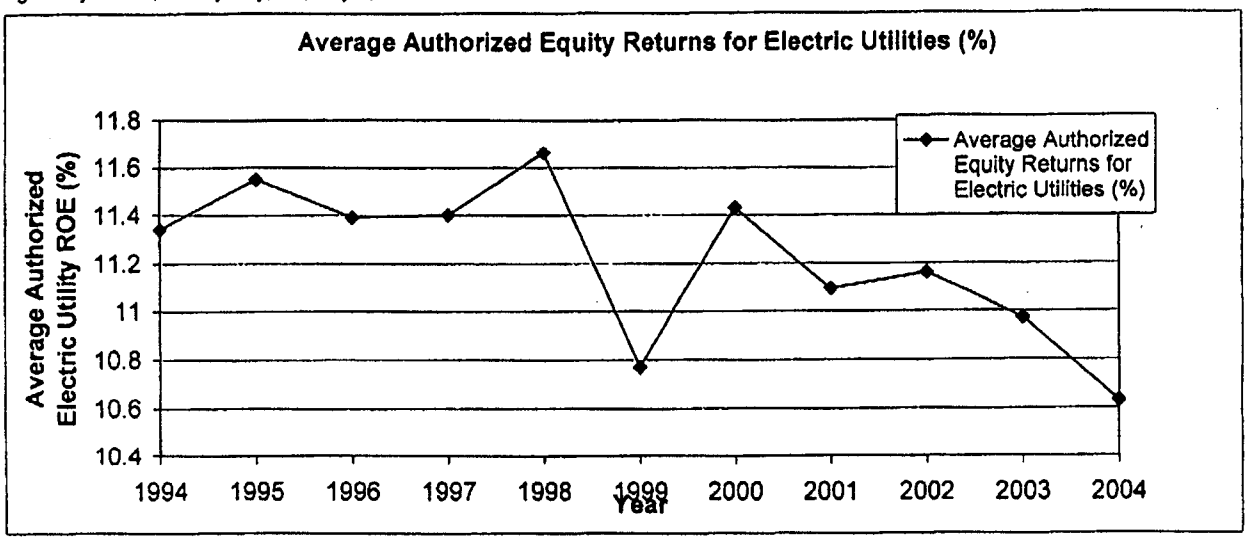


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Exhibit AR-14 is confidential and was filed under seal.

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Exhibit AR-15 is confidential and was filed under seal.

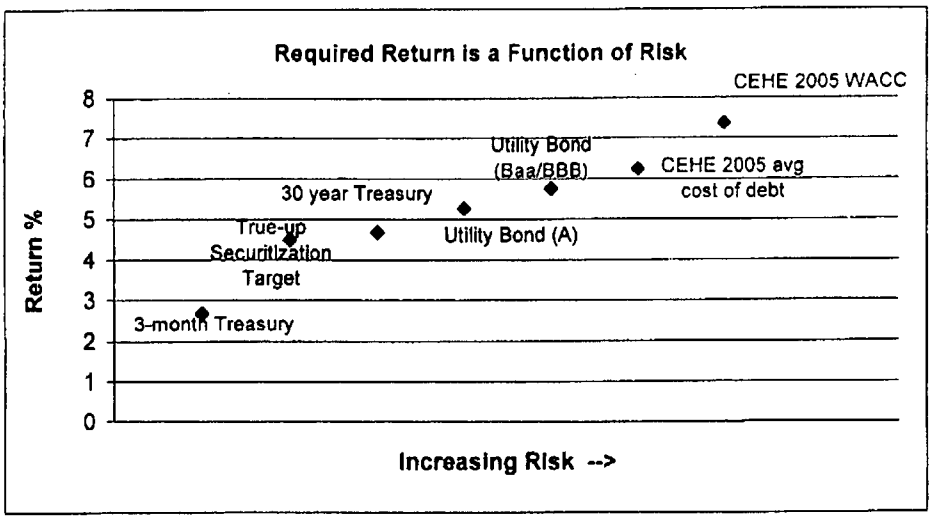
WACC Calculation for CEHE

Capital Structure	%	Cost	Weighted cost
Debt	60	6.24%	3.74
Equity	40	9.10%	3.64
		Total	**7.38**

NOTES
1. The capital structure is taken from Docket 22355
2. Cost of debt and cost of equity from AR-9 and AR-15 (confidential)

Risk versus return for various financial products

	2/24/05 rates %
3-month Treasury	2.68
True-up Securitization Target	4.5
30 year Treasury	4.67
Utility Bond (A)	5.26
Utility Bond (Baa/BBB)	5.75
CEHE 2005 avg cost of debt	6.24
CEHE 2005 WACC	7.38



Source: Value Line Investment Survey: Selection and Option, March 4, 2005, p.1843.

Total CTC recovery
with CEHE's current cost of debt and cost of equity
This scenario assumes most stranded costs are
securitized

CenterPoint Energy Houston Electric
Application Schedules for Competition Transition Charge
Total CTC Recovery - Traditional Financing
Capacity Auction True-up, Interest, Fuel, Retail Clawback, and Rate Case Expenses

Formulas from Figure JSB-1
Schedule 1.2

Formulas from Figure JSB-1
Schedule 1.2

Requested Amount	916,057,179
Amortization Period for True Up	14.00
Amortization Period for Rate Case	3.00
Rate of Return	7.38%
Weighted Cost of Equity	3.64%
ADFIT Ratio	-2.89%
Revenue Related Tax Rate	0.0000%
Allowed a Return on Asset? (Yes/No)	Yes

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(I)	(j)		
	Unrecovered				Return		Annual	Revenue	Annual			
	Asset Balance	ADFIT	Rate Base	Return	on Equity	FIT	Amortization	Related T	Amortization	COS	Check No.	
Period			(a) + (b)	(c) * ROR	(c) * WCE	(e) * Tax Factor	True Up	(e) * Tax	Rate Case	(d)+(f)+(g)+(h)+(I)		
1	916,057,179	26,429,214	942,486,393	69,555,496	34,306,505	18,472,733	28,523,431	-	9,663,297	126,214,957	0.09340	1.43E+08
2	877,870,451	25,327,487	903,197,938	66,656,008	32,876,405	17,702,680	31,773,540	-	10,764,383	126,896,611	0.09340	1.43E+08
3	835,332,527	24,100,223	859,432,751	63,426,137	31,283,352	16,844,882	35,393,985	-	11,990,934	127,655,937	0.09340	1.43E+08
4	787,947,609	22,733,118	810,680,727	59,828,238	29,508,778	15,889,342	39,426,961	-	-	115,144,541	0.09340	1.29E+08
5	748,520,648	21,595,609	770,116,257	56,834,580	28,032,232	15,094,279	43,919,476	-	-	115,848,335	0.09340	1.29E+08
6	704,601,172	20,328,486	724,929,657	53,499,809	26,387,440	14,208,621	48,923,892	-	-	116,632,322	0.09340	1.29E+08
7	655,677,279	18,916,980	674,594,260	49,785,056	24,555,231	13,222,047	54,498,537	-	-	117,505,641	0.09340	1.29E+08
8	601,178,742	17,344,640	618,523,382	45,647,026	22,514,251	12,123,058	60,708,387	-	-	118,478,471	0.09340	1.29E+08
9	540,470,355	15,593,139	556,063,494	41,037,486	20,240,711	10,898,844	67,625,820	-	-	119,562,150	0.09340	1.29E+08
10	472,844,535	13,642,063	486,486,598	35,902,711	17,708,112	9,535,137	75,331,461	-	-	120,769,309	0.09340	1.29E+08
11	397,513,074	11,468,671	408,981,745	30,182,853	14,886,936	8,016,042	83,915,123	-	-	122,114,010	0.09340	1.29E+08
12	313,597,951	9,047,631	322,645,582	23,811,244	11,744,299	6,323,853	93,476,853	-	-	123,611,951	0.09340	1.29E+08
13	220,121,097	6,350,726	226,471,823	16,713,621	8,243,574	4,438,848	104,128,097	-	-	125,280,566	0.09340	1.29E+08
14	115,993,000	3,346,520	119,339,520	8,807,257	4,343,959	2,339,055	115,993,000	-	-	127,139,311	0.09340	1.29E+08
				621,687,519		165,109,422	883,638,565	-	32,418,614	1,702,854,120		
						Ck to line 8 above	916,057,179					
							786,796,942					
							1,702,854,120					

Total CTC recovery
with CEHE's current cost of debt and cost of equity
assuming no securitization

CenterPoint Energy Houston Electric
Application Schedules for Competition Transition Charge
Total CTC Recovery - Traditional Financing
True Up Balance (including Rate Case Expenses)

Formulaas from
Figure JSB-2
Schedule 2.2

Requested Amount	2690627290
Amortization Period for True Up	14
Amortization Period for Rate Case	3
Rate of Return	0.0738
Weighted Cost of Equity	0.0364
ADFIT Ratio	0.127986226
Revenue Related Tax Rate	0
Allowed a Return on Asset? (Yes/No)	Yes

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(I)	(j)		
	Unrecovered				Return		Annual	Revenue	Annual			
Period	Asset Balance	ADFIT	Rate Base	Return	on Equity	FIT	Amortization	Related T	Amortization	COS	Check No.	
			(a) + (b)	(c) * ROR	(c) * WCE	(e) * Tax Facto	True Up	(e) * Tax	Rate Case	(d)+(f)+(g)+(h)+(I)		
1	$ 2,690,627,290	$ (344,363,232)	$ 2,346,264,057	$ 173,154,287	$ 85,404,012	$ 45,986,776	$ 97,415,235	$ -	$ 9,826,641	$ 326,382,939	0.0934	3.67E+08
2	$ 2,583,385,413	$ (330,637,749)	$ 2,252,747,664	$ 166,252,778	$ 82,000,015	$ 44,153,854	$ 106,823,163	$ -	$ 10,775,654	$ 328,005,449	0.0934	3.67E+08
3	$ 2,465,786,596	$ (315,586,720)	$ 2,150,199,876	$ 158,684,751	$ 78,267,275	$ 42,143,918	$ 117,139,666	$ -	$ 11,816,319	$ 329,784,653	0.0934	3.67E+08
4	$ 2,336,830,612	$ (299,082,131)	$ 2,037,748,481	$ 150,385,838	$ 74,174,045	$ 39,939,870	$ 128,452,491	$ -	$ -	$ 316,778,199	0.0934	3.54E+08
5	$ 2,208,378,121	$ (282,641,981)	$ 1,925,736,140	$ 142,119,327	$ 70,096,796	$ 37,744,428	$ 140,857,857	$ -	$ -	$ 320,721,613	0.0934	3.54E+08
6	$ 2,067,520,264	$ (264,614,116)	$ 1,802,906,148	$ 133,054,474	$ 65,625,784	$ 35,336,961	$ 154,461,279	$ -	$ -	$ 322,852,713	0.0934	3.54E+08
7	$ 1,913,058,985	$ (244,845,200)	$ 1,668,213,786	$ 123,114,177	$ 60,722,982	$ 32,696,990	$ 169,378,458	$ -	$ -	$ 325,189,626	0.0934	3.54E+08
8	$ 1,743,680,527	$ (223,167,090)	$ 1,520,513,437	$ 112,213,892	$ 55,346,689	$ 29,802,063	$ 185,736,272	$ -	$ -	$ 327,752,227	0.0934	3.54E+08
9	$ 1,557,944,256	$ (199,395,406)	$ 1,358,548,850	$ 100,260,905	$ 49,451,178	$ 26,627,557	$ 203,673,850	$ -	$ -	$ 330,562,312	0.0934	3.54E+08
10	$ 1,354,270,406	$ (173,327,958)	$ 1,180,942,448	$ 87,153,553	$ 42,986,305	$ 23,146,472	$ 223,343,759	$ -	$ -	$ 333,643,783	0.0934	3.54E+08
11	$ 1,130,926,647	$ (144,743,033)	$ 986,183,614	$ 72,780,351	$ 35,897,084	$ 19,329,199	$ 244,913,300	$ -	$ -	$ 337,022,849	0.0934	3.54E+08
12	$ 886,013,348	$ (113,397,504)	$ 772,615,843	$ 57,019,049	$ 28,123,217	$ 15,143,271	$ 268,565,930	$ -	$ -	$ 340,728,250	0.0934	3.54E+08
13	$ 617,447,417	$ (79,024,765)	$ 538,422,653	$ 39,735,592	$ 19,598,585	$ 10,553,084	$ 294,502,826	$ -	$ -	$ 344,791,502	0.0934	3.54E+08
14	$ 322,944,591	$ (41,332,459)	$ 281,612,132	$ 20,782,975	$ 10,250,682	$ 5,519,598	$ 322,944,591	$ -	$ -	$ 349,247,164	0.0934	3.54E+08
				$ 1,536,711,949		$ 408,124,041	$ 2,658,208,676	$ -	$ 32,418,614	$ 4,635,463,279		

Ck to line 8 ab	2690627290
	1944835989
	4635463279

0062

Exhibit AR-19

Bruce Edward Biewald

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

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. President, 1996 to present.
Consulting on issues of energy economics, environmental impacts, and utility regulatory policy, including electric industry restructuring, electric power system planning, performance-based regulation, stranded costs, system benefits, market power, mergers and acquisitions, generation asset valuation and divestiture, nuclear and fossil power plant costs and performance, renewable resources, power supply contracts and performance standards, green marketing of electricity, environmental disclosure, nuclear plant decommissioning and radioactive waste issues, climate change policy, environmental externalities valuation, energy conservation and demand-side management, electric power system reliability, avoided costs, fuel prices, purchased power availability and cost, dispatch modeling, economic analysis of power plants and resource plans, portfolio management, risk analysis and risk management.

Tellus Institute, Boston, MA. Senior Scientist and Manager of the Electricity Program, 1989 to 1996. Responsible for research and consulting on all aspects of electric system planning, regulation, and restructuring.
Research Associate, later Associate Scientist, 1980 to 1988.

EDUCATION

Massachusetts Institute of Technology,
BS 1981, Architecture, Building Technology, Energy Use in Buildings.
Harvard University Extension School,
1989/90, Graduate courses in micro and macroeconomics.

SUMMARY OF TESTIMONY, PUBLICATIONS, AND PRESENTATIONS

Expert testimony on energy, economic, and environmental issues in more than eighty proceedings in two Canadian provinces, twenty six states, before the Federal Energy Regulatory Commission, and in State and Federal Courts.

Co-author of more than one hundred reports, including studies for the Electric Power Research Institute, the U.S. Department of Energy, the U.S. Environmental Protection Agency, the Office of Technology Assessment, the New England Governors' Conference, and the National Association of Regulatory Utility Commissioners.

Papers published in the Electricity Journal, the Energy Journal, Energy Policy, Public Utilities Fortnightly, and numerous conference proceedings.

Invited to speak by American Society of Mechanical Engineers, International Atomic Energy Agency, National Association of Regulatory Utility Commissioners, National Association of State Utility Consumer Advocates, National Consumer Law Center, the Latin American Energy Association (OLADE), the Swedish Environmental Protection Agency (SNV), the U.S. Environmental Protection Agency, and others.

TESTIMONY

Georgia Public Service Commission (Docket No. 18300-U) – October 2004
Georgia Power Company's cost of service study, treatment of electrical distribution equipment, and proposed rates for the Metropolitan Atlanta Rapid Transit Authority.

Texas Public Utility Commission (Docket No. 29526) – June 2004
Issues in CenterPoint Energy Houston Electric LLC's true up filing, including environmental cleanup costs, excess mitigation credits, and construction work in progress. Also rebuttal testimony on June 14.

Texas Public Utility Commission (Docket No. 28818) – April 2004
The Independent Transmission Operator proposal of Energy Gulf States Utilities, Inc. (prefiled testimony adopted by Paul Peterson).

Indiana Utilitiy Regulatory Commission (Cause No. 42359) – August 2003
Public Service Company of Indiana rate making issues including the impact of trackers on risks to shareholders and customers, costs of environmental compliance, treatment of merchant plant investment and risk, and joint dispatch issues.

Nevada Public Utilities Commission (Docket No. 03-1014) – April 2003
Review of Sierra Pacific Power Company's risk management and procurement of electric power in the wholesale markets.

Nevada Public Utilities Commission (Docket No. 02-11021) – March 2003
Review of Nevada Power Company's risk management and procurement of electric power in the wholesale markets.

United States District Court for the Southern District of Illinois (Civil Action No. 99-833-MJR, United States v. Illinois Power Company and Dynegy Midwest Generation, Inc.) – August 2003
Testimony at trial on analysis and opinions in rebuttal report dated October 2002 on use of computer models for system planning, projections of generating unit operations, and the relationship between generator availability and output.

