

# **AusNet Transmission Group Pty Ltd**

## **Transmission Revenue Review 2017-2022**

### **Appendix 10E: Statement of Dr J Robert Malko**

**Submitted: 30 October 2015**

**Statement of Dr J. Robert Malko  
Malko Energy Consulting**

**1. My brief**

- 1.1 Malko Energy Consulting (**Malko**) has been retained to provide an opinion in relation to recent decisions of the Australian Energy Regulator (**AER**) insofar as they relate to the identification and application of models for the identification of the expected return on common equity.
- 1.2 Specifically, I have been asked to review Australian Energy Regulator's (**AER**) Final Decision, ActewAGL distribution determination 2015-16 to 2018 -19 - Attachment 3 - Rate of Return document (**Attachment 3 to the ActewAGL distribution determination**) and to prepare a report concerning:
  - 1.2.1. The use of the discounted cash-flow models (**DCF**) in energy regulatory processes in the United States.
  - 1.2.2. The use of alternative Capital Asset Pricing Models (**CAPM**) in energy regulatory processes in the United States and in particular comment upon the statement in Attachment 3 to the ActewAGL distribution determination that:

*"There is little evidence that other regulators, academics or market practitioners use the Black CAPM to estimate the return on equity. In particular, regulators rarely have recourse to the Black CAPM"* at 3-256.
  - 1.2.3. The use of the Fama French Three Factor Model (**FFM**) in energy regulatory processes in the United States and in particular comment upon the statement in Attachment 3 to the ActewAGL distribution determination that:

*"We do not consider the FFM is currently suitable for our regulatory task.... The key reasons for not using the model are:*
    - *It does not appear sufficiently robust and is sensitive to different estimation periods and methodologies.*
    - *It is not clearly estimating ex ante required returns.*
    - *It suffers a lack of theoretical foundation, which might explain the instability of parameter estimates.*
    - *It is relatively complex to implement."* at 3-67-68.
  - 1.2.4. Provide my opinion as to whether any one model should be used solely or as the primary, principal or 'foundation' model in estimating the cost of equity and why.
- 1.3 A copy of the Terms of Reference is attached at **Appendix 1** to this report.
- 1.4 This report has been authored by Dr J. Robert Malko.
  - 1.4.1. I am currently Professor of Finance in the Department of Economics and Finance. Huntsman School of Business at Utah State University, located in Logan, Utah, the United States. I have held this academic position since 1987; and

- 1.4.2. I am an independent consultant specializing in the finance and economics of energy utilities. I have provided these services since 1974 including:
- 1.4.3. I served as the Chief Economist at the Public Service Commission of Wisconsin, Madison, Wisconsin, from January 1981 to December 1986.
- 1.4.4. Economist, Program Manager, The Electric Utility Rate Design Study at the Electric Power Research Institute located in Palo Alto, California; this is a study for the National Association of Regulatory Utility Commissioners; Program Manager, December 1979 to January 1981; Project Manager, December 1977 to December 1979.
- 1.4.5. Chief Economist, Public Service Commission of Wisconsin, Madison, Wisconsin, June 1975 to December 1977.
- 1.4.6. Economist, Utility Rates Division, Public Service Commission of Wisconsin, Madison, Wisconsin, December 1974 to June 1975.
- 1.5 I also have the following relevant experience:
  - 1.5.1. I served as Chair and Vice-Chair of the National Association of Regulatory Utility Commissions (**NARUC**) Staff Subcommittee on economics and finance between 1975-1977 and 1981-1986.
  - 1.5.2. I served on the Executive Board of the Wisconsin Public Utility Institute, housed at the University of Wisconsin, Madison, Wisconsin between 1982 and 1985.
  - 1.5.3. I was the Senior Staff Advisor to the NARUC Ad Hoc Committee on Utility Diversification in 1981-1982. I also assisted the Committee in the preparation and publication of their Final Report in 1983.
  - 1.5.4. I served on the Board of Directors at the National Regulatory Research Institute, located at Ohio State University, between 1997 and 2003.
  - 1.5.5. I have served on the Board of Directors of the Society of Utility and Regulatory Financial Analysts (**SURFA**) between 1988 to 1996 and 2002 to 2010.
  - 1.5.6. I am a Certified Rate of Return Analyst. This certification was granted to me by SURFA.
  - 1.5.7. I currently serve on the Advisory council for the Center of Public Utilities at New Mexico State University.
- 1.6 I hold the following qualifications:
  - 1.6.1. Doctor of Philosophy degree in economics from the Krannert Graduate School of Management at Purdue University, Lafayette, Indiana, 1972.
  - 1.6.2. Master of Science degree in economics from the Krannert Graduate School of Management at Purdue University, Lafayette, Indiana, 1968.

- 1.6.3. Bachelor of Science degree, cum laude, in mathematics and economics (majors) and political science (minor) from Loyola College, Baltimore, Maryland, 1966.
- 1.6.4. Business finance courses at Graduate School of Business, University of Wisconsin, Madison, 1982-1986.
- 1.6.5. Visiting Scholar in industrial engineering and public utility economics, Stanford University, Palo Alto, California, 1980.
- 1.6.6. Accounting courses at Illinois State University, Normal, Illinois, 1971-1973 and public utility business courses at the University of Wisconsin, Madison, 1976-1977.
- 1.7 A copy of my Curriculum Vitae is attached at **Appendix 2** to this report.
- 1.8 My opinions set out in this report are based on the specialist knowledge acquired from my training and experience as set out above and in Appendix 2. I have been provided with a copy of the Federal Court's Practice Note CM7, entitled "Expert Witnesses in Proceedings in the Federal Court of Australia", which comprises the guidelines for expert witnesses in the Federal Court of Australia (**Expert Witness Guidelines**). I have read, understood and complied with the Expert Witness Guidelines.

## 2. Introduction

- 2.1 I have reviewed the AER's recent determination that refers in particular to proposals by the businesses that the allowed rate of return for equity should be determined using a combination of financial models – the dividend growth model (**DGM**), also the discounted cash flow (**DCF**), the Sharpe-Lintner CAPM (which in the US we commonly refer to as the Sharpe CAPM), the Black CAPM and the FFM.
- 2.2 In this report I explain:
  - 2.2.1. The extent to which these models are used in the United States for energy regulatory purposes.
  - 2.2.2. My own views as to the best practice.
- 2.3 When describing the use of these models in the United States it is useful to explain some context to an Australian reader:
  - 2.3.1. First, there are a multiplicity of regulators in the United States with a separate regulator in each State as well as a Federal regulator for inter-state infrastructure. These regulators are influenced to varying degrees by each others' approaches and methodological advances but their practices can, and do, often diverge.
  - 2.3.2. Second, the frequency of regulatory decisions can vary significantly and there is no uniform requirement for there to be a regulatory determination for every network business at a standard interval, as I understand is required in Australia.