State of Vermont, Windham Superior Court (Appeal of USGen New England, Inc. from 2001 Property Valuation by the Town of Rockingham) – September 2002
Electricity market prices and economic valuation of hydroelectric generating plant.

United States District Court for the Middle District of North Carolina (Civil Action No. 1:00 CV 1262, United States v. Duke Energy Corporation) – August 2002
Expert report on use of computer models for system planning, projections of generating unit operations, and the relationship between generator availability and output. (Joint report with Phil Hayet.)

Indiana Utility Regulatory Commission (Cause No. 41746) – July 2002
Reply testimony on a rate case settlement agreement, dealing with issues including NiSource's finanical condition, service quality, environmental commitment, and electric rate impacts.

Connecticut Department of Public Utility Control (Docket No. 00-12-13RE01) – July 2002
The proposed sale of Seabrook Nuclear Station to FPL Energy Seabrook, LLC. Market power issues and market modeling.

United States District Court for the Southern District of Indiana (Civil Action No. IP99-1692-C-M/S, United States v. Southern Indiana Gas and Electric Company) – June 2002
Declaration on confidential business information and competitive harm.

Nevada Public Utilities Commission (Docket No. 02-2002) – April 2002
Review of Sierra Pacific Power Company's risk management and procurement of electric power in the wholesale markets.

Vermont Public Service Board (Docket No. 6596) – March 2002
Used and useful policy issues, electricity market prices, and above market costs of the purchase from Hydro Quebec.

Nevada Public Utilities Commission (Docket No. 01-11029) – February 2002
Review of Nevada Power Company's risk management and procurement of electric power in the wholesale markets.

Vermont Public Service Board (Docket No. 6545) – January 2002
Economic analysis of the proposed sale of Vermont Yankee nuclear plant and an associated Purchased Power Agreement.

New Jersey Board of Public Utilities (Docket No. EM01050308) – September 2001
Analysis of the proposed merger between Conectiv and PEPCo. Also, surrebuttal testimony in November. (Joint testimony with David Schlissel.)

Indiana Utility Regulatory Commission (Cause No. 41954) – June 2001
System planning and joint operation in a partially deregulated context.

State of Vermont, Windham Superior Court (Dockets S 362-9-99 and S372-9-99) – May 2001
Deposition on electricity market prices and economic valuation of hydroelectric generating plant.

Federal Energy Regulatory Commission (Docket No. ER01-200-001) – April 2001
Termination of the Cinergy Operating Agreement, treatment of merger savings, and affilliate relationships. Also cross-answering testimony in April.

New Jersey Board of Public Utilities (Docket No. EM00110870) – April 2001
Analysis of the proposed merger between FirstEnergy and GPU. Also, supplemental testimony in April. (Joint testimony with David Schlissel.)

Vermont Public Service Board (Dockets Nos. 6120 and 6460 – March 2001
Used and useful policy issues, electricity market prices, and above market costs of the purchase from Hydro Quebec. Also, surrebuttal testimony in April.

United States District Court for the Northern District of New York (Civil Action No. 00-CV-1738) – January 2001
Affidavit on the issuance and trading of SO2 emission allowances under the Title IV of the Clean Air Act. in Clean Air Markets Group v. George E. Pataki et al.

Department of Energy (Docket No. EE-RM-500) – December 2000
Oral testimony on proposed rules for central air conditioner and heat pump energy conservation standards.

Illinois Commerce Commission (Docket No. 00-0361) – July 2000
Review of ComEd's funding for nuclear power plant decommissioning.

California Public Utilities Commission (Rulemaking 99-10-025) – July 2000
Distributed generation and related rate design issues. Also, rebuttal testimony in August.

Massachusetts Department of Environmental Protection – July 2000
Comments on reliability implications of proposed emission standards for power plants.

Arkansas Public Service Commission (Docket No. 00-048-R) – June 2000
Requirements for electricity market power analyses.

United States District Court for the Middle District of North Carolina (1:99CV00033) – March 2000
Expert report on replacement power costs in Carolina Power & Light Company vs. Yuasa Exide, Inc.

Illinois Commerce Commission (Docket No. 99-0115) – September 1999
Review of ComEd's nuclear power plant decommissioning cost estimates.

West Virginia Public Service Commission (Case No. 98-0452-E-GI) – August 1999
AEP and Allegheny Power restructuring, market power, divestiture of generation, electric system market price modeling, statistical analysis of comparable sales, and responsibility for stranded costs and gains.

Mississippi Public Service Commission (Docket No. 96-UA-389) – August 1999
Review of Entergy Mississippi, Inc. and Mississippi Power Company stranded cost filings, divestiture of generation, statistical analysis of comparable sales, responsibility for stranded costs and gains.

Connecticut Department of Public Utility Control (Docket No. 99-03-36) – July 1999
Connecticut Light and Power Company standard offer service, market prices for electricity and the influence of market power, simulation analysis of the New England electricity market.

Connecticut Department of Public Utility Control (Docket No. 99-03-35) – July 1999
United Illuminating Company standard offer service, market prices for electricity and the influence of market power, simulation analysis of the New England electricity market.

Utah Public Service Commission (Docket No. 98-2035-04) – June 1999
Cost savings expectations for the proposed merger of PacifiCorp and Scottish Power.

Washington Utilities and Transportation Commission (Docket No. UE-981627) – June 1999
Cost savings expectations for the proposed merger of PacifiCorp and Scottish Power and assessment of whether the merger is in the public interest.

Federal Energy Regulatory Commission (Docket Nos. EC98-40-00, et al.) – April 1999
Horizontal market power and barriers to entry in consideration of the proposed merger of American Electric Power Company and Central and South West Corporation.

Connecticut Department of Public Utility Control (Docket No. 99-03-04) – April 1999
Market power, market prices, and simulation modeling as related to the application of United Illuminating Company for recovery of stranded costs.

Connecticut Department of Public Utility Control (Docket No. 99-02-05) – April 1999
Market power, market prices, and simulation modeling as related to the application of Connecticut Light & Power Company for recovery of stranded costs.

Maryland Public Service Commission (Case No. 8797) – January 1999
Simulation analysis of the ECAR market and projected market prices for electricity for estimation of Potomac Electric Company's stranded generation costs and unbundled rates.

Maryland Public Service Commission (Case No. 8795) – December 1998
Simulation analysis of the PJM market and projected market prices for electricity for estimation of Delmarva Power and Light Company's stranded generation costs and unbundled rates.

Maryland Public Service Commission (Cases Nos. 8794 and 8804) – December 1998
Simulation analysis of the PJM market and projected market prices for electricity for estimation of Baltimore Gas and Electric Company's stranded generation costs and unbundled rates.

Vermont Public Service Board (Docket No. 6107) – September 1998
Excess capacity, used & useful, and the economics of Green Mountain Power's purchase from Hydro Quebec.

Mississippi Public Service Commission (Docket No. 96-UA-389) – September 1998
Analyses of market concentration and market power, behavior of affiliated companies, need for an independent system operator.

California Public Utilities Commission (Application No. 97-12-020) – July 1998
Nuclear power plant decommissioning and radioactive waste disposal. Also, rebuttal testimony in August.

Federal Energy Regulatory Commission (Docket No. EC97-46-000) – June 1998
Affidavit on market power implications of the proposed merger between Allegheny Power System and Duquesne Light Company.

New Jersey Board of Public Utilities (Docket Nos. EX4120585Y, EO97070460, and EO97070463) – March 1998
Economic and environmental benefits of energy efficiency, including estimation of marginal air emissions from the PJM System. (Joint testimony with Nathanael Greene, Edward Smeloff, and Thomas Bourgeois.)

Vermont Public Service Board (Docket No. 6018) – February 1998
Excess capacity and the economics of Central Vermont Public Service Company's purchase from Hydro Quebec.

Public Service Commission of Maryland (Case No. 8774) – February 1998
Market power implications of the APS-DQE merger.

Federal Energy Regulatory Commission (Docket Nos. OA97-237-000 and ER97-1079-000) – January 1998
Market power in New England electricity markets.

British Columbia Utilities Commission – November 1997
British Columbia Hydro and Power Authority Wholesale Transmission Services Application.

Pennsylvania Public Utility Commission (Docket R-00973981) – November 1997
West Penn Power Company Restructuring Plan. Environmental disclosure, consumer education, and allocation of default customers.

Pennsylvania Public Utility Commission (Docket R-00974104) – November 1997
Duquesne Light Company Restructuring Plan. Environmental disclosure, consumer education, nuclear decommissioning, and allocation of default customers. Also surrebuttal testimony in December 1997.

Mississippi Public Service Commission (Docket No. 97-UA-496) – November 1997
Petition of Mississippi Power Company for a Certificate of Public Convenience and Necessity Authorizing Construction of a Generating Plant in Jackson County.

Pennsylvania Public Utility Commission (Docket Nos. R-00973953 and P-00971265) – November 1997
Application of PECO Energy Company for approval of its restructuring plan and petition on Enron Energy Services Power, Inc. for approval of an electric competition and customer choice plan. Allocation of default customers.

Vermont Public Service Board (Docket No. 5983) – October 1997
Excess capacity and the economics of Green Mountain Power Company's purchase from Hydro Quebec. Also rebuttal testimony in December 1997 and supplemental rebuttal testimony in January 1998.

Pennsylvania Public Utility Commission (Docket No. R-00973953) – September 1997
Joint petition for partial settlement of PECO Energy Company's proposed restructuring plan and application for a qualified rate order. Environmental disclosure, nuclear decommissioning and spent fuel.

Pennsylvania Public Utility Commission (Docket No. R-00974009) – September 1997
Pennsylvania Electric Company's Restructuring Plan. Environmental disclosure, customer education, and nuclear issues.

Pennsylvania Public Utility Commission (Docket No. R-00974008) – September 1997
Metropolitan Edison Company's Restructuring Plan. Environmental disclosure, customer education, and nuclear issues.

Indiana Legislature, Regulatory Flexibility Committee -- September 23, 1997.
Testimony on "Electric Industry Restructuring To Benefit Consumers and the Environment: Stranded Costs, Nuclear Issues, and Air Emissions."

Pennsylvania Public Utility Commission (Docket No. R-00973954) – June 1997
Pennsylvania Power & Light Company's Restructuring Plan. Environmental disclosure, customer education, PJM market structure, nuclear decommissioning and spent fuel, rate design for stranded cost recovery. Also, surrebuttal testimony in August.

Pennsylvania Public Utility Commission (Docket No. R-00973953) – June 1997
PECO Energy Company's Restructuring Plan. Environmental disclosure, PJM market structure, nuclear decommissioning and spent fuel.

New York Public Service Commission (Case 96-E-0897) -- April 1997
Consolidated Edison Company's Plans for Electric Rate Restructuring. Analysis of market power in the New York City load pocket.

Pennsylvania Public Utility Commission (Docket No. R-00973877) -- February 1997
Application of PECO Energy Company for Issuance of a Qualified Rate Order. Nuclear power plant decommissioning costs, stranded cost recovery, and securitization.

New Hampshire Public Utilities Commission (DR 96-150) -- November 1996
Electric industry restructuring, including stranded costs, industry structure, market power, and nuclear issues.

Massachusetts Department of Public Utilities (96-100) -- July 1996
Nuclear plant stranded costs and decommissioning.

Vermont Public Service Board (5854) – July 1996
Electric industry restructuring, including stranded costs, industry structure, and environmental protection.

Ontario Energy Board (H.R. 23) -- June 1995
Electricity rate options (joint evidence with John Stutz).

Pennsylvania Public Utility Commission (R-00943271) -- April 1995
Discount rates and system benefits charge.

Colorado Public Utilities Commission (94A-516A) – January 1995
Construction of new generating resources.

Public Service Commission of Nevada (94-9002) – November 1994
Environmental and health impacts of a proposed power plant.

Nuclear Decommissioning Finance Committee of New Hampshire (93-001) – September 1994
Seabrook decommissioning cost, spent fuel storage, and cost collection methodology (joint testimony with William Dougherty).

Public Service Commission of Wisconsin (6630-CE-197 and 6630-CE-209) – September 1994
Point Beach externalities, economics, spent fuel storage, and aging (joint testimony with William Dougherty).

British Columbia Utilities Commission – August 1994
Greenhouse gas emissions and environmental externalities policy

Public Service Commission of Wisconsin (05-EI-14) – February 1994
Cost of decommissioning Point Beach and Kewaunee nuclear power plants. Also, rebuttal and surrebuttal testimony in February.

Delaware Public Service Commission (91-39) – September 1992
Nuclear and fossil power plant performance targets.

Massachusetts Department of Public Utilities (91-131) – December 1991
Internalization of environmental externalities, greenhouse gas valuation and policy.

Massachusetts Department of Public Utilities (91-131) – October 1991
Environmental externalities valuation, emissions effects and global warming.

Massachusetts Department of Public Utilities ((89-141, 90-73, 90-141, 90-194 and 90-270) – December 1990
The incorporation of environmental externalities in specific utility RFPs.

Massachusetts Department of Public Utilities (90-55) – June 1990
Costs and benefits of high-efficiency gas heating equipment.

Massachusetts Department of Public Utilities (86-36-G and 89-239) – March 1990
Environmental externalities of electric resources.

Florida Public Service Commission (890973-E1) – January 1990
Integrated energy planning, power plant emissions, and nuclear plant performance.

Pennsylvania Public Utilities Commission (R-891364) – October 1989
Generating capacity requirements of the Philadelphia Electric Company and the Pennsylvania-New Jersey-Maryland Interconnection.

Maryland Public Service Commission (8199) – October 1989
Performance standards for coal, oil, and nuclear power plants.

Michigan Public Service Commission (U-9172) – April 1989
Economic analysis of the Palisades Power Purchase Agreement. Ratepayer impacts, incentives, and implications for plant operation and decommissioning.

Pennsylvania Public Utility Commission (P-870216, P-880283, P-880284, and P-880286) – March 1989
Allegheny Power System planning and avoided costs.

Michigan Public Service Commission (U-8880) – February 1988
Detroit Edison Company power supply costs, economics of Fermi "buy-back" purchase, nuclear fuel expense, oil costs, and power transactions.

0070

Michigan Public Service Commission (U-8866) – December 1987
Consumers Power Company power supply costs, including projections of oil prices and purchased power costs.

Pennsylvania Public Utility Commission (R-850220) – September 1987
Economic analysis of West Penn Power Company's participation in the Bath County Pumped Storage Project, and Allegheny Power System capacity reserve requirements. Also, surrebuttal testimony in October.

Arizona Corporation Commission (U-1345-85-367) – February 1987
Palo Verde decommissioning cost.

Michigan Public Service Commission (U-8545) – December 1986
Consumers Power Company power costs, projected cost of oil and purchased power, economic evaluation of the Big Rock Point nuclear unit.

Public Service Commission of Indiana (38045) – November 1986
Northern Indiana Public Service Company system reliability and excess capacity.

California Public Utility Commission (84-06-014 and 85-08-025) – July 1986
Diablo Canyon decommissioning cost and collection issues.

Michigan Public Service Commission (U-8042R) – June 1986
Review of Consumers Power Company system operations during 1985 and economic evaluation of the Big Rock Point nuclear unit.

Michigan Public Service Commission (U-8291) – April 1986
Detroit Edison Company power supply costs, application of a multi-area dispatch model.

Michigan Public Service Commission (U-8286) – February 1986
Consumers Power Company power supply costs, application of a multi-area dispatch model.

Maine Public Service Commission (85-132) – January 1986
Standard and long term rates for cogeneration and small power production. Surrebuttal testimony in February.

Arkansas Public Service Commission (84-249-U) – June 1985
Impact of the Grand Gulf nuclear unit upon Arkansas Power and Light Company and Middle South Utilities electricity production costs.

Kentucky Public Service Commission (8666) – February 1984
Production costing modeling issues.

REPORTS
Preliminary Estimates of Economic Impacts and Avoided Air Emissions from Renewable Generation and Efficiency Programs in New England: Phase 1 Summary, a Synapse Energy Economics, Inc. report for the Regulatory Assistance Project by William Steinhurst, Robert McIntyre, Bruce Biewald, Cliff Chen, and Kenji Takahashi. June 24, 2004.

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A Responsible Electricity Future: An Efficient, Cleaner and Balanced Scenario for the US Electricity System, a Synapse Energy Economics, Inc. report for the National Association of State PIRGs, by Bruce Biewald, David White, Geoff Keith, and Time Woolf. June 11, 2004.

Electricity Prices in PJM: Comparison of Wholesale Power Costs in the PJM Market to Indexed Generation Service Costs, a Synapse Energy Economics, Inc. report prepared for the PJM Interconnection, L.L.C., by Bruce Biewald, William Steinhurst, David White, and Amy Roschelle. June 3, 2004.

Reply Comments in Docket No. 2004-147: Strategies for Procuring Residential and Small Commercial Standard Offer Supply in Maine, a Synapse Energy Economics, Inc. report prepared for the Maine Office of Public Advocate by Amy Roschelle, Bruce Biewald, and Paul Peterson. April 21, 2004.

Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers, a Synapse Energy Economics, Inc. report prepared for the Regulatory Assistance Project and the Energy Foundation, by Bruce Biewald, Tim Woolf, Amy Roschelle and William Steinhurst. October 10, 2003.

A Clean Electricity Strategy for the Hudson River Valley, a Report for the Hudson River Foundation by Synapse Energy Economics and Pace Law School Energy Project. Geoff Keith, Bruce Biewald, David E. White, and Fred Zalcman. October 2003.

Estimating the Environmental Benefits of Renewable Energy and Energy Efficiency in North America: Experience and Methods, a report for the Commission for Environmental Cooperation, by Geoffrey Keith, Bruce Biewald, Anna Sommer, Patrick Henn, and Miguel Breceda, September 22, 2003.

Comments on the RPS Cost Analyses of the Joint Utilities and the DPS Staff, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Bruce Biewald, Cliff Chen, Anna Sommer, William Steinhurst, and David E. White. September 19, 2003.

Modeling Demand Response and Air Emissions in New England, a Synapse Energy Economics, Inc. report prepared for the U.S. Environmental Protection Agency, by Geoff Keith, Bruce Biewald, David White, and Mike Drunsic, August 2003.

Cleaner Air, Fuel Diversity and High-Quality Jobs: Reviewing Selected Potential Benefits of an RPS in New York State, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Geoff Keith, Bruce Biewald, David White, Anna Sommer and Cliff Chen. July 28, 2003.

The New England Experiment: An Evaluation of the Wholesale Electricity Markets, a Synapse Energy Economics, Inc. report provided to the Connecticut Office of Consumer Counsel, Maine Office of the Public Advocate, and New Hampshire Office of Consumer Advocate, by Paul Peterson, David White, Bruce Biewald, and Cliff Chen, June 2003.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants," a Synapse Energy Economics, Inc. report prepared for the STAR Foundation and Riverkeeper, Inc., by David Schlissel, Paul Peterson, and Bruce Biewald, August 7, 2002.

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Predicting Avoided Emissions from Policies that Encourage Energy Efficiency and Clean Power, a Synapse Energy Economics, Inc. report prepared for the Ozone Transport Commission, by Geoff Keith and Bruce Biewald, June 24, 2002.

Survey of Clean Power and Energy Efficiency Programs, a Synapse Energy Economics report prepared for the Ozone Transport Commission, by Lucy Johnston, Geoff Keith, Tim Woolf, Bruce Biewald, and Etienne Gonin, January 14, 2002.

Updated Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts, a Resource Insight report for the AESC Study Group, by Paul Chernick, Susan Geller, Bruce Biewald, and David White, December 5, 2001.

Best Practices in Market Monitoring: A Survey of Current ISO Activities and Recommendations for Effective Market Monitoring and Mitigation in Wholesale Electricity Markets, a Synapse Energy Economics report for the Maryland Office of People's Counsel, the Pennsylvania Office of Consumer Advocate, the Delaware Division of the Public Advocate, the New Jersey Division of the Ratepayer Advocate, and the Office of the People's Counsel of the District of Columbia, by Paul Peterson, Bruce Biewald, Lucy Johnston, Etienne Gonin, and Jonathan Wallach, November 9, 2001.

Electricity Market Analysis of Coal Waste Regulations: An Illustrative Midwest Case Study, a Synapse Energy Economics report prepared for US Environmental Protection Agency by Bruce Biewald, David White, and Montserrat Ramiro, October 31, 2001.

The Other Side of Competitive Markets: Developing Effective Load Response in New England's Electricity Market, a Synapse Energy Economics report prepared for the Maine Department of Attorney General and the Maine Office of the Public Advocate, June 13, 2001.

Valuation of the Bellows Falls Hydroelectric Generating Station as of April 2001, a Synapse Energy Economics report, June 4, 2001.

Room to Breathe: Why the Massachusetts Department of Environmental Protection's Proposed Air Regulations Are Compatible With Electric System Reliability, a Synapse Energy Economics report prepared for MASSPIRG and Clean Water Fund, March 2001

Repowering the Midwest: A Plan for Cleaning Up the Electricity Industry in America's Heartland, prepared for the Environmental Law and Policy Center and a coalition of Midwest environmental organizations, February, 2001.

Generator Outage Increases: A Preliminary Analysis of Outage Trends in the New England Electricity Market, a Synapse Energy Economics report prepared for the Union of Concerned Scientists, by Daniel Allen, Bruce Biewald, and David Schlissel, January 7, 2001.

Marginal Price Assumptions for Estimating Customer Benefits of Air Conditioner Efficiency Standards: Comments on the Department of Energy's Proposed Rules for Central Air Conditioners and Heat Pump Energy Conservation Standards, a Synapse Energy Economics report prepared for the Appliance Standards Awareness Project, by Tim Woolf, Bruce Biewald, and Daniel Allen, December 4, 2000.

Transmitting Windpower from the Dakotas to Chicago: A Preliminary Analysis of a Hydrogen Transmission Scenario, a Synapse Energy Economics report prepared for the Environmental Law and Policy Center, with funding from the Leighty Foundation, by Barclay Gibbs and Bruce Biewald, September 8, 2000.

Valuation of Hydroelectric Generating Facilities on the Connecticut and Deerfield Rivers in Vermont, a Synapse Energy Economics report for the Vermont Department of Taxes, by Bruce Biewald, Daniel Allen, David White, Neil Talbot, Paul Kirshen, Lawrence Martin, Paul Chernick, and Rachel Brailove, April 1, 2000.

Use of Selective Caralytic Reduction For Control of NOx Emissions From Power Plants in the U.S., a Synapse Energy Economics report for the OntAIRio Campaign, February, 2000.

Electricity Market Distortions Associated With Inconsistent Air Quality Regulations, by Tim Woolf, Bruce Biewald, and David White for the Project for Sustainable FERC Energy Policy, November 18, 1999.

Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts, a Resource Insight report for the AESC Study Group, by Rachel Brailove, Paul Chernick, Susan Geller, Bruce Biewald, and David White, July 7, 1999.

Comments on the Scope of Issues for FERC Staff's Environmental Assessment of the Proposed Rule on RTOs by the Project for Sustainable FERC Energy Policy on behalf of Multiple Parties, prepared by Terry Black and Bruce Biewald, June 14, 1999.

Stranded Nuclear Waste: Implications of Electric Industry Deregulation for Nuclear Plant Retirements and Funding for Decommissioning and Spent Fuel, by Bruce Biewald and David White, January 15, 1999.

New England Tracking System, a report to the New England Governors' Conference, Inc., funded by a grant from the U.S. Environmental Protection Agency, prepared with Environmental Futures, Inc. and Tellus Institute, October 1998.

The Role of Ozone Transport In Reaching Attainment in the Northeast: Opportunities, Equity and Economics, a Synapse Energy Economics report for the Northeast States for Coordinated Air Use Management, by Tim Woolf, David White, Bruce Biewald, and William Moomaw, July 1998.

Competition and Market Power in Northern Maine Electricity Market, a Synapse Energy Economics report for the Maine Public Utilities Commission, by Tim Woolf, Bruce Biewald, and Duncan Glover, November 24, 1998.

Grandfathering and Environmental Comparability: An Economic Analysis of Air Emission Regulations and Electricity Market Distortions, a Synapse Energy Economics report for the National Association of Regulatory Utility Commissioners, by Bruce Biewald, David White, Tim Woolf, Frank Ackerman, and William Moomaw, June 11, 1998.

Analysis of Market Power in the APS and Duquesne Service Territories, prepared for the Maryland Office of People's Counsel, by Bruce Biewald and David White, February 9, 1998.

0074

Performance-Based Regulation in a Restructured Electric Industry, a Synapse Energy Economics report for the National Association of Regulatory Utility Commissioners, by Bruce Biewald, Tim Woolf, Peter Bradford, Paul Chernick, Susan Geller, and Jerrold Oppenheim, November 8, 1997.

Massachusetts Electric Utility Stranded Costs, a Synapse Energy Economics report for MASSPIRG, Union of Concerned Scientists, Clean Water Action, Massachusetts Citizens for Safe Energy, and Public Citizen, by Bruce Biewald, Tim Woolf, and Marc Breslow, November 4, 1997.

Horizontal Market Power in New England Electricity Markets: Simulation Results and a Review of NEPOOL's Analysis, prepared for the New England Conference of Public Utility Commissioners, by Bruce Biewald, David E. White, and William Steinhurst, June 11, 1997 (a draft was published as Vermont DPS Technical Report No. 39 in March, 1997).

Zero Carbon Electricity: The Essential Role of Efficiency and Renewables in New England's Electricity Mix, a Tellus Institute report for the Boston Edison Company Settlement Board, by Bruce Biewald, Tim Woolf, Bill Dougherty, and Daljit Singh, April 30, 1997.

Full Environmental Disclosure for Electricity: Tracking and Reporting Key Information, a Regulatory Assistance Project report funded by the Pew Charitable Trusts, the Joyce-Mertz Gilmore Foundation, the U.S. EPA, and the U.S. DOE, by David Moskovitz, Tom Austin, Cheryl Harrington, Bruce Biewald, David E. White, and Robert Bigelow, March 1997.

Restructuring the Electric Utilities of Maryland: Protecting and Advancing Consumer Interests, for the Maryland People's Counsel, by Paul Chernick, Jonathan Wallach, Susan Geller, John Plunkett, Roger Colton, Peter Bradford, Bruce Biewald, and David Wise, February 20, 1997.

Sustainable Electricity for New England: Developing Regulatory and Other Governmental Tools to Promote and Support Environmentally-Sustainable Technologies in the Context of Electric Industry Restructuring, a report to the New England Governors' Conference, by Bruce Biewald, Max Duckworth, Gretchen McClain, David Nichols, Richard Rosen, and Steven Ferrey, Tellus No. 95-310, January 1997.

Restructuring New Hampshire's Electric Power Industry: Stranded Costs and Market Power, a report for the New Hampshire Office of Consumer Advocate, by Bruce Biewald, Paul Chernick, Jonathan Wallach, and Peter Bradford, Synapse Report No. 96-05, November 1996

Comments of the New Hampshire Office of Consumer Advocate on Restructuring New Hampshire's Electric Utility Industry, by Bruce Biewald, Paul Chernick, Jonathan Wallach, and Peter Bradford, Synapse Report No. 96-04, October 18, 1996.

Can We Get There From Here?: The Challenge of Restructuring the Electricity Industry so that We Can All Benefit, a White Paper for CalNeva, Consumer Action, Consumer Federation of California, Consumers First, Greenlining Coalition, Latino Issues Forum, Towards Utility Rate Normalization, and Utility Consumers' Action Network, by John Stutz, Bruce Biewald, Daljit Singh, Tim Woolf, George Edgar, and Wayne DeForrest, April 1996.

A Study of the Impacts of EPA Phase II SO_2 and NO_x Emissions Standards on Electrical Facilities in the ECAR Region, for the Advisory Committee on Competition in Ontario's Electricity System, Ministry of Environment and Energy, by Stephen Bernow, Bruce Biewald, William Dougherty, Maxim Duckworth, and Daljit Singh, Tellus No. 96-069, April 15 1996.

A Projection of Future Market-Based Prices for Air Emissions: Consequences for Renewable and Demand-Side Management Resources, for the Massachusetts Division of Energy Resources, by Maxim Duckworth and Bruce Biewald, Tellus Institute, March 29, 1996.

Promoting Environmental Quality in a Restructured Electric Industry, for the National Association of Regulatory Utility Commissioners, Tellus No. 95-056, December 1995.

Systems Benefits Funding Options, a report to Wisconsin Environmental Decade, Tellus No. 95-248, October 1995.

Costing Energy Resource Options: An Avoided Cost Handbook for Electric Utilities, prepared for the U.S. EPA, Tellus No. 93-251, September 1995.

Electric Resource Planning for Sustainability, a report to the Texas Sustainable Energy Development Council, Tellus No. 94-114, February 1995.

New York State Environmental Externalities Cost Study Report; Report 3a: EXMOD User manual; Report 3b: EXMOD Reference manual; Report 4: Case Studies, prepared for the Empire State Electric Energy Research Corporation and New York State Energy Research and Development Authority. ESEERCO Project EP91-50, December 1994.

"Comments on the DOE's Proposed Rulemaking Regarding Energy Conservation Standards for Three types of Consumer Products: Including Fuel Cycle Environmental Impacts and Resource Depletion in a Societal Cost-Benefit Framework," December 1994.

Comments on the Northwest Power Planning Council's Issue Paper #94-50: "Accounting for Environmental Externalities in the Power Plan," Tellus No. 94-284, December 1994.

Comments on Incentive Regulation in Massachusetts, DPU 94-158, November 1994.

Valuation of Environmental and Human Health Risks Associated with Electric Power Generation: A Discussion of Methods and a Review of Greenhouse Gas Studies, a report prepared for the Izaak Walton League of America, Minnesotans for an Energy Efficient Economy, American Wind Energy Association, Clean Water Action, American Lung Association, Minnesota Center for Environmental Advocacy, and Institute for Local Self Reliance, Tellus No. 94-202, November 1994.

Resource and Compliance Planning: A Utility Case Study of Combined SO_2/CO_2 Reduction, Report Prepared in Cooperative Agreement with the U.S. EPA Acid Rain Division, Tellus No. 92-185, October 1994.

Modelling Renewable Electric Resources: A Case Study of Wind, a report to the U.S. Department of Energy, Tellus No. 91-187, October 1994.

A Review of Methods and Models for Estimating the System Risk Reduction Value of DSM, prepared for the Boston Edison Settlement Board, Tellus No. 93-174B, September 1994.

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Life Extension and Repowering for Fossil Plants: Guidelines for Evaluating Projects, prepared for the Energy Foundation, Tellus No. 92-147A, August 1994.

License Renewal for Nuclear Power Plants: Guidelines for Evaluating Continued Operation, prepared for the Energy Foundation, Tellus No. 92-147B, August 1994.

Greenhouse Gas Emissions: Targets and Control Costs, for the British Columbia Energy Coalition, Tellus No. 94-195, August 1994.

Non-Price Benefits of BECo Demand-Side Management Programs, for the Boston Edison Settlement Board, Tellus No. 93-174A, July 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Air Pollutants, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/2, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Air Toxics - Heavy Metals, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/3, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Greenhouse Gases, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/4, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Land and Water Impacts, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/5, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Nuclear Fuel Cycle Externalities: Uranium Mining, Reactor Operations, Accidents, and Waste Disposal, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/6, June 1994.

Comments on the State of Wisconsin Draft Environmental Impact Statement - Point Beach Nuclear Power Plant Projects Proposed by Wisconsin Electric Power Company, for the Wisconsin Citizens' Utility Board, Tellus No. 92-058, April 1994.

Incorporating Environmental Externalities in Energy Decisions: A Guide for Energy Planners, a report to the Swedish International Development Agency, Tellus No. 91-157, February 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Introductory Report, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/1, January 1994.

Cooling Towers for Hudson River Power Plants, Economic and Environmental Considerations, for Scenic Hudson, Inc., Tellus No. 92-022, July 1993.

Energy Efficiency for Massachusetts: A Strategy for Energy, Environment and the Economy, a report to the Massachusetts Division of Energy Resources, Tellus No. 92-236D, April 1993.

Renewable Energy for Massachusetts: A Strategy for Energy, Environment and the Economy, a report to the Massachusetts Division of Energy Resources, Tellus No. 92-236H, April 1993.

The Environmental Impacts of Demand-Side Management Measures, a report for the Electric Power Research Institute, EPRI No. TR-101573, Research Project 3121-05, Tellus No. 92-089, December 1992.

Incorporating Environmental Externalities in Electric System Planning, a report to the Colorado Office of Energy Conservation, Tellus No. 91-203/SB, April 1992.

Evaluation of the Application of Aquidneck Power Limited Partnership to Construct an Energy Facility in Portsmouth, Rhode Island, a report to the Rhode Island Division of Public Utilities and Carriers, The Governor's Office of Housing, Energy and Intergovernmental Relations, and The Department of Administration/Division of Planning, Tellus No. 91-255, April 1992.