- 2.3.3. Third, regulators in the United States generally have extensive discretion to establish what constitutes a “just and reasonable” return guided by precedents from court cases and previous decisions rather than detailed legislative rules on how the amounts should be determined.

### 3. The Dividend Growth Model

- 3.1 The Dividend Growth Model (DGM), also the DCF, is based upon the works of Irving Fisher and John Williams in the 1930s. The DGM or DCF was introduced for estimating the cost of common equity for regulated energy utilities by state regulatory authorities during the 1960s and early 1970s. Professor Myron J. Gordon is frequently recognized to be the “pioneer” or “father” of the application of the DCF model in estimating the cost of common equity for a regulated energy utility. See the following: Myron J. Gordon, The Cost of Capital to a Public Utility, Michigan State University Public Utilities Studies, East Lansing, Michigan, 1974.
- 3.2 The adoption of the DGM or DCF constituted a significant advance in the science of what constitutes a fair market reflective rate of return. This model is still considered and almost universally used, alone or in a multi-model approach (as I discuss further below), by almost all energy regulators in the United States.
- 3.3 The DGM or DCF values an asset by calculating the sum of all future cash flows, both revenues and expenditures, discounted by using the cost of capital to identify their net present value. The calculation is based on a number of assumptions including:
- 3.3.1. The growth rate will be constant for an indefinite period in the future.
- 3.3.2. Investors require the same cost of equity in each year.
- 3.3.3. The price/earnings ratio remains constant.
- 3.3.4. The stock price grows proportional to the growth rate.
- 3.4 The DGM or DCF continues to be a popular model for estimating the cost of common equity before regulators in the United States. Certain state regulatory commissions, such as Utah and Wisconsin, have placed substantial weight on the DGM or DCF model for determining the cost of common equity for energy utilities. However, these regulatory commissions also consider interest rate levels and the utility's market cost of debt in determining the allowed return on common equity.
- 3.5 However, current corporate and academic practices are less supportive of the use of DGM or DCF methods alone in estimating a rate of return and consider that other information should also inform the calculation.
- 3.6 I have reviewed the AER’s concerns with the use of the DGM or DCF. Some of those concerns concern the availability of data in Australia and I will leave it to those practicing in Australia to comment on those criticisms. In addition, the AER states that:

*“We also considered that the sensitivity of DGMs to input assumptions would limit our ability to use a DGM as the foundation model. For example estimates of simple DGMs*

*(such as those previously proposed by CEG) have provided implausible estimates of the returns on equity for the benchmark efficient entity. For example, in the Guideline we found that simple DGMs generate average returns on equity for energy infrastructure businesses over an extended period that significant exceeded the average return on equity for the market. This did not make sense as the systematic risk of network businesses is less than the overall market.”*

3.7 In response, I would make the following observations:

- 3.7.1. Certainly the DGM or DCF is sensitive to its input assumptions and if it would be inappropriately implemented, it could deliver implausible results. In this regard, I see no difference between this and other models. If inappropriate inputs are used, any of the models can produce implausible results.
- 3.7.2. It is common in United States regulatory determination processes for there to be debate between businesses, customers and the regulators concerning which inputs to use but these debates occur with a context in which expert testimony has regard to whether the inputs used deliver plausible results and decision making is guided by a body of court and regulatory precedent.
- 3.7.3. Over-all, the wide acceptance and use of the DGM or DCF in the United States demonstrates that this model is sufficiently robust for it to be useful in economic regulatory decision making.

3.8 That said, the DGM or DCF (as is the case with all models), is not infallible and this has lead to a movement to supplement the insights from the other models discussed below (and indeed other inputs) when making regulatory determinations. In particular, when official interest rates were high, there was a concern (legitimate in my view) that the DGM or DCF did not, at the time, adequately reflect the increased returns that equity investors expected to receive and this led some regulators to start to have regard to the capital asset pricing models *concurrently with* the DGM or DCF.

#### 4. The Sharpe Capital Asset Pricing Model

- 4.1 The ‘basic’ CAPM is used to identify a theoretically appropriate rate of return of an asset. The model was developed by William Sharpe and John Lintner (with others). In the United States it is typically referred to as the Sharpe-CAPM (**Sharpe CAPM**) and I understand that the same model is commonly referred to as the basic or Sharpe-Lintner or SL CAPM in Australia. This model assesses the asset’s sensitivity to market risk (beta( $\beta$ )) as well as the expected return of the market and the expected return of a theoretical risk-free asset.
- 4.2 The Sharpe CAPM started to be presented by financial experts to the regulators in the 1970s and 1980s and it is now settled that many (but not all) regulators consider the results of this model together with the DGM or DCF. In the United States, CAPMs are even more popular and more used in corporate and academic settings.
- 4.3 In my opinion:
  - 4.3.1. The Sharpe CAPM has important strengths, including:

- 4.3.1.1 It incorporates a first principals concept of risk and return.
    - 4.3.1.2 It is an interest-rate sensitive model that complements a stock price sensitive model.
    - 4.3.1.3 It is simple.
  - 4.4 The Sharpe CAPM model has important limitations, including:
    - 4.4.1. It is a single factor (beta( $\beta$ )) model and it does not incorporate other factors that finance literature demonstrates are known to affect equity returns.
    - 4.4.2. The model suffers from a theoretical limitation in that it assumes that investors can borrow and lend at the risk free rate which is not the case. Due to the simple mathematical specification of the model, the effect of this implausible assumption is that it under-estimates the returns for investments of below average risk and over-estimates the returns for investments of above average risk.
    - 4.4.3. Empirical work shows that there are limitations associated with its ability to explain past stock price movements and equally its predictive capabilities both associated with the theoretical limitations mentioned above and more generally.
  - 4.5 I have observed that during the recent past (10 years or less), financial analysts have attempted to address some of the shortcomings of the Sharpe CAPM by:
    - 4.5.1. Using the Empirical CAPM (**ECAPM**) (discussed below).
    - 4.5.2. Making an adjustment by adding the small size risk premium. This premium reflects that small companies have higher returns on average than larger companies (which is also relevant to the discussion of the FFM below).
    - 4.5.3. Applying the Hamada adjustment for a leveraged beta. This adjustment reflects a changing capital structure. For example, if a utility's current or planned capital structure reflects an increased debt level and debt percentage, then the leveraged beta is increased to reflect the increased financial risk. To make the Hamada adjustment, a comparison of the capital structure of a specific utility to a comparable group is undertaken and appropriate mathematical models are applied.
  - 4.6 The trends in the practices of financial analysts are also reflected in an increasing number of regulatory decisions as discussed below.
- 5. **Addressing the unrealistic Sharpe CAPM assumption concerning the ability of investors to borrow and lend at the risk free rate**
  - 5.1 As the name suggests, the ECAPM was developed in response to empirical evidence pointing to key limitations of the Sharpe CAPM. The empirical research shows that

stocks with betas below 1 earn returns somewhat higher than the basic form of Sharpe CAPM would predict; and stocks with betas above 1 earn less than predicted.