Need for and Alternatives to Nuclear Plant License Renewal, a report sponsored by the Vermont Department of Public Service, Tellus No. 91-248, March 1992.

Preliminary Study on Integrated Resource Planning for the Consumers' Gas Company, Ltd., prepared for Consumers Gas Company, Ltd., Tellus No. 91-001, January 1992.

America's Energy Choices: Investing in a Strong Economy and a Clean Environment, in collaboration with the Union of Concerned Scientists, the American Council for an Energy Efficient Economy, the Natural Resources Defense Council, and the Alliance to Save Energy, Tellus No. 90-067, 1991.

Valuation of Environmental Externalities: Sulfur Dioxide and Greenhouse Gases, for the Massachusetts Division of Energy Resources, Tellus No. 91-085, December 1991.

CASM: Coordinated Abatement Strategy Model, Stockholm Environment Institute, Stockholm, Sweden, November 1991.

Valuation of Environmental Externalities for Electric Utility Resource Planning in Wisconsin, a report to Citizens for a Better Environment, Milwaukee, WI, Tellus No. 91-104, November 1991.

The Environmental Costs and Benefits of DSM: A Framework for Analysis, prepared for the Electric Power Research Institute, Tellus No. 90-177, January 1991.

The Potential Impact of Environmental Externalities on New Resource Selection and Electric Rates, for and with the Massachusetts Division of Energy Resources, Tellus No. 90-165, January 1991.

Environmental Impacts of Long Island's Energy Choices: The Environmental Benefits of Demand-Side Management, prepared for Long Island Power Authority, Tellus No. 90-028A, September 1990.

Review of Southern Connecticut Gas Company's Conservation Impact Model, prepared for the Conservation Collaborative Group (Southern Connecticut Gas Company, Connecticut Department of Public Utility Control (DPUC), Prosecutorial Division, DPUC, Office of Policy and Management/Energy Division, and Office of Consumer Counsel), Tellus No. 90-084, July 1990.

Disposal Costs at Existing and Proposed Low-Level Radioactive Waste Disposal Facilities and the Implications for Vermont, prepared for the Vermont Department of Public Service, Tellus No. 89-168, March 1990.

Affidavit on Seabrook Decommissioning, prepared for the Massachusetts Attorney General, ESRG Project No. 89-246, February 1990.

The Economics of the Palisades Nuclear Plant: An Analysis of the Proposed Sale and Power Purchase Agreement, a report to the Michigan Attorney General, ESRG No. 88-100C, April 1989.

An Analysis of Physical Excess and Uneconomic Capacity Resulting from the Addition of Beaver Valley 2 and Perry 1 to the Centerior Generating System, a report for the Ohio Office of Consumers' Counsel, ESRG No. 88-38B, October 1988.

The Economics of Diablo Canyon: Analyses of the Proposed Settlement Agreement and the Continued Operation of the Plant, a report for the Redwood Alliance, ESRG No. 88-050R, September 1988.

The Fort St. Vrain Nuclear Plant: Economics and Related Issues, a report to the Colorado Office of Consumer Council, ESRG No. 86-004, May 1987.

Towards an Energy Transition on Long Island: Issues and Directions for Planning, a report for Nassau and Suffolk Counties, New York, ESRG No. 87-05, April 1987.

The Economics of Completing and Operating the Vogtle Nuclear Generating Facility, prepared for the Georgia Office of Consumers' Utility Counsel, ESRG No. 85-098, April 1986.

Audit-Related Issues in the WHIP Program, a report to Technical Development Corporation, ESRG No. 85-41, January 1986.

Two Issues in Georgia Power Company's Planning: The Economics of the Vogtle Plant - The Company's Load Forecasting, ESRG No. 85-51A, December 1985.

Cost-Benefit Analysis of the Cancellation of Commonwealth Edison's Braidwood Nuclear Generating Station, ESRG No. 83-87, October 1984.

The Economics of Seabrook 1 from the Perspective of the Three Maine Co-owners, a report to the Maine Public Utilities Commission, ESRG No. 84-38, September 1984.

Evaluation of the Massachusetts Energy Conservation Service, ESRG No. 84-07, August 1984.

Electric Rate Consequences of Cancellation of the Midland Nuclear Power Plant, ESRG No. 83-81/1, May 1984.

Power Planning in Kentucky: Assessing Issues and Choices, Technical Report III: Conservation as a Planning Option, ESRG No. 83-51/TRIII, January 1984.

Electric Rate Consequences of Retiring the Robinson 2 Nuclear Power Plant, ESRG No. 83-10, January 1984.

Power Planning in Kentucky: Assessing Issues and Choices, Technical Report I: Long Range Forecasts of Electricity Requirements for Kentucky and its Six Major Utilities, ESRG No. 83-51/TRI, December 1983.

Power Planning in Kentucky: Assessing Issues and Choices, Project Summary to the Public Service Commission, ESRG No. 83-51, November 1983.

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Electricity and Gas Savings from Expanded Public Service Electric and Gas Company Conservation Programs, a report to the New Jersey Division of Rate Counsel, ESRG No. 82-43/2, October 1983.

Long Island Without the Shoreham Power Plant: Electricity Cost and System Planning Consequences, ESRG No. 83-14/S, July 1983.

A Technical Report to the Staff of the District of Columbia Public Service Commission on the Benefits to Ratepayers of the Electric Power Research Institute and Gas Research Institute Programs, ESRG No. 83-11, February 1983.

Customer Programs to Moderate Demand Growth on the Arizona Public Service Company System: Identifying Additional Cost-Effective Program Options, ESRG No. 82-14, December 1982.

The Economics of Alternative Space and Water Heating Systems in New Construction in the New Jersey Power and Light Service Area, a report to the Public Advocate, ESRG No. 82-31, December 1982.

Report on Electricity Conservation in the State of Vermont: Assessing the Potential and Developing Program Strategies, a report to the Department of Public Service, ESRG No. 82-23, October 1982.

Long-Range Forecast of Electric Loads in the State of Vermont, ESRG No. 82-16, October 1982.

The Economics of Closing the Indian Point Nuclear Power Plants, ESRG No. 82-40, October 1982.

Priority Residential Customer Programs to Conserve Electricity and Gas in the Public Service Electric and Gas Company Area, a report to the Division of Rate Counsel for New Jersey Board of Public Utilities, ESRG No. 82-43, September 1982.

The Impacts of Early Retirement of Nuclear Power Plant: The Case of Maine Yankee, ESRG No. 82-91, August 1982.

Long Range Forecast of Atlantic City Electric Company Electric Energy and Peak Demand, a report to the New Jersey Board of Public Utilities, ESRG No. 82-17/1, July 1982.

A Power Supply and Financial Analysis of the Seabrook Nuclear Station as a Generation Option for the Maine Public Service Company, a report to the Staff of the Maine Public Utilities Commission, April 1982.

Long Range Forecast of Detroit Edison Company Electric Energy Requirements and Peak Demands, a report to the Michigan Public Service Commission, ESRG No. 81-60/2, April 1982.

Long Range Forecast of Consumer's Power Company Electric Energy Requirements and Peak Demands, a report to the Michigan Public Service Commission, ESRG No. 81-60, March 1982.

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A Conservation Case Forecast of Electric Energy Consumption and Peak Demand in the Sierra Power Company Service Area, ESRG No. 81-42/2, February 1982.

Maine Public Service Company's Electric Energy Requirements and Peak Demands, a report to the Maine Public Utilities Commission, ESRG No. 81-61, January 1982.

A Conservation Investment Scenario for the Northeast Utilities Connecticut Service Area, ESRG No. 81-12/1, October 1981.

The Conservation Investment Alternative for New York State, ESRG No. 80-42, September 1981.

A Conservation Investment Program for Alabama Power Company, a report to the Alabama Public Service Commission, ESRG No. 80-62/2, July 1981.

A Conservation Investment Strategy for Utah Power and Light Company: Cost- Benefit Analysis, Public Service Commission of Utah, Case No. 80-035-17, ESRG No. 81-06, February 1981.

The Conservation Alternative to the Power Plant at Shoreham, Long Island, ESRG No. 80-31, November 1980.

PAPERS

"Capacity for the Future: Kinky Curves and Other Reliability Options," Paul Peterson, David White, Amy Roschelle, and Bruce Biewald, December 20, 2004.

"Estimating Emission Reductions from Energy Efficiency in the Northeast," Bruce Biewald and Geoff Keith, ACEEE 2004 Summer Study, Pacific Grove, CA. August 22-27, 2004.

"Long-Term Power Contracts: The Art of the Deal," Amy Roschelle, William Steinhurst, Paul Peterson, and Bruce Biewald, *Public Utilities Fortnightly*, August 2004.

"Designing Demand Response Programs in New England to Achieve Air Quality Benefits," Geoffrey Keith, Bruce Biewald, and David White, *The Electricity Journal*, May 2004.

"The 2003 Blackout: Solutions that Won't Cost a Fortune," David White, Amy Roschelle, Paul Peterson, David Schlissel, Bruce Biewald, and William Steinhurst, *The Electricity Journal*, November 2003.

"Electricity Market Distortions Associated with Inconsistent Air Quality Regulations," Tim Woolf and Bruce Biewald, *The Electricity Journal*, April 2000.

"Grandfathering and coal plant emissions: the cost of cleaning up the Clean Air Act," Frank Ackerman, Bruce Biewald, David White, Tim Woolf, William Moomaw, *Energy Policy*, Volume 27, Number 15, December 1999.

"Follow the Money: A Method for Tracking Electricity for Environmental Disclosure," Bruce Biewald, David White, and Tim Woolf, *The Electricity Journal*, May 1999.

Book Review of "U.S. Utility Mergers and the Restructuring of the New Global Power Industry," in *Energy*, October 1998.

0081

"Implications of Premature Nuclear Plant Closures: Funding Shortfalls for Nuclear Plant Decommissioning and Spent Fuel Transportation and Storage," Bruce Biewald and David White, prepared for the United States Association for Energy Economics and International Association for Energy Economics, 19th Annual North American Conference, Albuquerque, NM, October 1998.

"Efficiency, Renewables and Gas: Restructuring as if Climate Mattered," Tim Woolf and Bruce Biewald, *The Electricity Journal*, January/February 1998.

"Green Electricity: Tracking Systems for Environmental Disclosure," B. Biewald and J.A. Ramey, proceedings of WINDPOWER '97, the American Wind Energy Association's annual conference in Austin, Texas, forthcoming.

"Competition and Clean Air: The Operating Economics of Electricity Generation," *The Electricity Journal*, January/February 1997.

"Electric Industry Restructuring and Environmental Sustainability," proceedings of the United States Association for Energy Economics and International Association for Energy Economics, 17th North American Conference on (De)regulation of Energy, Boston, October 1996.

"Residential Real-Time Metering Technology for Electricity Restructuring," Daljit Singh and Bruce Biewald, presented at the National Training and Information Center conference, Chicago, September 1996.

"Competition and Environmental Impacts in the U.S. Electric Sector: Must Market Forces be Tamed?," presented at the International Society of Ecological Economics conference, Boston, August 1996.

"Stranded Risk: Nuclear Power Issues in Electricity Restructuring," for Energy Advocates meeting in Austin, Texas, May 1996.

"Counting the Costs: Scientific Uncertainty and Valuation Perspective in EXMOD," Stephen Bernow, Bruce Biewald, William Dougherty, and David White, presented at technical meeting of the International Atomic Energy Agency, Vienna, Austria, December 4-8, 1995.

"Environmentally Targeted Objectives for Reducing Acidification in Europe," *Energy Policy*, C.A. Gough, P.D. Bailey, B. Biewald, J.C.I. Kuylenstierna and M.J. Chadwick, December 1994.

"Environmental Externalities: Highways and Byways," NRRI Quarterly Bulletin, Vol. 15 No. 4, Bruce Biewald, Paul Chernick and Bill Steinhurst, December 1994. Also presented at NARUC's 5th National Conference on Integrated Resource Planning, Kallispell, Montana, May 15-18, 1994.

"From Social Costing to Sustainable Development: Beyond the Economic Paradigm," Stephen Bernow, Bruce Biewald, and Paul Raskin, in Social Costs of Energy: Present Status and Future Trends, Proceedings of an International Conference held at Racine, Wisconsin, September 8-11, 1992. Edited by Olav Hohmeyer and Richard Ottinger. Published by Springer-Verlag, September 1994.

"Modelling Renewable Electric Resources: A Case Study of Wind," Stephen Bernow, Bruce Biewald, Daljit Singh, and Jeff Hall, proceedings of the Ninth NARUC Biennial Regulatory Information Conference, Columbus, OH, September 7-9, 1994.

"Alternative Closed Cycle Cooling Systems for Power Plants: A Framework of Evaluation in Integrated Resource Planning," Daljit Singh and Bruce Biewald, in the proceedings of the Ninth NARUC Biennial Regulatory Information Conference, Columbus, OH. September 7-9, 1994.

"Misconceptions, Mistakes and Misnomers in DSM Cost-Effectiveness Analysis, Or What Do You Really Mean By T.R.C.?," Mark Fulmer and Bruce Biewald, ACEEE 1994 Summer Study, Pacific Grove, CA. August 28 - Sept. 2, 1994.

"Modelling Renewable Electric Resources: A Case Study of Wind Power," Stephen Bernow, Bruce Biewald, and Daljit Singh, presented at WINDPOWER 1994, Sponsored by American Wind Energy Association, Minneapolis, Minnesota, May 9-13, 1994.

"National Climate Change Policy and Clean Air Act Compliance: A Case Study of Combined CO2/SO2 Reduction," Stephen Bernow, Bruce Biewald, Mark Fulmer, Tim Woolf, Kristen Wulfsberg, and Barry Solomon, in the proceedings of NARUC's 5th National Conference on Integrated Resource Planning, Kallispell, Montana, May 15-18, 1994.

"Modelling Renewable Electric Resources: A Case Study of Wind Reliability," Stephen Bernow, Bruce Biewald, and Daljit Singh, presented at the NARUC-DOE National Regulatory Conference on Renewable Energy, Savannah, Georgia, October 3-6, 1993.

"Environmental Sustainability as a Goal in Resource Planning and Policy," Stephen Bernow and Bruce Biewald, Office of Technology Assessment workshop, Washington, DC. April 1993.

"Climate Change and the U.S. Electric Sector," Bruce Biewald and Stephen Bernow, presented at NARUC's 4th National Conference on Integrated Resource Planning, Burlington, Vermont, September 1992.

"Coordinating Clean Air Act Compliance with Integrated Resource Planning: The Role of Externalities," Stephen Bernow, Bruce Biewald, and Kristin Wulfsberg, the Eighth NARUC Biennial Regulatory Information Conference, Ohio State University, Columbus, Ohio. September 9-11, 1992.

"Direct Environmental Impacts of Demand-Side Management," Stephen Bernow, Frank Ackerman, Bruce Biewald, Mark Fulmer, Karen Shapiro, and Kristin Wulfsberg, American Council for an Energy Efficient Economy (ACEEE) 1992 Summer Study, September 1992.

"Modelling Fuel Cycle and Site-Dependent Environmental Impacts in Electric Resource Planning," Stephen Bernow and Bruce Biewald, invited paper at OECD-IEA Expert Workshop on Life-Cycle Analysis of Energy Systems, Paris, France, May 18 and 19, 1992. Proceedings published OECD/IEA Paris, 1993.

"Computer Model Use in Energy Conservation Planning," presented at the Latin American Energy Organization (OLADE) Seminar on Power Systems Computer Modelling in Quito, Ecuador, September 23-25, 1991.

"Environmental Externalities Measurement: Quantification, Valuation and Monetization," Bernow, Biewald and Marron, in External Environmental Costs of Electric Power, proceedings of a German-American workshop, Ladenburg, FRG, October 23-25, 1991. Edited by Olav Hohmeyer and Richard Ottinger, published by Springer-Verlag (Berlin, Heidelberg, New York).

"Some Microcomputer Tools for Least Cost Integrated Energy Planning: ECO, LEAP and EDB," Bruce Biewald and Harvey Salgo, presented at workshop on Energy Pricing and Planning, Bratislava, Czechoslovakia, May 21-22, 1991.

"Confronting Uncertainty: Contingency Planning for Decommissioning," Bruce Biewald and Stephen Bernow, Chapter 18 of "Nuclear Decommissioning Economics," a special issue of *The Energy Journal* of the International Association for Energy Economics, Volume 12, March 1991.

"Avoided Emissions and Environmental Dispatch," Stephen Bernow and Bruce Biewald, presented at the Conference on "Demand-Side Management and the Global Environment," Arlington, Virginia, April 22-23, 1991.

"Environmental Benefits of DSM in New York: Long Island Case Study," Bruce Biewald and Stephen Bernow, presented at the Conference on "Demand-Side Management and the Global Environment," Arlington, Virginia, April 22-23, 1991.

"Full Cost Dispatch: Incorporating Environmental Externalities in Electric System Operation," Stephen Bernow, Bruce Biewald and Donald Marron, the *Electricity Journal*, March 1991.

"EDB: A Flexible Database System for Energy-Environmental Analysis," Bruce Biewald, Michael Lazarus, and David Von Hippel, presented at International Atomic Energy Agency (IAEA) Technical Committee Meeting on "Development of a Database for Comparative Health and Environmental Impacts of Various Energy Systems," in Vienna, Austria, October 15-19, 1990.

"Full Cost Economic Dispatch: Recognizing Environmental Externalities in Electric Utility System Operation," Stephen Bernow, Bruce Biewald, and Donald Marron, presented at NARUC Conference on Externalities, Jackson Hole, Wyoming, October 1990.

"An Assessment of Demand-Side Management Models and Their Use and Applicability in Canadian Utilities," Martin Adelaar and Bruce Biewald, in the proceedings of the Canadian Electrical Association Demand-Side Management Conference, Halifax, Nova Scotia, September 1990.

"Avoided Cost Contracts Can Undermine Least Cost Planning," Stephen Bernow, Bruce Biewald, and Donald Marron, Energy Policy, September 1990.

"Environmental Externalities Measurement: Quantification, Valuation, and Monetization," Stephen Bernow, Bruce Biewald, and Donald Marron, in the proceedings of the Seventh NARUC Biennial Regulatory Information Conference, September 1990.

"Do We Really Need Nuclear Generating Companies?," Public Utilities Fortnightly, June 7, 1990.

"Nuclear Power Economics: Construction, Operation and Disposal," Bruce Biewald and Donald Marron, March 1989.

"Electric Utility System Reliability Analysis: Determining the Need forGenerating Capacity," Stephen Bernow and Bruce Biewald, in the proceedings of the Sixth NARUC Biennial Regulatory Information Conference, September 1988.

"Nuclear Power Plant Decommissioning: Cost Estimation for Power Planning and Ratemaking," Stephen Bernow and Bruce Biewald, Public Utilities Fortnightly, October 29, 1987.

"Cost and Performance of Boiling Water Reactors," Stephen Bernow, Bruce Biewald and Tim Woolf, Public Utilities Fortnightly, August 1987.

PRESENTATIONS

(Note: Presentations that were accompanied by a written paper are listed in the section for "papers," above.)

"The Shape of Things to Come: Incorporating Unproven Reserves of Efficiency Savings into Energy Models," presentation to the East Coast Energy Group, Washington, DC, November 10, 2004.

"Displaced Emissions from Renewables and Efficiency in the Northeast United States," presentation at a workshop convened by the Commission for Environmental Cooperation, the US Environmental Protection Agency, and the World Resources Institute, Washington DC, Novermber 4, 2004.

"Electric Transmission Technical and Policy Issues," presentation at National Association of State Utility Consumer Advocates conference in Austin, Texas, June 14, 2004.

"Incorporating Renewable Generation into a Risk Management Strategy," presentation at the New England Conference of Public Utility Commissioners Symposium, Brewster, Massachusetts, May 25, 2004.

"Electricity Portfolio Management," presentation at Illinois State University Institute for Regulatory Policy Studies Conference on "Beyond 2006," Springfield, Illinois, May 20, 2004.

"Electricity Risk Management: Diversified Resource Portfolios," presentation at Electric Power Supply Association Meeting, Washington, D.C., May 6, 2004.

"Quantifying Emission Reductions from Local Government Actions," presentation to Metropolitan Washington Council of Governments Energy and Air Quality Conference, Washington DC, April 5, 2004.

"Electricity Portfolio Management," presentation to National Association of Regulatory Utility Commissioners' conference in Washington, D.C., March 9, 2004.

"Portfolio Management for Electricity," presentation at the Regulatory Assistance Project's workshop on portfolio management, Chicago, September 18, 2003.

"Issues in Estimating Electric System Displaced Emissions," presentation at the Commission for Environmental Cooperation Technical Meeting on on Approaches to Estimating Environmental Benefits of Renewable Energy and Energy Efficiency, Washington, DC, July 27, 2003.

"Best Practices in Market Monitoring and Mitigation," presented at the National Association of State Utility Consumer Advocates Mid-Year Meeting in Austin, Texas, June 16, 2002.

"Regulation of Waste Management at Large Electric Utilities: Modeling Industry Impacts," US Environmental Protection Agency, August 7, 2001.

"Quality of Service in Performance-Based Regulation: US Experiences," presented at the Seminar on Regulation of Electricity Supply Quality, Milan, Italy, June 8, 2001.

"Demand Response in Electricity Markets," presented at the National Association of State Utility Consumer Advocates Mid-Year Meeting in Santa Fe, New Mexico, June 18, 2001.

Presentation on "Repowering the Midwest: The Clean Energy Development Plan for the Heartland," at the National Wind Coordinating Committee Upper Midwest Transmission Workshop, Minneapolis, Minnesota, May 1, 2001.

"Observations on New England's Electricity Markets," National Regulatory Research Institute Market Power Conference, Columbus, Ohio, April 10, 2001.

Presentation on "Derailing Coal: The Economics of Coal-Fired Electricity Generation in the U.S.," Tax Shift Strategy Meeting, Washington, D.C., December 2, 2000.

Presentation on "Repowering the Midwest: A Clean Energy Development Plan for the Heartland," presentation with Howard Learner at the National Association of Regulatory Utility Commissioners Annual Meeting, San Diego, California, November 14, 2000.

Presentation on "Electricity in New England: Market Imperfections of Failure?" at National Association of State Utility Consumer Advocates Annual Meeting, San Diego, California, November 13, 2000.

Presentation on "How Green is Green? Verifying Energy Advertising Claims," at the New England Conference of Public Utility Commissioners Symposium, Bretton Woods, New Hampshire, May 25, 1999.

Presentation on "Consumer Perspectives on Market Power – Case Studies from New England, New York, PJM, and Mississippi," IBC Conference on Market Power, Washington DC, May 24, 1999.

Presentation on "Grandfathering and Environmental Comparability," at the National Association of Regulatory Utility Commissioners 1998 Summer Committee Meetings, Seattle, July 26, 1998.

Presentation on "Tracking Electricity in the New England Market," at the National Association of Regulatory Utility Commissioners 1998 Summer Committee Meetings, Seattle, July 26, 1998.

Presentation on "Tracking Electricity in the New England Electricity Market," at the National Council on Competition and the Electricity Industry National Executive Dialogue on Customers' Right to Know, Chicago, May 13, 1998.

Presentation on "Comparable Environmental Regulations in a Restructured Electricity Industry: The Grandfathering Effect," National Association of Regulatory Utility Commissioners meeting in Washington, D.C., March 1, 1998.

Presentation on "Market Power in Electricity Generation," National Consumer Law Center Conference, Washington, D.C., February 9, 1998.

Presentation on "Electricity Market Power in New England," Massachusetts Electric Industry Restructuring Roundtable, Boston, December 15, 1997.

Presentation on wind power development and air quality, National Wind Coordinating Committee New England Wind Issues Forum, Boston, November 7, 1997.

Invited speaker on market power, National Association of State Utility Consumer Advocates meeting in Boston, November 12, 1997.

Presentation on "Distortions to Future and Current Competitive Electric Energy Markets Due to Grandfathering Environmental Regulations of Electric Power Plants," National Association of Regulatory Utility Commissioners meeting in Boston, November 9, 1997.

Presentation on "Electric Industry Restructuring as if the Environment Mattered," Boston Area Solar Energy Association, October 9, 1997.

Invited speaker on "Modeling Market Power in Electricity Generation," National Association of Regulatory Utility Commissioners meeting in San Francisco, July 22, 1997.

Presentation on "Performance-Based Regulation in a Restructured Electric Industry," National Association of Regulatory Utility Commissioners meeting in San Francisco, July 20, 1997.

Presentation on "State Initiatives and Regional Issues," New England Governors' Conference Workshop on Restructuring and Environmentally Sustainable Technologies, Warwick, Rhode Island, March 25, 1997.

Invited speaker on stranded costs, National Association of State Utility Consumer Advocates meeting in San Francisco, November 1996.

Presentation on "Nuclear Power Plant Decommissioning Costs and Electricity Restructuring," Nuclear Decommissioning Trusts conference, New York City, November 18, 1996.

Invited speaker on stranded costs, Indiana Utilities Regulatory Commission Forum, Indianapolis, November 1, 1996.

Presentation on "Electric Industry Restructuring and the Environment," at the Indiana Energy Conference, Indianapolis, Indiana, October 10, 1996.

Presentation on "Small Customers in a Restructured Electricity Industry: Transaction Costs, Advanced Metering Technologies and Aggregation Options" to the Consumers' Energy Conference, South Portland, Maine, July 1996.

Presentation on "Electric Generation Market Power in New England" to New England Conference of Public Utility Commissioners, Manchester Village, Vermont, May 1996.

Presentation on "Advanced Metering for Residential Customers on Electricity Restructuring" to National Consumer Law Center's 10th Annual Conference in Washington, DC, February 1996.

Presentations on "Market Power," "Environmental Aspects of Restructuring" and "Market Access for Small Customers" to Vermont Public Service Board workshops on electricity restructuring, January and February 1996.

Presentation on "Environmental Impacts of Energy: Sustainability and Social Costing" to British Columbia Utilities Commission Workshop, Vancouver, BC, March 1995.

Presentation on "Competition and Economic Efficiency" to the National Council on Competition and the Electric Industry, December 1995.

Presentation on "Compliance Planning Under Regulatory Uncertainty," to EPA "Opportunities Conference: Energy Efficiency and Renewable Energy," Washington, DC, June 1993.

Presentation on "Energy and Sustainability" to Hydro-Quebec Conference, Hampshire College, Amherst, Massachusetts, April 1993.

Invited Speaker on environmental externalities, ASME "ECO World" conference in Washington, DC, June 1992.

Invited Speaker, Association of Energy Engineers, Boston, Massachusetts, February 1992.

Presentation of Acid Rain Abatement Optimization Model to the Swedish Environmental Protection Agency, Solna, Sweden, November 1991.

Presentation on Integrated Resource Planning to Boston Gas Company, July 1990.

Training on Methods for Calculating Electric System Avoided Costs, provided to energy planners and policy makers from five Southeast Asian countries sponsored by U.S. Agency for International Development and administered by the Institute of International Education, May 1990.

Invited Speaker, National Association of State Utility Consumer Advocates (NASUCA) Mid-Year Meeting, Annapolis, Maryland, and June 1988.

Invited Speaker, Conference on New Developments in Nuclear Decommissioning Costs and Funding Methods, sponsored by the Northeast Center for Professional Education, Washington, DC, April 1988.

Robert M. Fagan

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

SUMMARY

Mechanical engineer and energy economics analyst with over 19 years experience in the energy industry. Activities focused primarily on electric power industry issues, especially economic and technical analysis of transmission pricing structures, wholesale electricity market development, and assessment and implementation of demand-side alternatives.

In-depth understanding of the complexities of, and the interrelationships between, the technical and economic dimensions of the electric power industry in the US and Canada, including the following areas of expertise:

- Wholesale energy and capacity provision under market-based and regulated structures.
- Transmission use pricing, encompassing congestion management, losses, LMP and alternatives, financial and physical transmission rights; and transmission asset pricing (embedded cost recovery tariffs).
- Physical transmission network characteristics; related generation dispatch/system operation functions; and technical and economic attributes of generation resources.
- RTO and ISO tariff and market rules structures and operation.
- FERC regulatory policies and initiatives, including those pertaining to RTO and ISO development and evolution.

Additional expertise in:

- Expert witness testimony preparation.
- Demand-side management, including program implementation and evaluation; and load response presence in wholesale markets.
- Building energy end-use characteristics, and energy-efficient technology options.
- Fundamentals of electric distribution systems and substation layout and operation.
- Energy modeling (spreadsheet-based, GE MAPS and online DOE-2 residential).

Proficient in:

- State and provincial level regulatory policies and practices, including retail service and standard offer pricing structures.
- Gas industry fundamentals including regulatory and market structures, and physical infrastructure.

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. 2004 – Present. Senior Associate
Responsibilities including consulting on issues of energy economics, analysis of electricity utility planning, operation, and regulation, including issues of transmission, generation, and demand-side management

Tabors Caramanis & Associates, Cambridge, MA 1996 -2004. Senior Associate.

- Provided expert witness testimony on transmission issues in Ontario and Alberta.
- Supported FERC-filed testimony of Dr. Tabors in numerous dockets, addressing various electric transmission and wholesale market issues.
- Analyzed transmission pricing and access policies, and electric industry restructuring proposals in US and Canadian jurisdictions including Ontario, Alberta, PJM, New York, New England, California, ERCOT, and the Midwest. Evaluated and offered alternatives for congestion management methods and wholesale electric market design.
- Attended RTO/ISO meetings, and monitored and reported on continuing developments in the New England and PJM electricity markets. Consulted on New England FTR auction and ARR allocation schemes.
- Evaluated all facets of Ontario and Alberta wholesale market development and evolution since 1997. Offered congestion management, transmission, cross-border interchange, and energy and capacity market design options. Directly participated in the Ontario Market Design Committee process. Served on the Ontario Wholesale Market Design technical panel.
- Member of TCA GE MAPS modeling team in LMP price forecasting projects.
- Assessed different aspects of the broad competitive market development themes presented in the US FERC's SMD NOPR and the application of FERC's Order 2000 on RTO development.
- Reviewed utility merger savings benchmarks, evaluated status of utility generation market power, and provided technical support underlying the analysis of competitive wholesale electricity markets in major US regions.
- Conducted life-cycle utility cost analyses for proposed new and renovated residential housing at US military bases. Compared life-cycle utility cost options for large educational and medical campuses.
- Evaluated innovative DSM competitive procurement program utilizing performance-based contracting.

Charles River Associates, Boston, MA, 1992-1996. Associate. Developed DSM competitive procurement RFPs and evaluation plans, and performed DSM process and impact evaluations. Conducted quantitative studies examining electric utility mergers; and examined generation capacity concentration and transmission interconnections throughout the US. Analyzed natural gas and petroleum industry economic issues; and provided regulatory testimony support to CRA staff in proceedings before the US FERC and various state utility regulatory commissions.

Rhode Islanders Saving Energy, Providence, RI, 1987-1992. Senior Commercial/Industrial Energy Specialist. Performed site visits, analyzed end-use energy consumption and calculated energy-efficiency improvement potential in approximately 1,000 commercial, industrial, and institutional buildings throughout Rhode Island, including assessment of lighting, HVAC, hot water, building shell, refrigeration and industrial process systems. Recommended and assisted in implementation of energy efficiency measures, and coordinated utility DSM program efforts.

Fairchild Weston Systems, Inc., Syosset, NY 1985-1986. Facilities Engineer. Designed space renovations; managed capital improvement projects; and supervised contractors in implementation of facility upgrades.

Narragansett Electric Company, Providence RI, 1981-1984. Supervisor of Operations and Maintenance. Directed electricians in operation, maintenance, and repair of high-voltage transmission and distribution substation equipment.

EDUCATION

Boston University, M.A. Energy and Environmental Studies, 1992
Resource Economics, Ecological Economics, Econometric Modeling

Clarkson University, B.S. Mechanical Engineering, 1981
Thermal Sciences

Additional Professional Training
Completed coursework in Solar Engineering; Building System Controls; and Cogeneration at Worcester Polytechnic Institute and Northeastern University (1984, 1988-89).
Completed Illuminating Engineering Society courses in lighting design (1989).

SUMMARY OF TESTIMONY, PUBLICATIONS, AND PRESENTATIONS

TESTIMONY

Ontario Energy Board. Testimony filed before the Ontario Energy Board, RP-2002-0120, et al., Review of the Transmission System Code (TSC) and Related Matters, Detailed Submission to the Ontario Energy Board in Response To Phase I Questions Concerning the Transmission System Code and Related Matters, October 31, 2002, on behalf of TransAlta Corporation; and Reply Comments for same, November 21, 2002. Related direct and reply filings in response to the Ontario Energy Board's "Preliminary Propositions" on TSC issues in May and June, 2003.

Alberta Energy and Utilities Board. Testimony filed before the Alberta Energy and Utilities Board, in the Matter of the Transmission Administrator's 2001 Phase I and Phase II General Rate Application, no. 2000135, pertaining to Supply Transmission Service charge proposals. Joint testimony filed with Dr. Richard D. Tabors. March 28, 2001. Testimony filed on behalf of the Alberta Buyers Coalition.