- 5.2 Specific published research on this topic include:
- 5.2.1. Fama, E.F. and French, K.R. "The Cross-Section of Expected Stock Returns." *Journal of Finance*, June 1992, 427-465.
  - 5.2.2. Litzenberger, R.H. and Ramaswamy, K. "The Effect of Personal Taxes and Dividends on Capital Asset Prices: Theory and Empirical Evidence." *Journal of Financial Economics*, June 1979, 163-196.
  - 5.2.3. Litzenberger, R.H. and Ramaswamy, K. and Sosin, H. "On the CAPM Approach to the Estimation of a Public Utility's Cost of Equity Capital." *Journal of Finance*, May 1980, 369-383.
  - 5.2.4. Pettengill, G.N., Sundaram, S. and Mathur, I. "The Conditional Relation Between Beta and Returns," *Journal of Financial and Quantitative Analysis*, Vol. 30, No. 1, March 1995, 101-116.
- 5.3 By making the necessary adjustments to the Sharpe CAPM, the ECAPM has a higher intercept and flatter regression line (security market line) than the pure Sharpe CAPM. The ECAPM is an explicit recognition that the observed risk-return relationship or trade-off is more flat than predicted by the Sharpe CAPM.
- 5.4 In the United States, I have observed in recent years, that there has been an increase use of ECAPM by expert witnesses in estimating the cost of common equity for regulated energy utilities, for example:
- 5.4.1. Professor Roger Morin has presented testimony on ECAPM on behalf of regulated energy utilities in the following states: California, Delaware, Maryland, Michigan, Minnesota, Mississippi, New York, and Washington.
  - 5.4.2. Dr. William Avera has presented testimony on ECAPM on behalf of regulated energy utilities in the following states: California, Colorado, Kentucky, South Dakota, Virginia, and West Virginia.
- 5.5 Regulators who have been presented with ECAPM evidence have considered it along with evidence from the DGM or DCF and Sharpe CAPM. The results from all these approaches have been recorded in the decisions and the selection of a particular figure has been made following that consideration. Explicit weights have not typically been given to the outputs of each model but the allowances that have been set reflect a practice of taking all the models into account.
- 5.6 From each of these mathematical models a value is identified. These values together provide the numerical interval from which the decision makers determine a reasonable allowed return on common equity.



## 6. The Black CAPM

- 6.1 I note that the AER's decision makes extensive reference to the Black CAPM. The Black CAPM (also called the zero-beta CAPM) was developed by Fischer Black in around 1972. The Black CAPM.
- 6.1.1. Is a more general model than the Sharpe CAPM in that it replaces the assumption that risk-averse investors can borrow or lend at a single risk-free rate and instead uses market data to establish the measures of what investors expect to receive on stocks with a zero beta.
- 6.1.2. Is more robust against empirical testing than the Sharpe CAPM in that the mathematical specification of the Black CAPM better explains observed/ past variations in stock prices and it provides a more accurate prediction of future returns.
- 6.2 In essence, the Black CAPM and ECAPM could be thought of as flip-side perspectives of the same issue. The former (ie the Black CAPM) addresses a theoretical weakness of the Sharpe CAPM and when the Black CAPM is implemented, the intercept (ie return on a zero beta stock) is higher than for the Sharpe CAPM and the slope of the return curve is flattened. When the Black CAPM's performance is evaluated empirically, it out-performs the Sharpe CAPM. The latter (ie ECAPM) responds to empirical tests showing that the Sharpe CAPM under-estimates returns for stock with betas below one by raising the intercept and flattening the curve. From a theoretical perspective, the ECAPM's adjustments relative to the Sharpe CAPM are consistent with the theory of Black CAPM.
- 6.3 Both the Black CAPM and ECAPM yield similar directional results of higher cost of equity capital for a regulated energy utility (beta value below 1) due to a more flat regression line and a higher intercept value and in principle the magnitude should be the same.
- 6.4 I have been asked to comment on the correctness or otherwise of the statement in Attachment 3 to the ActewAGL distribution determination:
- "There is little evidence that other regulators, academics or market practitioners use the Black CAPM to estimate the return on equity. In particular, regulators rarely have recourse to the Black CAPM"* at 3-256.
- 6.5 As I have explained above, although there is little explicit reference to the Black CAPM, in practice the use in the United States of the ECAPM by financial analysts both within and outside energy regulatory processes is essentially to the same effect.
- 6.6 I note that the AER has stated that it has adopted a beta from the higher end of its estimated range in light of a consideration of the Black CAPM. For completeness, I should also note that the use of the ECAPM to address the low returns for stocks with betas below one and the adjustment of the beta values themselves are two separate actions that are considered by asset pricing models by proponents. A variety of considerations may lead to the adoption of a beta that tends to be higher or lower but this is quite separate from adjusting the intercept or slope of the curve. For a discussion of this issue, see Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., Vienna, Virginia, 2006, 191.

## 7. Fama-French Factor Model (FFM)

7.1 During the late 1980s new securities-history data became available. This allowed researchers to test hypotheses about the efficacy of factors other than, and in addition to, the CAPM's market risk. During the 1990s, Professors Eugene Fama and Kenneth French identified, using empirical data, that a CAPM-like equation would perform better if the equation included two additional factors:

7.1.1. Exposure to the value premium, being the difference between the return to a portfolio of high book-to-market stocks and the return to a portfolio of low book-to-market stocks.

7.1.2. The size premium, being the difference between the return of small-cap stocks and the return to a portfolio of large-cap stocks.

7.2 I understand that the AER does not give the FFM any weight, stating in the Attachment 3 to the ActewAGL distribution determination:

*"We do not consider the FFM is currently suitable for our regulatory task.... The key reasons for not using the model are:*

- It does not appear sufficiently robust and is sensitive to different estimation periods and methodologies.*
- It is not clearly estimating ex ante required returns.*
- It suffers a lack of theoretical foundation, which might explain the instability of parameter estimates.*
- It is relatively complex to implement." at 3-67-68.*

7.3 The FFM, like other risk premium models, has comparative strengths and comparative weaknesses. Dr. Giacchino and Dr. Lesser state the following concerning the FFM: *"The Fama-French model has been applied to estimate ROE in utility rate cases (including by us for an electric transmission company), although its use is not common. Nor are we aware of regulators who have set a regulated utility's ROE based solely on the results of a Fama-French analysis. Nevertheless, the Fama-French model is commonly used to determine the cost of equity for financial analysis, and is a potentially powerful tool to use in setting utility ROE values."* See Leonardo R. Giacchino and Jonathan A. Lesser, Principles of Utility Corporate Finance, Public Utilities Reports, Inc., Vienna, Virginia, 2011, 243.

7.4 I am aware that the FFM has been applied by energy regulators including Massachusetts, California and Nevada and that more generally adjustments are commonly made to the Sharpe CAPM results by finance practitioners that reflect the additional factors that the FFM explicitly uses.

## 8. Which models are useful for economic regulatory purposes?

8.1 In my opinion, all models discussed above are useful in the determination of allowed return on equity, but each model has both strengths and drawbacks and should not be used alone, nor is any model superior so as to warrant its use as a primary or sole principal model.

- 8.2 In particular, the models can be grouped into two ‘families’: the DGM on the one hand and all the capital asset pricing models or interest rate sensitive models on the other based on how they explain and predict returns. Both major groupings, and all the variants discussed above, provide useful insights into what returns that risk-adverse investors expect to receive when making investments.

## 9. Multiple Model Approaches are Preferable

- 9.1 In my opinion, no one single financial model is sufficient to estimate the rate of return in every economic circumstance. All models suffer a range of theoretical and/or empirical weaknesses of different kinds. If only one model is used, or if one model is given excessive pre-eminent weight, investors’ returns will be highly dependent on the extent to which that model’s particular weaknesses lead to over- or under-returns. If multiple models are used, then the returns will vary in response to all the weaknesses but to a smaller extent than if one model is used. It also stands to reason that where the weaknesses of different approaches are directionally different, they will to some degree cancel each other out. Additionally, where only one model is used, there is insufficient corroborating evidence or ability to cross-check the results. By contrast, the consideration of multiple models enables the decision maker to either become comfortable that different methodologies are corroborative or, where they are not, to question why it is that one or more models may be delivering significantly different results at a particular time or in particular economic circumstances. This, in turn, can give an insight into whether results should be adjusted (by altering the weighting or influence) according to particular models and their results.
- 9.2 In my opinion, to ensure the most appropriate decision, it is important to consider the results of several models. In my opinion, using several models helps compensate for the drawbacks in any single model and increases the probability that the appropriate, and reasonable range is identified.
- 9.3 I agree with the following discussion concerning the reliance on a single method or model: *"No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations because of possible measurement difficulties and vagaries in individual companies' market data."* See Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Vienna, Virginia, 2006, 428.
- 9.4 For a discussion concerning the use of two or more models providing a better estimate, as compared to the use of any single model, for the appropriate numerical interval and reasonable point estimate for the cost of equity see. J. Robert Malko and Robert Skinner, "Selecting a Capital Structure for a Regulated Electric Utility: Some Issues and Directions", The Electricity Journal, Vol. 24, Issue 7, August/September 2011, 49-56.
- 9.5 I have observed that in the United States, regulators and expert financial witnesses generally use multiple methods, at least two, when determining a reasonable point estimate for the cost of common equity for a regulated energy utility. For instance:
- 9.5.1. Professor Roger Morin has appeared before the majority of state regulatory commissions, including California, Delaware, Maryland, Michigan, Minnesota,

Mississippi, New York, and Washington, and uses multiple (more than two) financial models in his estimation process.

9.5.2. Dr. William Avera has appeared before several state regulatory commissions, including California, Colorado, Kentucky, South Dakota, Virginia, and West Virginia, and uses multiple (more than two) financial models in his process of estimating the cost of common equity.

9.6 The reasonable range for the cost of common equity for regulated energy utilities approved by state regulatory commissions in the United States is generally based on multiple, financial models, including dividend-stock price models and interest rate-risk premium models. When making the final decision concerning the allowed return on common equity, regulators consider, in addition to the financial models, financial integrity, capital structure, relative business risk, and judgment.

## **10. Typical Regulatory Allowed Rates of Return**

10.1 The average allowed return on common equity for regulated energy utilities in the United States has generally ranged between 9.5% to 10.5% during 2013 to 2014.

10.2 Although these returns are to some degree sensitive to prevailing interest rates, in recent times allowances have certainly not been adjusted downward on a one-for-one basis as official interest rates have fallen. In fact, consistent with equity market investor expectations, movements in regulated allowances for returns on equity have been significantly more stable than movements in official Federal interest rates.

10.3 For detailed information concerning recently allowed returns for regulated energy utilities in the United States, see Edison Electric Institute "Rate Case Summary", Quarterly Financial Report, Washington D.C., various issues, between 2013-2014. For a specific example, Rocky Mountain Power (PacifiCorp) was authorized an allowed rate of return on common equity of 9.8% by the Utah Public Service Commission in Docket No. 13-035-184, August 29, 2014.

## **11. Conclusion**

11.1 In my opinion a regulator should:

11.1.1. Consider carefully the results of various models for the allowed return on common equity.

11.1.2. Specifically:

11.1.2.1 Regard should be had to both the DGM and capital asset pricing models.

11.1.2.2 When considering capital asset pricing models, something needs to be done to address the under-estimation that would otherwise occur if the Sharpe CAPM were the only CAPM used for assets with a beta of less than one.

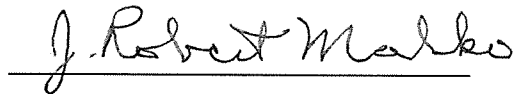
11.1.2.3 Take the empirical performance of the models into account when deciding how much influence to give which inputs within the over-all range.