Ontario Energy Board. Testimony filed before the Ontario Energy Board, RP-1999-0044, Critique of Ontario Hydro Networks Company's Transmission Tariff Proposal and Proposal for

Alternative Rate Design, January 17, 2000. Testimony filed on behalf of the Independent Power Producer's Society of Ontario.

MAJOR PROJECT WORK – BY CATEGORY

Electric Utility Industry Restructuring

For TransAlta Energy Corporation, developed an issues and information paper on recent Ontario and Alberta market development efforts, focusing on the likely high-level impacts associated with day-ahead and capacity market mechanisms considered in each of those regions. (2004)

For a wholesale energy market stakeholder, participate in New England and PJM RTO markets and market implementation committee meetings, review and summarize material, and advocate on behalf of client on selected market design issues. (2004) Performed similar activities for separate client in New England. (2001)

For a group of potential generation investors in Ontario, analyzed the government's proposed wholesale and retail market design changes and produced an advocacy report for submission to the Ontario Ministry of Energy. The report emphasized, among other things, the importance of retaining a competitive wholesale market structure. (2004)

For a large midwestern utility, supported multiple rounds of direct and rebuttal testimony to the US FERC by Dr. Richard Tabors on the proposed start-up of LMP markets in the Midwest ISO utility service territories. Testimony substance included PJM-MISO seams concerns, FTR allocation options, grandfathered transactions incorporation, FTR and energy market efficiency impacts, and other wholesale market and MISO transmission tariff design issues. Testimony also included quantitative analysis using GE MAPS security-constrained dispatch model runs. (2003-2004)

For the Independent Power Producers Society of Ontario, with TCA Director Seabron Adamson, developed a position paper on resource adequacy mechanisms for the Ontario electricity market. (2003)

For TransAlta Energy Corp., provided direct and reply testimony to the Ontario Energy Board on the Transmission System Code review process. Analyzed and reported on transmission "bypass" and network cost responsibility issues. (2002-2003)

For a commercial electricity marketer in Ontario, with TCA staff, analyzed Ontario market rules for interregional transactions, focusing primarily on the Michigan and New York interties, and assessed the current Ontario electricity market policy related to "failed intertie transactions". (2002)

For ESBI Alberta Ltd., then Transmission Administrator (TA) of Alberta, served as a key member of the TCA team exploring congestion management issues in the Province, and providing guidance to the TA in presenting congestion management options to Alberta stakeholders, with a particular focus on new transmission expansion pricing and cost allocation issues. (2001)

For a coalition of power producers and marketers in Alberta, filed joint expert witness testimony with Dr. Tabors on the nature of certain transmission access charges associated with supply transmission service. (2001)

For a prospective market participant, served as a core member of the project team that developed summary reports on the New York, New England and PJM wholesale electricity spot market structures. The reports focused on market structure fundamentals, historical transmission flow patterns, forecasted transmission congestion and costs, transmission availability and FTR valuation and market results. (2001)

For the ERCOT ISO, served as a key TCA team member helping to develop and assemble a set of protocols to guide the principles, operation and settlement of the forthcoming Texas competitive wholesale electricity market. (2000)

For the Independent Power Producer's Society of Ontario, served as expert witness and filed evidence with the Ontario Energy Board supporting an alternative transmission tariff design, and critiquing Ontario Hydro Networks Company's (OHNC) proposed rate structure. Also a member of OHNC's Advisory Team on net versus gross billing issues and a leading proponent of a progressive, embedded-generation-friendly tariff structure. (1999-2000)

For a large midwestern utility, designed transmission tariff and wholesale market structures consistent with the proposed establishment of an Independent Transmission Company paradigm for transmission operations. (1999-2000)

For a coalition of independent power producers and marketers in Alberta, helped develop evidence submitted by Dr. Tabors and Dr. Steven Stoft with the Alberta Energy and Utilities Board supporting an alternative to ESBI's proposed transmission tariff. The evidence critiqued the fairness and efficiency of ESBI's proposed tariff, and offered a simple alternative to deal with Alberta's near-term southern supply shortage. (1999)

For Enron Canada Corp., provided ongoing technical support and policy advice during the tenure of the Ontario Market Design Committee (MDC). Presented material on congestion pricing before the committee, and submitted technical assessments of most wholesale market development issues. (1998-1999)

Member of the Ontario Wholesale Market Design Technical Panel. The panel's responsibilities included refinement of the wholesale market design as specified by the Market Design Committee, and specification of the market's initial operating requirements. Also served on two sub-panels: bidding and scheduling; and ancillary services. (1998-1999)

For Enron Canada Corp, assessed the generation markets in Ontario and Alberta and recommended policies for maximizing competitive market mechanisms and minimizing stranded cost burdens. Authored reports on stranded costs in Ontario, and on the legislated hedges structure in Alberta. (1997 - 1998)

For an independent power producer, assessed New England markets for electricity and assisted in valuation of generation assets for sale. (1997)

In support of testimony filed by CCEM (Coalition for Competitive Electric Markets) with the FERC, assessed alternative transmission pricing and wholesale market structures proposed for the NY, NE and PJM regions. The filings proposed market mechanisms to produce competitive wholesale electric energy markets and zonal-based transmission pricing structures. (1996-1997)

Electric Utility Mergers and Market Power Analysis

In support of FERC-filed testimony by Dr. Richard Tabors, conducted a detailed examination of the accessibility of transmission service for wholesale energy market participants on the American Electric Power and Central and Southwest transmission systems. This included evaluating all transmission service requests made over the OASIS for the first six months of 1998 for the two utility systems, and a subsequent, more detailed assessment of AEP's transmission system use during all of 1998. (1998-1999)

For a US western electric utility, served as a member of the team that conducted detailed production cost modeling and strategic market assessment to determine the extent or absence of market power held by the client. (1998)

For an independent power producer, supported FERC-filed testimony on market power issues in the New York State energy and capacity markets. This included detailed supply-curve assessment of existing generation assets within the New York Power Pool. (1997)

Worked with a local economic consulting firm for a Western State public agency in conducting an analysis of the projected savings of a series of proposed electric and gas utility mergers. (1997)

For a southwestern utility company, supported CRA in conducting an analysis of the competitive effects of a proposed electric utility merger. For a northwestern utility company, analyzed the competitive effects of a proposed electric utility merger. (1995-1996)

For the Massachusetts Attorney General's Office, conducted a study of the potential for market power abuse by generators in the NEPOOL market area. (1996)

DSM Competitive Procurement and DSM Evaluation

For two separate large New England utilities, conducted impact evaluations of large commercial and industrial sector DSM programs. (1994-1996)

For a New England utility, worked on the project team developing a set of DSM evaluation master plans for incentive-type and third-party-contracting type DSM programs (1994)

For EPRI, wrote an overview of the status of DSM information systems and the potential effects of an increasingly competitive utility environment. (1993)

For two separate large New England utilities, helped to develop competitive procurement documents (DSM RFPs) for filing before the Massachusetts Department of Public Utilities. (1993, 1994)

For a midwestern utility, conducted a trade ally study designed to determine the influence of trade allies on the market for energy efficient lighting and motor equipment. (1992-1993)

DSM Implementation
Conducted detailed site visits and suggested efficiency improvement strategies for over 1,000 commercial, industrial and institutional buildings in Rhode Island. Performed end-use energy analysis and coordinated implementation of improvements. Worked with local utility DSM program personnel to educate building owners on DSM program opportunities. (1987-1992)

Energy Modeling
For various clientele, worked closely with the TCA GE MAPS modeling group on various facets of security-constrained dispatch modeling of electric power systems across the US and Canada. Specific tasks included assisting in designing MAPS model run parameters (e.g., base case and alternative scenarios specification); proposing modeling designs to clients; supporting input data gathering; interpreting model results; and writing summary reports, memos & testimony describing the results. (2002-2004)

For a group of potential electricity supply investors in Ontario, modeled the impact of proposed generation plant phaseout trajectories on investment requirements for new supply in Ontario. (2004)

For the Independent Power Producer's Society of Ontario, conducted a retrospective quantitative analysis of the Ontario market energy and ancillary service prices during the 15 months of the new wholesale market to determine the extent of infra-marginal rents available that could have supported entry for new generation. (2003)

In support of proposals to the US Dept. of Defense for military housing privatization, performed DOE-2 model runs using an online tool; and created a spreadsheet modeling tool to analyze the efficiency and cost effectiveness of new and renovated residential construction for base housing. Performed life-cycle utility cost analysis and prepared energy plans specifying building shell, equipment and appliance efficiency measures at 15 separate Army, Navy, and Air Force installations around the nation. (2001-2003)

For the Independent Power Producer's Society of Ontario, conducted a rate impact analysis of Ontario Hydro Networks Company proposed transmission tariff. (1999-2000)

For the University of Maryland at Baltimore, conducted a life-cycle cost analysis of alternative proposals for district-type thermal energy provision, comparing existing steam delivery systems to new hot-water systems. (1998)

For the UMass Medical Center (Worcester), conducted an energy use and cost allocation analysis of a large hospital complex to assist in choosing among electric and thermal energy supply options. (2000)

For an independent power producer, developed a spreadsheet-based tool to assess the rate impact of a clean coal facility in Maryland compared to alternative gas-fired supply options. (1996-1997)
For a private consulting firm, examined electric end-use and generation capacity information in seven industry energy models and reported the sensitivities of each model to varying levels of input aggregation. (1995)

For a private industrial firm in Virginia, developed a Monte-Carlo simulation-based spreadsheet model to solve a capital budgeting problem involving long-term choice of industrial boiler equipment. (1995)

For a New England utility, developed a spreadsheet model to help determine economic decision-making processes used by energy service companies when delivering third-party procured DSM. (1995)

Petroleum and Natural Gas Industry Analysis
For a private independent power producer, conducted an analysis of the rate impacts of the Warrior Run clean coal (fluidized bed combustion) power plant in Maryland under various assumptions of natural gas prices and environmental regulation scenarios. (1996-1997)

For a British consulting firm, researched and presented findings on the current status of natural gas restructuring efforts in the US and their impact on regional US markets for power generation. (1996)

For a Canadian law firm representing Native Canadian interests, conducted a detailed analysis of natural gas netback pricing for Alberta gas into US Midwest and West Coast markets over a thirty-year period. (1995)

For a US natural gas pipeline consortium, performed an econometric analysis of the demand for natural gas in the state of Florida. (1992-1993)

PAPERS, PUBICATIONS AND PRESENTATIONS

SMD and RTO West: Where are the Benefits for Alberta? Keynote Paper prepared for the 9th Annual Conference of the Independent Power Producers Society of Alberta, with Dr. Richard D. Tabors, March 7, 2003.

A Progressive Transmission Tariff Regime: The Impact of Net Billing, presentation at the Independent Power Producer Society of Ontario annual conference, November 1999.

Tariff Structure for an Independent Transmission Company, with Richard D. Tabors, Assef Zobian, Narasimha Rao, and Rick Hornby, TCA Working Paper 101-1099-0241, November 1999.

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Transmission Congestion Pricing Within and Around Ontario, presentation at the Canadian Transmission Restructuring Infocast Conference, Toronto, June 2-4, 1999.

The Restructured Ontario Electricity Generation Market and Stranded Costs. An internal company report presented to the Ontario Ministry of Energy and Environment on behalf of Enron Capital and Trade Resources Canada Corp., February 1998.

Alberta Legislated Hedges Briefing Note. An internal company report presented to the Alberta Department of Energy on behalf of Enron Capital and Trade Resources Canada, January 1998.

Generation Market Power in New England: Overall and on the Margin. Presentation at Infocast Conference: New Developments in Northeast and Mid-Atlantic Wholesale Power Markets, Boston, June 1997.

The Market for Power in New England: The Competitive Implications of Restructuring. Prepared for the Office of the Attorney General, Commonwealth of Massachusetts, by Tabors Caramanis & Associates with Charles River Associates, April 1996. R. Fagan was a key member of the team that produced the report.

Estimating DSM Impacts for Large Commercial and Industrial Electricity Users. Lead investigator and author, with M. Gokhale, D.S. Levy, P.J. Spinney, G.C. Watkins. Presented at The Seventh International Energy Program Evaluation Conference, Chicago, Illinois, August 1995, and published in the Conference Proceedings.

Sampling Issues in Estimating DSM Savings: An Issue Paper for Commonwealth Electric. Prepared with G.C. Watkins, Charles River Associates. Report for COM/Electric System, filed with the MA Dept. of Public Utilities (MDPU), April 28, 1995, Docket # DPU 95-2/3-CC-1.

Demand-side Management Information Systems (DSMIS) Overview. Electric Power Research Institute Technical Report TR-104707. Robert M. Fagan and Peter S. Spinney, principal investigators, prepared by Charles River Associates for EPRI, January 1995.

Impact Evaluation of Commonwealth Electric's Customized Rebate Program. With P.J. Spinney and G.C. Watkins. Charles River Associates, Initial and Updated Reports, April 1994, April 1995, and April 1996.1995 updated report filed with the MDPU, April28, 1995, Docket # DPU 95-2/3-CC-I. The initial report filed with the MDPU, April 1, 1994.

Northeast Utilities Energy Conscious Construction Program (Comprehensive Area): Level I and Level II Impact Evaluation Reports. With Peter S. Spinney (CRA) and Abbe Bjorklund (Energy Investments). Charles River Associates Reports prepared for Northeast Utilities, June and July 1994.

The Role of Trade Allies in C&I DSM Programs: A New Focus for Program Evaluation, Paper authored by Peter J. Spinney (Charles River Associates) and John Peloza (Wisconsin Electric Power Corp.). Presented by Bob Fagan at the Sixth International Energy Evaluation Conference, Chicago, Illinois, August 1993.

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Neil H. Talbot

Economic & Financial Consultant
Senior Associate, Synapse Energy Economics
22 Pearl Street, Cambridge, MA 02139
(617) 661-3248 • fax: (617) 661-0599
www.synapse-energy.com
ntalbot@synapse-energy.com

EDUCATION

M.S.F.	Finance, Boston College, 1992
M.A.	Economics, Cambridge University, England, 1968

PROFESSIONAL EXPERIENCE

1995 -	Economic and financial consultant to Synapse Energy Economics
1980-1994	Tellus Institute, Boston, Mass. Member of Energy Group responsible for utility economic, financial and regulatory analyses.
1973-1979	Arthur D. Little, Inc., Cambridge, Mass. Member of Managerial Economics Section responsible for public utility economic and planning studies and energy economics.
1968-1972	The Economist Intelligence Unit Ltd., London, England. Project leader of Caribbean economic development studies; research and consulting on industrial and utility economics.

Summary of Relevant Experience

Neil Talbot is an economic and financial consultant to Synapse Energy Economics, Inc. He has masters degrees in economics and finance from Cambridge University and Boston College respectively. He has had 36 years' experience as a consultant focusing primarily on utility company economic, financial and regulatory issues with the Economist Intelligence Unit of London, Arthur D. Little, Inc. of Cambridge, Mass., Tellus Institute of Boston, Mass., and Synapse Energy Economics, Inc. He has prepared a wide range of studies and testimony on utility planning, rate of return, mergers and acquisitions, incentive rates, financial modeling of utilities under alternative rate scenarios, valuation of utility assets and evaluation of utility projects and contracts.

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In the past ten years, Talbot has focused on the new issues facing the electric utility industry. He was retained by a coalition of Texas cities to review and testify on the valuation and securitization of CenterPoint Energy Houston Electric's stranded costs. On behalf of the Office of the Ohio Consumers' Counsel, he recently testified on the pricing of Cincinnati Gas & Electric Company's market-based standard service offer, and he is a member of the Synapse Energy Economics team making recommendations regarding a reverse auction for FirstEnergy's standard offer service. In the past year, he has testified on two occasions for the American Association of Retired Persons (AARP) regarding fair rate of return of Central Vermont Public Service Co. He has been a consultant to the Arkansas Public Service Commission on the restructuring of the electric utility industry, including advising on the rate-making treatment of the proposed merger (since cancelled) between Entergy and FPL Corp., and drafting a market power rule that was submitted to the commission. Articles written by Talbot include *The Right Path for Electricity Restructuring: 10 Guidelines for State Legislation* (The Electricity Journal, January/February 1999) and *A Stranded Cost Recovery Alternative* (Electricity Journal, May 1998).