11.1.2.4 Apply its sound judgment when considering these results.

11.2 In my opinion, when applying its judgment, a regulator should consider the impact of various models would have on the businesses ability to fund infrastructure investments needed to both provide quality service over time and achieve variously public policy objectives. Further, in my opinion, a regulator should take care in establishing an allowed rate of return in times when market conditions are different from normal conditions to ensure that the allowed rate of return remains reasonable over the regulatory period.

**12. Declaration**

12.1 I confirm that I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Court.



Dr J. Robert Malko

Dated: 16 June 2015

Signed in Salt Lake City, Utah  
USA

# JONES DAY

AURORA PLACE • LEVEL 41, 88 PHILLIP STREET • SYDNEY NSW 2000  
TELEPHONE: +61.2.8272.0500 • FACSIMILE: +61.2.8272.0599

## Appendix 1: Instructions

17 June 2015

**Partner**  
Nicolas Taylor  
Telephone: +61 2 8272 0715  
Email: NJTaylor@JonesDay.com

Dr J. Robert Malko  
245 North Alta Street  
Salt Lake City, UT 84103  
United States of America

## TERMS OF REFERENCE

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    - *It is relatively complex to implement."* at 3-67-68.

## Compliance with the Code of Conduct for Expert Witnesses

Attached is a copy of the Federal Court's Practice Note CM 7, entitled "Expert Witnesses in Proceedings in the Federal Court of Australia", which comprises the guidelines for expert witnesses in the Federal Court of Australia (Expert Witness Guidelines).

ALKHOBAR • AMSTERDAM • ATLANTA • BEIJING • BOSTON • BRUSSELS • CHICAGO • CLEVELAND • COLUMBUS • DALLAS  
DUBAI • DÜSSELDORF • FRANKFURT • HONG KONG • HOUSTON • IRVINE • JEDDAH • LONDON • LOS ANGELES • MADRID

Please read and familiarise yourself with the Expert Witness Guidelines, and comply with them at all times over the course of your engagement.

In particular, your report prepared should contain a statement at the beginning of the report to the effect that the author of the report has read, understood and complied with the Expert Witness Guidelines.

Your report must also:

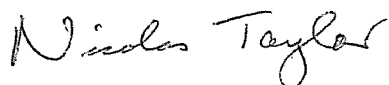
1. contain particulars of the training, study or experience by which the expert has acquired specialised knowledge;
2. identify the questions that the expert has been asked to address;
3. set out separately each of the factual findings or assumptions on which the expert's opinion is based;
4. set out each of the expert's opinions separately from the factual findings or assumptions;
5. set out the reasons for each of the expert's opinions; and
6. otherwise comply with the Expert Witness Guidelines.

The expert is also required to state that each of the expert's opinions is wholly or substantially based on the expert's specialised knowledge.

The declaration contained within the report should be that "[the expert] has made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the report".

Please also attach a copy of these terms of reference to the report.

Kind regards

A handwritten signature in black ink that reads "Nicolas Taylor". The signature is written in a cursive, flowing style.

**Nicolas Taylor**

Partner

## Attachment

# FEDERAL COURT OF AUSTRALIA

Practice Note CM 7

## EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

*Practice Note CM 7 issued on 1 August 2011 is revoked with effect from midnight on 3 June 2013 and the following Practice Note is substituted.*

### Commencement

1. This Practice Note commences on 4 June 2013.

### Introduction

2. Rule 23.12 of the Federal Court Rules 2011 requires a party to give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based on the specialised knowledge of the witness (see **Part 3.3 - Opinion** of the Evidence Act 1995 (Cth)).
3. The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence<sup>1</sup>, and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

### Guidelines

#### **1. General Duty to the Court<sup>2</sup>**

- 1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.
- 1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential.
- 1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

#### **2. The Form of the Expert's Report<sup>3</sup>**

- 2.1 An expert's written report must comply with Rule 23.13 and therefore must
  - (a) be signed by the expert who prepared the report; and
  - (b) contain an acknowledgement at the beginning of the report that the expert has read, understood and complied with the Practice Note; and
  - (c) contain particulars of the training, study or experience by which the expert has acquired specialised knowledge; and
  - (d) identify the questions that the expert was asked to address; and

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<sup>1</sup> As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

<sup>2</sup> The *"Ikarian Reefer"* (1993) 20 FSR 563 at 565-566.

<sup>3</sup> Rule 23.13.



- (e) set out separately each of the factual findings or assumptions on which the expert's opinion is based; and
  - (f) set out separately from the factual findings or assumptions each of the expert's opinions; and
  - (g) set out the reasons for each of the expert's opinions; and
  - (ga) contain an acknowledgment that the expert's opinions are based wholly or substantially on the specialised knowledge mentioned in paragraph (c) above<sup>4</sup>; and
  - (h) comply with the Practice Note.
- 2.2 At the end of the report the expert should declare that "[the expert] has made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the Court."
- 2.3 There should be included in or attached to the report the documents and other materials that the expert has been instructed to consider.
- 2.4 If, after exchange of reports or at any other stage, an expert witness changes the expert's opinion, having read another expert's report or for any other reason, the change should be communicated as soon as practicable (through the party's lawyers) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court<sup>5</sup>.
- 2.5 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report.
- 2.6 The expert should make it clear if a particular question or issue falls outside the relevant field of expertise.
- 2.7 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports<sup>6</sup>.
- 3. Experts' Conference**
- 3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

J L B ALLSOP  
Chief Justice  
4 June 2013

<sup>4</sup> See also *Dasreef Pty Limited v Nawaf Hawchar* [2011] HCA 21.

<sup>5</sup> The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565

<sup>6</sup> The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565-566. See also Ormrod "*Scientific Evidence in Court*" [1968] Crim LR 240

## **Appendix 2: Curriculum vita of Dr J. Robert Malko**

### **J. ROBERT MALKO Professional Vita**

#### **BUSINESS ADDRESS:**

Department of Economics and Finance  
Huntsman School of Business  
Utah State University  
Logan, UT 84322-3565  
Phone: (801) 674-0030

#### **HOME ADDRESS:**

245 North Alta Street  
Salt Lake City, UT 84103  
Phone: (801) 596-0732 Fax: (801)583-8132

#### **EDUCATION:**

Doctor of Philosophy degree in economics from the Krannert Graduate School of Management at Purdue University (Lafayette, Indiana), 1972.

Master of Science degree in economics from the Krannert Graduate School of Management at Purdue University (Lafayette, Indiana), 1968.

Bachelor of Science degree, cum laude, in mathematics and economics (majors) and political science (minor) from Loyola College (Baltimore, Maryland), 1966.

Business finance courses at Graduate School of Business, University of Wisconsin (Madison), 1982-1986.

Visiting Scholar in industrial engineering and public utility economics, Stanford University (Palo Alto, California), 1980.

Accounting courses at Illinois State University (Normal, Illinois), 1971-1973 and public utility business courses at the University of Wisconsin (Madison), 1976-1977.

#### **GOVERNMENT AND BUSINESS:**

Chief Economist, Public Service Commission of Wisconsin, Madison, Wisconsin, January 1981 to December 1986.

Economist, Program Manager, The Electric Utility Rate Design Study at the Electric Power Research Institute at Palo Alto, California; this is a study for the National Association of Regulatory Utility Commissioners; Program Manager, December 1979 to January 1981; Project Manager, December 1977 to December 1979.

Chief Economist, Public Service Commission of Wisconsin, Madison, Wisconsin, June 1975 to December 1977.

Economist, Utility Rates Division, Public Service Commission of Wisconsin, Madison, Wisconsin, December 1974 to June 1975.

Financial Economics Consultant (2009-2011), Colorado Public Utilities Commission Staff, Denver, Colorado.

Financial Economic Consultant (2005-present), Overland Consulting, Overland Park, Kansas.

Financial Economic Consultant (2003-2006), Peters, Scofield & Price, Salt Lake City, Utah.

Financial Economics Consultant (2007), California Public Utilities Commission, San Francisco, California.

Financial Economic Consultant (2006-2007), Tomsic & Peck, Salt Lake City, Utah.

Financial Economic Consultant (2005-2006), Moss & Barnett and Northern States Power Company, Minneapolis, Minnesota.

Financial Economic Consultant (2005-2006), West Virginia Public Services Commission of West Virginia, Charleston, West Virginia.

Financial Economic Consultant (1998-2003), Parsons, Davies, Kinghorn & Peters, Salt Lake City, Utah.

Energy Utility Consultant (Spring 1996-1998), Energy Strategies, Inc., Salt Lake City, Utah.

Energy Utility Consultant (Winter 1997), Retail Merchants Association, Concord, New Hampshire.

Energy Utility Consultant (Summer 1995-Spring 1996), Southern Company Services, Inc., Atlanta Georgia.

Energy Utility Consultant (Spring 1995), PECO Energy Company, Philadelphia, Pennsylvania.

Energy Utility Consultant (Fall 1994-Spring 1995), Virginia State Corporation Commission Staff, Richmond, Virginia.

Energy Utility Consultant (Fall 1994), Mountain Fuel Supply Company, Salt Lake City, Utah.

Energy Utility Consultant (Summer 1994-Fall 1994), Brooklyn Union Gas Company and the E Cubed Company, Brooklyn, New York.

Senior Consultant (Winter 1993-Winter 1997), Utility Services Group - AUS Consultants, Moorestown, New Jersey.

Energy Utility Consultant (Spring-Fall 1992), Wisconsin Energy Conservation Corporation, Madison, Wisconsin

Energy Utility Consultant (Fall 1990-Fall 1991) Associated Electric Cooperative, Inc., Springfield, Missouri.

Energy Utility Consultant (Fall 1990), Arizona Electric Power Cooperative, Inc., Benson, Arizona.

Energy Utility Consultant (Fall 1989 to 1997), The Management Exchange, New York City, New York.

Energy Utility Consultant (Summer 1989-Fall 1991, Spring 1993, and Spring 1997 and Fall 1998), Washington Gas Light Company, Washington, D.C.

Energy Utility Consultant (Spring 1989), LMSL, Inc. and the Arizona Corporation Commission, State of Arizona.

Energy Utility Consultant (Summer 1986-Spring 1988), Illinois Office of Public Counsel, State of Illinois.

Energy Utility Consultant (Fall 1985), Virginia State Corporation Commission, State of Virginia.

Energy Utility Consultant (Summer-Fall 1982, Spring 1984, Spring 1985, Spring-Summer 1990, Fall 1991-Spring 1992, Winter 1994), Hawaii Consumer Advocacy Division, State of Hawaii, Honolulu, Hawaii.

Energy Utility Consultant (Spring-Summer 1982, Summer-Fall 1983), Alaska Public Utilities Commission, State of Alaska.

Energy Utility Consultant (Winter 1982), Nevada Public Service Commission, State of Nevada.

Energy Utility Consultant (Fall 1981), Kentucky Public Service Commission, State of Kentucky.

Energy Utility Consultant (Spring 1981), Hawaii Public Utilities Division, State of Hawaii.

Energy Utility Consultant (Fall 1977), Electric Power Research Institute, Palo Alto, California.

Energy Utility Consultant (Spring-Summer 1977), Illinois Commerce Commission, State of Illinois.

Energy Utility Consultant (Spring-Summer 1977), Office of the Consumer Advocate, State of Pennsylvania.

Energy Utility Consultant (Winter 1976), Public Utilities Commission of Ohio, State of Ohio.

Energy Utility Consultant (Spring 1976, Spring 1977), Office of Consumer Counsel, State of Connecticut.

Economist, United States Department of Commerce, Bureau of Economic Analysis, Government Division, Washington, D.C., June 1974 to December 1974.

Program Performance Budget Consultant (Spring-Summer 1973), City of Bloomington, Bloomington, Illinois.

Tax Consultant (Summer-Fall 1972), City of Bloomington, Bloomington, Illinois.

Administrative Analyst (Summer 1969), Department of Fiscal Services, Division of Fiscal Research, State of Maryland, Annapolis, Maryland.

Worked on research projects in the Business Methods Department (Summer 1964) and the Business Computer Department (Summer 1965) of Western Electric Company, Baltimore, Maryland.

#### **RESEARCH:**

At Utah State University, I am continuing to focus my research on various financial and pricing issues, such as cost of capital analysis, corporate restructuring, nuclear decommissioning, and time-of-use pricing, concerning energy utilities.

At the Public Service Commission of Wisconsin between 1981 and 1986, I focused my research on various financial issues, such as diversification and rate of return analysis, concerning energy utilities and

telephone utilities. In addition, I analyzed issues relating to rate design and cost-of-service studies for electricity, natural gas, and telephone. I developed and presented expert testimony in rate and rule making proceedings that pertain to economic and financial issues relating to public utilities.

At the Electric Power Research Institute between 1978 and 1980, I focused my research on the desirability and technical feasibility of time-of-use pricing and direct load controls for electricity usage.