Talbot was retained in 1999 by the Utah Committee of Consumer Services to review the financial aspects of the proposed acquisition of PacifiCorp by ScottishPower, and by the Maine Office of Public Advocate to review the proposed acquisition of CMP Group by Energy East. On behalf of the Attorney General of Washington State, he testified in 1996 on the financial impacts of the proposed merger of Puget Sound Power & Light Company and Washington Energy Company. His focus was on financial impacts of the merger and he developed and applied a corporate financial model to the utilities.

Talbot has testified frequently on cost of capital for regulated utilities. In 1995, he presented testimony on behalf of the Illinois Citizens Utility Board (CUB) on the cost of capital of Northern Illinois Gas Company. His testimony also opposed the company's proposed incentive regulation plan, which the company withdrew during the proceedings. Also for CUB, he testified on the cost of service and cost allocations of Commonwealth Edison Company.

In 2000, Talbot assembled a Synapse Energy Economics team for the Vermont Department of Taxes to prepare valuations of the Hydroelectric Generating Facilities on the Connecticut and Deerfield Rivers. During the 1990s, Talbot appraised various hydroelectric power plants for towns in Vermont. He evaluated purchased power contracts of Public Service Company of New Hampshire and Bangor Hydro Electric in 1994 and 1995 respectively.

In other rate work, Mr. Talbot has reviewed the incentive regulation plan (Alternative Rate Plan) for Central Maine Power Company and the Alternative Marketing Plan of Bangor Hydro, in testimony before the Maine Public Utilities Commission. He is the author of an AARP position paper entitled *Evaluating Price Cap Proposals in the Electric Utility Industry*. In 1998 he completed a *Sunset Review of the Energy Center of Wisconsin*.

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Selected Testimony

Agency	Case or Docket No.	Date	Topic
Texas Public Utilities Commission	30485	Jan. 2005	Securitization of CenterPoint Energy Houston Electric's Stranded Costs.
Vermont Public Service Board	6946 & 6988	Oct. 2004	Fair Rate of Return for Central Vermont Public Service Co. (with Amy Roschelle).
Texas Public Utilities Commission	29526	June 2004	Valuation of Generating Subsidiary and Stranded Cost Estimation
Public Utilities Commission of Ohio	03-93-EL-ATA	May 2004	Pricing of Market-Based Standard Service Offer of Cincinnati Gas & Electric Co.
Vermont Public Service Board	6866	Nov. 2003	Fair Rate of Return for Central Vermont Public Service Co.
Oklahoma Corporation Commission	200300121	July, 2003	Rate of Return for Empire District Electric Company.
New Jersey Board of Public Utilities	ER02080614	Jan., 2003	The prudence of Rockland Electric Company's power purchases.
Arizona Corporation Commission	E-01345A-01-0822	May, 2002	Reconsideration of Restructuring and a Review of Power Purchases.
Maine Public Commission	99-411	Sept. 1999	Acquisition of Central Maine Power Utilities by Energy East
Utah Public Commission	98-2035-004	June 1999	Acquisition of PacifiCorp (UP&L) Service by Scottish Power
Arkansas Public Commission	97-451-U	May 1998	Testified as Staff Expert in Electric Service Industry Restructuring Proceeding
Arkansas Public Service Commission	96-360-U	July 1997	Changes in Retail Rates and Transition to Competition Plan
Washington U.T.C.	UE-960195	Sept. 1996	Proposed Merger of Puget Sound P&L and Washington Natural Gas Co.
Maine Public Utilities Commission	96-187	Aug. 1996	Proposed Interim Competitive Transition Charge Tariff of Central Maine Power Co.
Illinois Commerce Commission	95-219	Nov. 1995	Incentive Regulation and Rate of Return for Northern Illinois Gas Company

Maine Public Utilities Commission	95-901	April 1995	Evaluation of Purchased Power Contract Buyout Proposals of Bangor Hydro
California Public Utilities Commission	A.93-12-029	Sept. 1994	Performance Based Ratemaking for Southern California Edison Company
N. Hampshire Public Utilities Commission	93-179	June 1994	Eval. of proposed buyouts by Public Service Company of New Hampshire of long-term purchased power contracts
Illinois Commerce Commission	94-0065	June 1994	Division among customer classes of an increase (or decrease) in revenue requirements for Commonwealth Edison Company, focusing on cost-of-service studies, both marginal and embedded
Kansas Corporation Commission	176,716U	Oct. 1991	Fair rate of return for KPL's Kansas gas operations
Kansas Corporation Commission	172,745-U 174,155-U	Jan. 1991	Proposed merger of Kansas Gas & Electric Company and Kansas Power & Light Company
New Hampshire Public Utilities Commission	DF 89-085	July 1990	Assessment of Eastern Utilities Associates' Plan to acquire UNITIL Corporation
New Hampshire Public Util. Com.	DR-89-244	March 1990	Rate impact of Northeast Utilities take-over of Publ. Serv. Co. of N.H.
Pennsylvania Public Utility Commission	R-891364	Oct. 1989	Fair rate of return and financial impact of rate recommendations on Philadelphia Electric Company
West Virginia P. S. Com.	Case No. 89-173-E-GI	Aug. 1989	Annual fuel review of Appalachian Power Company
Connecticut D. P. U. C.	89-02-16	June 1989	Fair Rate of Return and Rate Design for Connecticut Water Company

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New York Public Service Commission	29484 and 88-E-084	July 1988	10-Year Rate Plan of Long Island Lighting Company
Public Service Commission of Utah	87-035-27	Apr. 1988	Effects of the Proposed Merger on UP&L's Energy Balancing Account and on Its Financial Sit. and Cost of Capital
New Mexico Public Service Commission	1811	Jan. 1988	Fair Price for Coal Resources
Public Service Com. of Indiana	38045	Nov. 1986	Evaluation of a power plant for Northern Indiana Public Service Company
Public Service Commission of Maryland	8522	July 1986	Management Audit of Potomac Electric Power Company's Fuel Procurement Practices
West Virginia Public Service Commission	86-081-E-GI 86-082-E-GI	May 1986	Economic Analysis of Pumped Storage Facility
Missouri Public Service Commission	ER-85-128 EO-85-185 EO-85-224	June 1985	The Financial Impact of Alternative Rate Treatments of Wolf Creek on Kansas City Power & Light Company
State Corporation Commission of the State of Kansas	120-924-U 142-098-U 142-099-U	April 1985	Concerning Wolf Creek Fuel Procurement and Nuclear and Other Fuel Costs
State of Connecticut D. P. U. C.	84-02-09	June 1984	Fair Rate of Return for Connecticut Natural Gas Company
Ohio Power Siting Commission		July 1978	CAPCO Power Pool Load Forecast
Idaho Public Utilities Commission		March 1976	Evaluation of Pioneer Power Plant

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Consulting, Research & Papers

1996-2001	Consultant to the Arkansas Public Service Commission on electric utility industry restructuring and competitive retail access.
1996-2000	Consultant to New Jersey Division of Ratepayer Advocate on electric utility industry restructuring and competition, working regularly in client's office as staff consultant drafting position papers
January 1999	*The Right Path for Electricity Restructuring: 10 Guidelines for State Legislation*, Electricity Journal, Vol.12, No. 1
May, 1998	*A Stranded Cost Recovery Alternative*, Electricity Journal, Vol.11, No. 4
October, 1996	*A Consumer's Skeptical Perspective on Multi-Year Price Cap Plans*, Presentation to Washington, D.C. Conference on PBR
August, 1996	*Evaluating Price Cap Proposals in the Electric Utility Industry*, published by American Association of Retired Persons.
July, 1996	*Appraisal of New England Power Company's Moore Station*, a report for Town of Waterford, Vermont
February, 1996	Consultant of Pennsylania Office of Consumer Advocate on Multi-Year Rate Plan of Pennsylvania Power Company
1995	Consultant to City of Wynnewood, Oklahoma, on Long-Term Power Contract with Oklahoma Municipal Power Assoc.
December, 1995	Support for Great Bay Power Corp. with Regard to Cost of Equity Capital in its Cost-of-Service Filing with F. E. R. C.
February 1995	Comments on Retail Competition in the Electric Power Industry Filed with New Hampshire PUC on Behalf of the Office of the Consumer Advocate
December 1994	Assistance on public utility holding company and diversification proposal of Pennsylvania Power & Light Company
November 1994	Preparation of Comments on Electricity Competition filed with the Pennsylvania PUC by the Office of Consumer Advocate

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1992-1993	Co-ordinator of Energy and Environmental Alternatives Planning Assistance Program - Africa. For Stockholm Environment Institute.
1993:	*Zambia: Resuming the Energy Transition.* A report to: Zambia Department of Energy. Co-author. For Stockholm Environment Institute, funded by Swedish International Development Agency.
1994:	*Zimbabwe: Energy End-Uses and End-Use Efficiency.* A report to: Zimbabwe Department of Energy. For Stockholm Environment Institute and Swedish International Development Agency. Co-author.
Oct. 1993	*Financial Economics and Renewable Energy*, presented at: NARUC-DOE National Conference on Renewable Energy, Savannah, Georgia, Oct. 3-6.
July 1992	*Integrated Energy - Environment Planning: Experiences from the United States and Africa*, paper presented with Michael Lazarus, at South African Energy Policy Research and Training Project Workshop, Cape Town.
December 1991	Appraisal of Harriman Hydroelectric Plant of New England Power Co. A report to Town of Whitingham, Vermont. Principal author. 89-047.
Jan.-June 1991	U.S. Agency for Int. Development. Senior Econ. for energy price reform studies for Romania. Provided advice to government regarding energy price reform, energy planning and environmental impacts.
July 1977	*Management Effectiveness and Operating Efficiency of Kansas Gas and Electric Company,* a report to the Kansas Corporation Commission. Co-author.
Feb. 1976	*Idaho Power Company's Need for Additional Generating Capacity,* a report to Idaho Public Utilities Commission. Principal investigator.
Apr. 1974	*Inflation and Economic Growth in the U.S. Virgin Islands,* a report to the Legislature of the U.S. Virgin Islands. Principal investigator.
Jan. 1974	*A Study of International Inflationary Trends, with Special Emphasis on Algeria,* a report to the Algerian Government. Co-author.
Sept. 1973	*Long Term Load Forecast,* a report to Potomac Electric Power Co. Author.
Oct. 1976	Speech on *Load Forecasting for Electric Utilities* published in Proceedings of Need for Power Conference, Columbus, Ohio.

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JOHN JOSEPH MAVRETICH
30 Black Creek Road, Apt. A2
P.O. Box 36
West Park, New York 12493
(845) 384-6760
coop@ulster.net

PROFESSIONAL BACKGROUND

CO-OP RESOURCES
P.O. Box 36
West Park, New York 12493
September 1976 – Present

Co-op Resources is a sole-proprietor consulting practice through which Mr. Mavretich has participated in numerous reviews of large commercial and industrial facilities throughout the United States. Expert testimony and other litigation materials developed by Mr. Mavretich have been utilized in electric, gas, water and telephone utility rate cases, prudence reviews of nuclear and fossil-fueled electric generating stations, regulatory licensing proceedings involving a variety of energy production and transmission facilities and other major projects.

Clients have included the New York State Consumer Protection Board, the North Carolina Attorney General, the Texas Office of Public Utility Counsel, the Arizona Corporation Commission, the South Carolina Department of Consumer Affairs, the Indiana Office of Utility Consumer Counselor, The Connecticut Department of Public Utility Control, the Connecticut Division of Consumer Counsel, the county of Suffolk, N.Y., the city of Poughkeepsie, N.Y., a coalition of Massachusetts municipal electric utilities, various coalitions of Texas cities, the Environmental Defense Fund, the Hudson River Fishermans' Association, and Scenic Hudson, Inc.

HONORABLE MAURICE D. HINCHEY. CHAIRMAN
Committee on Environmental Conservation
New York State Assembly
Albany, New York 12448
March 1981 – July 1988

Lead staff responsibility for review, analysis and litigation concerning a wide variety of energy. Environmental policy issues, with primary emphasis on the mid-Hudson Valley region of New York State.

OTHER PERTINENT ACTIVITIES

Member, New York State Review Panel, U.S. Department of Energy Appropriate Technology Small Grants Program.

Member, Workshops conducted by the N.Y.S. Public Service Commission to review criteria developed by the State's electric utilities for the siting of major generating facilities.

Member, Advisory Committee to the Electric Utility Training School, New York State Consumer Protection Board.

Member, Planning Committee: "Towards An Informed Energy Policy for the Mid-Hudson Region". A series of community seminars sponsored by Bard College, Annandale, New York and funded through a grant from the National Science Foundation.

EDUCATION

Fordham University
Bronx, New York
N.Y.S. Regents Scholarship
September, 1966 – June, 1970
B.S. – Psychology

State University of New York
New Paltz, New York
Course work towards M.A. – Psychology
1973 – 1976.

MILITARY SERVICE

U.S. Army Medical Corps
July, 1970 – June, 1972
Honorable Discharge at rank of E-5
Army Commendation Medal

REFERENCES

Personal and professional references available upon request.

INDEX OF CASES

NYSPSC Case No. 27032 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 27461/62 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 27013 – Niagara Mohawk Power Corporation – Transfer of interests in the Nine Mile Point #2 Nuclear Power Plant.

NYSPSC Case No. 27826/27 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case Nos. 27882-4 – New York State Electric and Gas Corporation – Rates.

NYSPSC Case No. 27817 – Central Hudson Gas and Electric Corporation – Ratemaking treatment of excess revenues from interutility sales.

NYSPSC Case No. 27636 – Central Hudson Gas and Electric Corporation – Rate Design.

FERC Project No. 2729 – Prattsville Pumped Storage Project – Construction Permit.

NRC Docket No. 50-549 – Greene County Nuclear Plant – Construction Permit.

NYSPSC Case No. 27319 – New York Power Pool – Long Range Electric Plan.

NYSPSC Case No. 28105/06 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 28838/39 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 29195 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 25784 – New York Power Pool – Ratemaking treatment of land held for future use.

NYSPSC Case No. 27794 – Central Hudson Gas and Electric Corporation et al. – Disposition of the cancellation costs of the Sterling Nuclear Power Project.

NYSPSC Case No. 27780 – Central Hudson Gas and Electric Corporation – Investigation into forced outages at the Danskammer Generating Station.

NYSPSC Case No. 27708 – Central Hudson Gas and Electric Corporation – Complaint of Beacon Terminal Corporation concerning standby rates assessed against a self-generating customer.

NYSPSC Case No. 28570 – Generic Proceeding – Interest payments on customer overcharges.

NYSPSC Case No. 27211 – Consolidated Edison Company – Rates.

NYSPSC Case No. 28026 – Central Hudson Gas and Electric Corporation – Proceeding to inquire into CHG&E's continued participation in the Nine Mile Point #2 Nuclear Power Project.

NYSPSC Case No. 27709 – Niagara Mohawk Power Corporation et al. – Management Audit of the Nine Mile Point Unit #2 Nuclear Power Project.

NYSPSC Case No. 28059 – Niagara Mohawk Power Corporation et al. – Proceeding to investigate continued construction of the Nine Mile Point #2 Nuclear Power Project.

New Jersey Bureau of Public Utilities Docket No. ER8512-1163 – Public Service Electric and Gas Corporation – Prudence Review of the Hope Creek Nuclear Generating Unit #1.

NYSPSC Case No. 70126 – New York Power Authority – Marcy-South Transmission Line – Construction Permit.

Draft Environmental Impact Statement – Ellenville Wind Energy Project.

NYSDEC Permit Application No. 20-84-0476 _ LaGuardia Airport – Tidal Wetlands Permit.

NYSDEC Permit Application No. 41-84-0480 – Alsen Coal Terminal DEIS.

NYSPSC Case No. 28133 – Rolling Meadows Water Company – Rates.

NYSPSC Case NO. 28820 – Hurley Water Company – Rates.

NYSPSC Case No. 28166 – Rochester Gas and Electric Corporation – Investigation into forced outage at the Robert E. Ginna Nuclear Power Plant.

NYSPSC Case No. 28264 – New York Telephone Company – Rates.

NYSPSC Case No. 28347 – Niagara Mohawk Power Corporation – Investigation into forced outage at the Nine Mile Point #1 Nuclear Power Project.

NRC Docket No. 50-247SP – Consolidated Edison Company – Investigation of the costs of the permanent shutdown of Indian Point Units #2 and #3.

Street lighting audit and contract negotiations between the City of Poughkeepsie, New York and the Central Hudson Gas and Electric Corporation.

Indiana PSC Cause No. 38045 – Northern Indiana Public Service Company – Prudence Review of Schahfer Unit No. 18.

North Carolina Utilities Commission Case No. E-2, Sub 537 – Carolina Power and Light Company – Prudence Review of the Shearon Harris Nuclear Power Project.