At the Public Service Commission of Wisconsin between 1975 and 1977, I focused my research on various problems faced by electric utilities and gas utilities. I have analyzed problems related to rate design, cost of service studies, load management, consumer and environmental impact analysis, public utility productivity and demand forecasting. I have developed and presented expert testimony in rate and rule making proceedings that pertain to economic issues relating to public utilities.

At the United States Department of Commerce during 1974, I focused my research on estimating the interest subsidy associated with programs of the Federal Government and its agencies incorporated in the Federal Government sector of the national income accounts.

At Illinois Wesleyan University and Illinois State University between 1971 and 1974, I focused my research work on analyzing relationships between microeconomic theory and financial cost accounting theory.

For my doctoral research, I analyzed various aspects of benefits received by business firms and households from municipal fire protection services, and I proposed policy implication concerning taxes needed to finance these services. In this analysis, fire insurance rates were used in order to quantify benefits received by economic units. Dissertation has been used by Insurance Services Office, Midwestern Regional Office (Chicago). Dissertation Director, Keith Brown.

#### **TEACHING:**

Professor of Finance, College of Business, Utah State University (Logan, Utah), January 1987 to present; granted tenure in June 1988 and promoted to Full Professor in June 1989; I teach the following courses: Principles of Corporate Finance, Advanced Finance Problems (Case Studies), Finance Issues and Public Utilities, Managerial Economics, and Investments; Outstanding MBA Professor of the Year Award, 1989-90 and 1990-91; and Outstanding Faculty Employee Finalist at Utah State University, 2005.

Visiting Guest Lecturer, College of Law, University of Utah (Salt Lake City, Utah), 1993.

Guest Lecturer, School of Business, University of Wisconsin at Madison, Spring 1976 to December 1986; I have taught and presented guest lectures in regulation of public utility courses and have presented guest lectures in business finance courses on a part-time basis.

Guest Lecturer, Department of Industrial Engineering and School of Business, Stanford University, Summer 1978 to Summer 1980; School of Business, University of California at Berkeley, Spring 1979; Department of Economics, Michigan State University, Spring 1978; I have presented guest lectures in regulation of public utilities and applied microeconomics courses at these universities.

Assistant Professor of Economics, Illinois Wesleyan University (Bloomington, Illinois), September 1970 to May 1974. At Illinois Wesleyan, I taught the following courses: Principles of Economics, Principles of Accounting, Intermediate Microeconomic Theory, Business Statistics, Money and Banking, Public Finance, Economic Growth and Development, and Mathematical Economics.

Assistant Professor of Business Administration, Illinois State University (Normal, Illinois), Spring 1973 to Spring 1974 on a part-time basis. Course taught: Managerial Economics.

Teaching Assistant (Graduate Instructor) at Purdue University from September 1966 to June 1970; won outstanding teaching award in 1970. At Purdue University, I taught or provided teaching assistance in the following courses: Principles of Economics, Economic History, Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Managerial Economics, and Public Finance.

#### **PAPERS AND PUBLICATIONS:**

This section of the resume lists papers and publications and is organized in the following manner: (1) academic and policy journals, (2) books, (3) chapters in books, (4) academic and policy conferences with published proceedings, (5) academic and policy conferences and (6) technical reports.

### ***I. Academic and Policy Journals***

- Matthew A. Croft, Charles E. Peterson, J. Robert Malko, "Accounting Challenges for Regulated Energy Utilities", The Journal Entry, April 2014 issue.
- Howard Lubow, Ryan Pfaff, J. Robert Malko and Leslie Moore Romine, "How to Build a Fence (and When)," Public Utilities Fortnightly, Vol. 151, No. 10, PP. 12-18, October 2013.
- J. Robert Malko, "Risk Sharing and Prudence Review for a Regulated Electric Utility: Some Thoughts," The Electricity Journal, Vol. 26, No. 4, pp. 52-56, May 2013.
- J. Robert Malko and William J. Evans, "An Economic Exam for Energy Utilities," The Journal Entry, January 2013 issue, pp. 15-18.
- Vicki M. Baldwin and J. Robert Malko, "Used and Useful Principle: Still Relevant in Utah," The Utah Bar Journal, Vol. 25, No. 1, January/February 2012.
- J. Robert Malko and Vickie M. Baldwin, "Prudence Review and Traditional Revenue Requirement Regulation: Some Thoughts," The Electricity Journal, Vol. 24, No. 8, pp. 88-91, October 2011.
- J. Robert Malko and Robert Skinner, "Selecting a Capital Structure for a Regulated Electric Utility: Some Issues and Directions," The Electricity Journal, Vol. 24, N. 7, pp. 49-56, August/September 2011.
- Joni S. Zenger, Charles E. Peterson, and J. Robert Malko, "The Test Period: Issues and Challenges in Utah," appears in Public Utilities Fortnightly, Vol. 148, No. 5, pp. 36 -40, May 2010.
- Ryan Pfaff, Howard Lubow, and J. Robert Malko, "Constellation/EDF Nuclear Joint Venture: Regulatory Issues and Subsequent Resolutions," appears in The Electricity Journal, Vol. 23, No. 2. pp. 65-70, March 2010.
- Charles E. Peterson and J. Robert Malko, "Ring Fencing in Utah," appears in Public Utilities Fortnightly, Vol. 146, No. 2, February 2008.
- J. Robert Malko and Philip R. Swensen, "Some Lessons Learned: Electricity Costing and Pricing," appears in The Electricity Journal, Volume 21, Issue 1, January/February 2008.
- J. Robert Malko, Philip R. Swensen, and Joseph A. Monteleone, "Some Thoughts on Estimating the Cost of Common Equity for a Regulated Business," appears in The Electricity Journal, Volume 20, Issue 5, June 2007.
- Charles E. Peterson and J. Robert Malko, "Applying the CAPM: Issues and Activities in Utah," appears in The NRRI Journal of Applied Regulation, Volume 3, December 2005 issue.
- Jeff Bodington and J. Robert Malko, "Power Plant Valuation: Overcoming the New Risks," appears in Public Utilities Fortnightly, May 2003 issue.
- J. Robert Malko, "Assessing Corporate Restructurings In The Electric Utility Industry: A Framework," appears in NRRI Quarterly Bulletin, Vol. 17, No. 4, Winter 1996-97 issue.
- Joseph F. Brennan and J. Robert Malko, "Rate Unbundling: Are We There Yet? A Reality Check," in Public Utilities Fortnightly, June 1996 issue.
- David A. Foltz, J. Robert Malko, Gregory J. Pumilia, and Thomas J. Purvenas, "Purchased Power Is Not A Riskless Strategy," appears in The Electricity Journal, Vol. 7, No. 10, December 1994.
- J. Robert Malko, "Comments On The Paper by Rodney Stevenson and Dennis Ray," appears in Utilities Policy, Vol. 3, No. 4, October 1993.
- Caryn L. Beck-Dudley and J. Robert Malko, "Dotting the Horizon: Will The United States Be Able To Decommission Its Nuclear Power Plants?" appears in Journal of Energy Law and Policy, Vol. 10, No. 2, 1990.
- Donna L. Tanner, Richard J. Williams, and J. Robert Malko, "Utility Diversification: Issues and Activities in Virginia," appears in Electric Potential, February 1989 issue. This paper was also presented at The Sixth NARUC Biennial Regulatory Information Conference, National Regulatory Research Institute at The Ohio State University, Columbus, September 1988; this paper also appears in Conference Proceedings.
- J. Robert Malko and Philip R. Swensen, "Corporate Restructurings In The Electric Utility Industry: Some Common Issues," appears in Business Insights, Spring 1989 Issue, Vol. 8., No. 2; an earlier version of this