South Carolina PSC Docket No. 88-11-E - Carolina Power and Light Company – Prudence Review of the Shearon Harris Nuclear Power Project.

Illinois Commerce Commission Case No. 86-0043/96 – Commonwealth Edison Company – Rates.

Public Utility Commission of Texas Docket No. 6668 – Houston Light and Power Corporation – Prudence Review of the South Texas Nuclear Project.

NYSPSC Case No. 29124 – Niagara Mohawk Power Corporation et al. – Prudence Review of the Nine Mile Point Unit #2 Nuclear Power Project.

NYSPSC Cases Nos. 28124/28757 – Long Island Lighting Company/New York State Electric and Gas Corporation – Cancellation costs associated with the Jamesport Nuclear Power Project.

NYSPSC Cases Nos. 29046/47 – Orange and Rockland Utilities – Rates.

Connecticut Department of Public Utility Control Docket No. 85-09-12/83-07-03 - Millstone Nuclear Unit #3 – Excess Capacity.

NYSDEC DEIS – Orange and Rockland Utilities – Lovett Generating Units #3 and #4 – Coal Conversions.

FERC Project No. 9175-001 – Eddyville Dam – Hydroelectric facilities license.

Draft Environmental Impact Statement – American Continental Properties – Ohioville Crossing Shopping Center.

NYSPSC Case No. 28470 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 70363 – Iroquois Gas Transmission System – Construction Permit.

Draft Generic Environmental Impact Statement – Ulster County Resource Recovery Agency – Solid Waste Plan.

Arizona Corporation Commission Docket No. U-1345-90-007 – Arizona Public Service Company – Prudence Review of the Palo Verde Nuclear Power Project.

NYSPSC Case No. 88-E-077 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 91-E-12551 – Niagara Mohawk Power Corporation et al. – Nine Mile Point Unit #2 Operating and Maintenance Expense.

NYSPSC Case No. 91-E-0462 – Consolidated Edison Company – Rates.

NYSPSC Case No. 80010 – Inter-Power of New York, Inc. – Construction Permit for 200 MW coal-fired cogeneration facility.

Draft Environmental Impact Statement –Federal Aviation Administration/NYS Department of Transportation – Development of Stewart Airport Properties.

Public Utility Commission of Texas Docket No. 9300 – Texas Utilities Electric Company – Prudence Review of the Comanche Peak Nuclear Power Project.

NYSPSC Case No. 89-E-107 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 92-E-0113 – Niagara Mohawk Power Corporation et al. – Nine Mile Point Unit #2 Operating and Maintenance Expenses.

NYSPSC Case No. 91-E-0529 – Central Hudson Gas and Electric Corporation – Rebuild and Upgrade of "P" and "MK" transmission lines.

Public Utility Commission of Texas Docket No. 11735 – Texas Utilities Electric Company – Prudence Review of the Comanche Peak Nuclear Power Project.

NYSPSC Case No. 92-W-0583 – Jamaica Water Supply Company – Investigation into rates and practices.

Public Utility Commission of Texas Docket No. 13126 – South Texas Nuclear Project – Investigation into Forced Outages.

Connecticut Department of Public Utility Control – Focussed Management Audit of the Connecticut Light and Power Company – Nuclear Operations.

NYSPSC Case No. 99-E-0933 – Joint Petition Pursuant to PSL, Section 70 regarding Sale of the Nine Mile Point Nuclear Units.

Public Utility Commission of Texas Dockets Nos. 22344(Generic), 22350(TXU), 22352(CPL), 22354(WTU), 22355(HL&P) – Unbundled Cost of Service.

NYSPSC Case No. 00-E-1273 – Central Hudson Gas and Electric Corporation – Rates.

NYSPSC Case No. 01-E-004 – Consolidated Edison Company – Proposed Sale of Indian Point Unit #2 to Entergy.

STATEMENT OF THOMAS L. BROCATO IN SUPPORT OF THE GULF COAST COALITION OF CITIES' LEGAL FEES AND EXPENSES ASSOCIATED WITH PUC DOCKET NOS. 29526, 30485 AND 30706

STATE OF TEXAS §
§
COUNTY OF TRAVIS §

My name is Thomas L. Brocato. I am an attorney with the law firm of Lloyd Gosselink Blevins Rochelle and Townsend, P.C. ("Lloyd Gosselink") and lead counsel for the Gulf Coast Coalition of Cities ("GCCC") in PUC Docket Nos. 29526, 30485 and 30706. I have been practicing public utility law since I graduated from law school and began my career as a Staff Attorney at the Public Utility Commission of Texas in 1990.

I am familiar with the work performed by Lloyd Gosselink on GCCC's behalf in connection with:

> PUC Docket No. 29526 concerning the *Application of CenterPoint Energy Houston Electric, LLC, Reliant Energy Retail Services, LLC and Texas Genco, LP to Determine Stranded Costs and Other True-Up Balances Pursuant to PURA §39.262,*
>
> PUC Docket No. 30485 concerning the *Application of CenterPoint Energy Houston Electric, LLC for a Financing Order*, and
>
> PUC Docket No. 30706 concerning the *Application of CenterPoint Energy Houston Electric, LLC for a Competition Charge (CTC).*

I am over the age of 18 years and am not disqualified from making this affidavit. My statements are true and correct.

1. I have reviewed the billings of Lloyd, Gosselink submitted to GCCC for legal services performed in PUC Docket Nos. 29526, 30485 and 30706. I affirm that those billings accurately reflect the time spent and expenditures incurred by Lloyd Gosselink on GCCC's

behalf. Those billings were accurately calculated before they were tendered and there was no double billing. None of the charges billed to GCCC have been recovered through reimbursement for other expenses. The expenses charged were associated with review of the applications in PUC Docket Nos. 29526, 30485 and 30706 and were necessary to advise cities and accomplish tasks in these PUC proceedings.

2. For the period October 6, 2003 through February 28, 2005, Lloyd Gosselink has billed $302,165.25 in Docket No. 29526. Our unbilled fees for the period March 1, 2005 through March 14, 2005 total $4,275.38. These combined amounts of $306,440.63 include $270,085.00 in legal fees and $36,355.63 in expenses. The fees and expenses incurred through March 15, 2005 were necessary to advise GCCC on review of the application, identifying issues, assisting GCCC in retaining and working with consultants, engaging in discovery, preparing pleadings, developing strategy and preparing for hearing. A large portion of Lloyd Gosselink's expenses incurred to date concern necessary efforts to review the Company's application and conduct discovery.

3. For the period October 26, 2004 through February 28, 2005, Lloyd Gosselink has billed $45,981.24 in Docket No. 30485. Our unbilled fees for the period March 1, 2005 through March 14, 2005 total $282.69. These combined amounts of $46,263.93 include $43,669.00 in legal fees and $2,594.93 in expenses. The fees and expenses incurred through March 14, 2005 were necessary to advise GCCC on review of the application, identifying issues, assisting GCCC in retaining and working with consultants, engaging in discovery, preparing pleadings, developing strategy and preparing for hearing. A large portion of Lloyd Gosselink's expenses incurred to date concern necessary efforts to review the Company's application and conduct discovery.

4. For the period through February 28, 2005, Lloyd Gosselink has billed $8,186.61 in Docket No. 30706. Our unbilled fees for the period March 1, 2005 through March 14, 2005 total $6,138.25. These combined amounts of $14,324.86 include $13,679.50 in legal fees and $645.36 in expenses. The fees and expenses incurred through March 15, 2005 were necessary to advise GCCC on review of the application, identifying issues, assisting GCCC in retaining and working with consultants, engaging in discovery, preparing pleadings, developing strategy and preparing for hearing. A large portion of Lloyd Gosselink's expenses incurred to date concern necessary efforts to review the Company's application and conduct discovery.

As described below, it is estimated that the firm will costs subsequent to February 28, 2005 of $300,696.32. This amount consists of $10,696.32 incurred but unbilled for the period March 1, 2004 through March 14, 2005, $40,000 associated with completion of Docket No. 30706 and $250,000 for appeals associated with these cases. GCCC seeks a finding that its legal fees and expenses of $657,029.42 are reasonable and necessary.

5. The attorneys hourly rates of $170-$230, upon which the billings are based, are the same hourly rates charged other clients for comparable services during the same time frame. Our firm's rates are at the lower end of the range compared to the rates charged by other lawyers with similar experience providing similar services. The hours spent to perform the tasks assigned to Lloyd Gosselink were necessary to complete those tasks in a professional manner on a timely basis. The many years of utility law experience of the lawyers working on this case aid in our efforts to keep rate case expenses reasonable. Counsel for another firm could have reasonably charged several times what the Gulf Coast Coalition of Cities has been billed.

6. The invoices submitted by Lloyd Gosselink include a description of services performed and time expended on each activity. The invoices for PUC Docket Nos. 29526,

30485 and 30706 are available for review. This firm has documented its charges with time sheets, invoices and records. The documentation in this case is similar to that provided in many previous rate cases at the PUC.

7. Lloyd Gosselink has not charged for and will not charge for luxury items, including first class airfare, limousine services, entertainment, alcoholic beverages or sporting events, nor has any individual attorney billed in excess of 12 hours in a single day. No meal expense in excess of $25.00 per individual has been charged to GCCC.

8. It is estimated that this firm will incur fees and expenses of $300,696.32 subsequent to February 28, 2005. This estimate is based on actual experience in previous rate cases at the PUC. This estimate assumes and accounts for:

a. Review and filing of GCCC's testimony in Docket No. 30706;

b. Review of testimony submitted by other intervenors and staff;

c. Review of and discovery on rebuttal testimony;

d. Participation in settlement discussions;

e. Preparation for hearings and participation in the hearings;

f. Preparation of briefs and reply briefs;

g. Review and evaluation of the Proposal for Decision;

h. Preparation of Exceptions and Replies to Exceptions;

i. Preparation for and attendance at PUC Final Order meetings;

j. Preparation of Motion for Rehearing and Reply to Applicants' Motion for Rehearing; and

k. Defending and or appealing the PUC's decision through the appellate process.

The estimated legal expenses requested by GCCC include $250,000 to allow for reimbursement of any appeal associated with these dockets. To date, appeals have been filed of Docket No.

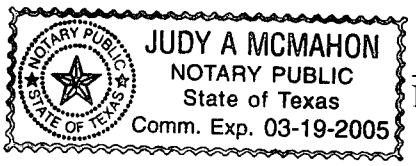
29526 in both the district courts and the Texas Supreme Court. More appeals are expected. The estimated amount does not, however, account for any extensions of the current procedural schedule or remanded proceedings. This estimate is reasonable based upon the vast experience of this firm in appealing and/or defending the Commission's Final Orders in Court.

9. Upon being hired by GCCC, I initiated discussions with counsel for the City of Houston to inquire of the issues that were being pursued. My goal was to avoid redundant work while enhancing and protecting the interests of my clients. Since the City of Houston had a broad review underway an early decision was made to focus on a few narrow issues. Given the magnitude of these cases and the fact that all of issues are ones of first impression, I decided that an independent review of certain issues would be beneficial even if the City of Houston filed testimony on an issue. Such testimony would be critical if the City of Houston settled with the Company or decided not to file testimony on the issues. I anticipate the Commission will want to obtain as much information as possible on these issues.

10. The amount requested is reasonable given the complexity, importance, and magnitude of these cases finalizing stranded costs under PURA §39.262.

THOMAS L. BROCATO

Subscribed and sworn before me on this 15th day of March, 2005.



Notary Public

CenterPoint 29526-30485-30706
Rate Case Expense Combined Summary

Invoice Date		Invoice Firm	Begining Billing Prd	Ending Billing Prd	Fees Amount	Expense Amount	Invoice Amount	Total Billed	Comined Total Billed	Adjusted Total
06/13/04	29526	Mavretich	04/24/04	05/31/04	$9,500.00	$0.00	$9,500.00			
07/07/04	29526	Mavretich	06/01/04	06/27/04	$10,500.00	$0.00	$10,500.00			
	29526	**Mavretich Total**			**$20,000.00**	**$0.00**	→	**$20,000.00**		
05/13/04	29526	Synapese	04/23/04	04/30/04	$4,543.75	$0.00	$4,543.75			
05/31/04	29526	Synapse	05/03/04	05/31/04	$47,842.50	$12.79	$47,855.29			<12.79>
06/30/04	29526	Synapse	06/01/04	06/30/04	$33,848.85	$4,922.87	$38,771.72			
07/31/04	29526	Synapse	07/05/04	07/26/04	$750.00	$0.00	$750.00			
	29526	**Synapse Total**			**$86,985.10**	**$4,935.66**	→	**$91,920.76**		**$91,907.97**
12/31/04	30485	Synapse	10/18/04	12/31/04	$19,475.00	$129.62	$19,604.62			
01/31/05	30485	Synapse	01/01/05	01/31/05	$20,152.50	$693.28	$20,845.78			<12.29>
03/07/05	30485	Synapse	02/01/05	02/28/05	$0.00	213.85	$213.85			
	30485	**Synapse Total**			**$39,627.50**	**$1,036.75**	→	**$40,664.25**		**$40,651.96**
02/28/05	30706	Synapse	02/01/05	02/28/05	$3,461.25	$0.00	$3,461.25			
	30706	**Synapse Total**			**$3,461.25**	**$0.00**	→	**$3,461.25**		
		Total Consultant 29526-30485-30706 through 02/28/05							**$156,046.26**	**$156,021.18**
11/26/03	29526	Lloyd Gosselink	10/01/03	10/31/04	$4,047.00	$0.00	$4,047.00			
12/31/04	29526	Lloyd Gosselink	11/01/03	11/30/03	$2,412.50	$0.00	$2,412.50			
03/02/04	29526	Lloyd Gosselink	01/01/04	01/31/04	$2,605.00	$18.97	$2,623.97			
03/30/04	29526	Lloyd Gosselink	02/01/04	02/28/04	$1,747.50	$24.73	$1,772.23			
04/29/04	29526	Lloyd Gosselink	03/01/04	03/31/04	$800.00	$398.70	$1,198.70			
05/27/04	29526	Lloyd Gosselink	04/01/04	04/30/04	$21,002.50	$1,231.38	$22,233.88			
06/30/04	29526	Lloyd Gosselink	05/01/04	05/31/04	$52,667.00	$2,320.13	$54,987.13			
07/30/04	29526	Lloyd Gosselink	06/01/04	06/30/04	$78,273.50	$21,651.34	$99,924.84			
08/30/04	29526	Lloyd Gosselink	07/01/04	07/31/04	$41,877.50	$6,454.91	$48,332.41			
10/04/04	29526	Lloyd Gosselink	08/01/04	08/31/04	$17,426.50	$434.29	$17,860.79			
10/25/04	29526	Lloyd Gosselink	09/01/04	09/30/04	$6,740.00	$<533.00>	$6,207.00			
12/21/04	29526	Lloyd Gosselink	10/01/04	11/30/04	$11,029.00	$808.58	$11,837.58			
01/25/05	29526	Lloyd Gosselink	12/01/04	12/31/04	$9,900.00	$181.12	$10,081.12			
03/02/05	29526	Lloyd Gosselink	01/01/05	01/31/05	$8,837.00	$1,500.22	$10,337.22			
03/09/05	29526	Lloyd Gosselink	02/01/05	02/28/05	$6,504.50	$1,804.38	$8,308.88			
	29526	**Lloyd Gosselink Total**			**$265,869.50**	**$36,295.75**	→	**$302,165.25**		

11/16/04	30485	Lloyd Gosselink	10/26/04	10/29/04	$1,508.00	$22.14	$1,530.14			
12/17/04	30485	Lloyd Gosselink	11/01/04	11/31/04	$1,080.00	$0.00	$1,080.00			
01/11/05	30485	Lloyd Gosselink	12/01/04	12/31/04	$8,404.50	$774.66	$9,179.16			
02/11/05	30485	Lloyd Gosselink	01/01/05	01/31/05	$24,673.50	$1,309.44	$25,982.94			
03/09/05	30485	Lloyd Gosselink	02/01/05	02/28/05	$7,728.00	$481.00	$8,209.00			
	30485	**Lloyd Gosselink Total**			**$43,394.00**	**$2,587.24**	→	**$45,981.24**		
03/09/05	30706	Lloyd Gosselink	02/01/05	02/28/05	$7,939.50	$247.11	$8,186.61			
	30706	**Lloyd Gosselink Total**			**$7,939.50**	**$247.11**	→	**$8,186.61**		
		Total Legal 29526-30485-30706 through 02/28/05						→	**$356,333.10**	
		TOTAL COMBINED 29526-30485-30706 Consultant & Legal through 02/28/05							**$512,379.36**	**$512,354.28**

0117