paper was presented at the Tenth Annual Public Utilities Conference, sponsored by New Mexico State University, held in Albuquerque, New Mexico, October 1987.

Ahmad Faruqui and J. Robert Malko, "Pakistan's Economic Development in a Global Perspective," appears in Asian Profile, Vol. 16, No. 6, December 1988 issue; an earlier version of this paper was presented at the Second Biennial Conference Of The Pakistan Engineers and Scientists Association, held at Stanford University, Palo Alto, California, September 1987; also appears in the Conference Proceedings.

J. Robert Malko and George R. Edgar, "Energy Utility Diversification and Small Business: A Wisconsin Perspective," appears in The Journal of Energy and Development, Vol., 13, No. 1 (issued July 1988); an earlier version of this paper was prepared for presentation to the Midwest Economics Association Annual Meeting, Chicago, Illinois, April 1988.

J. Robert Malko, "Alternative Approaches For Funding Nuclear Power Plant Decommissioning Expenses: Some Financial Issues and Considerations," appears in Forum For Applied Research And Public Policy, Vol. 2, No. 4, Winter 1987 issue.

J. Robert Malko, Caryn L. Beck-Dudley, and Philip R. Swensen, "Corporate Restructuring and Transferring Regulation of Electricity Generation: Some Issues, Considerations and Activities," appears in Electric Potential, November-December 1987 issue; an earlier version of this paper was presented at the Nineteenth Financial Forum, sponsored by the National Society of Rate of Return Analysts, Washington, D.C., May 1987.

J. Robert Malko and George R. Edgar, "Diversification in the Gas Industry: Some Comments," (short comments) appears in Public Utilities Fortnightly, October 1987 issue.

J. Robert Malko, Richard Williams, and George Hermina, "Electric Utility Diversification: Activities In Some Eastern States," appears in The Kentucky Journal of Economics and Business, Vol. 7, September 1987 issue; an earlier version of this paper was presented at the Eastern Finance Association 1987 Annual Meetings, Baltimore, Maryland, April 1987; an abstract of this paper appears in the 1987 Proceedings Issue of the Financial Review; this paper was also presented at the National Association of Regulatory Utility Commissioners (NARUC) Annual Summer Committee Meetings San Francisco, California, July 1987; this paper also appears in The 1987 Report of the NARUC Committee on Utility Diversification, National Association of Regulatory Utility Commissioners, Washington, D.C., March 1988.

George R. Edgar and J. Robert Malko, "Electric Utilities as Part of Diversified Business: Some Considerations and Thoughts," appears in Electric Potential, July-August 1987 issue; this paper was presented at the Thirteenth Annual Rate Symposium, sponsored by the Institute for the Study of Regulation and the University of Missouri-Columbia, held in St. Louis, Missouri, February 1987; also appears in the Symposium Proceedings; this paper also appears in The 1987 Report of the NARUC Committee on Utility Diversification, National Association of Regulatory Utility Commissioners, Washington, D.C., March 1988.

J. Robert Malko, "Diversification and Strategic Planning in the Electric Power Industry," (short comments) appears in Forum For Applied Research And Public Policy, Vol. 2, No. 2, Summer 1987 issue.

J. Robert Malko and George R. Edgar, "Energy Utility Diversification: Its Status in Wisconsin," Public Utilities Fortnightly, August 1986 issue.

Steven G. Kihm, Clarence E. Mougin, and J. Robert Malko, "An External Fund Approach for Nuclear Power Plant Decommissioning Expenses: Wisconsin Activities," appears in Electric Potential, March-April 1986 issue.

J. Robert Malko, "Applying Regulatory Strategic Planning to Electric Utilities," appears in Electric Potential, January-February 1986 issue.

J. Robert Malko and Gregory B. Enholm, "Applying CAPM In a Utility Rate Case: Current Issues and Future Directions," appears in Electric Potential, September-October 1985 issue.

Ahmad Faruqui and J. Robert Malko, "The Residential Demand for Electricity by Time-of-Use: A Survey of Evidence from Twelve Experiments with Peak-Load Pricing," appears in Energy: The International Journal, October 1983 issue.

J. Robert Malko, "Comments: Jury Still Out On The Arbitrage Pricing Theory," (short comments) appears in Public Utilities Fortnightly, June 1983 issue.

J. Robert Malko and Terrace B. Nicolai, "Implementing Residential Time-of-Day Pricing of Electricity in Wisconsin: Some Current Activities and Issues," presented at Ninth Annual Symposium on Problems of Regulated Industries, sponsored by the Institute for Study of Regulation and the University of Missouri-Columbia, held at Kansas City, Missouri, February 1983; appears in Proceedings of this conference; also appears in Electric Ratemaking, February/March 1983 issue.

Stanley York and J. Robert Malko, "Utility Diversification: A Regulatory Perspective," Public Utilities Fortnightly, January 1983 issue.

Gregory B. Enholm, Theodore M. Jaditz, and J. Robert Malko, "Electric Utility Diversification In The 1980s: A Challenge For Applied Regulatory Economics," presented at the Midwest Economics Association Forty-Sixth Annual Meeting, Chicago, Illinois, April 1982; appears in The Journal of Energy and Development, Autumn 1982 issue.

J. Robert Malko and Gregory B. Enholm, "Electric Utility Diversification: Some Regulatory Concerns and Issues," appears in Electric Ratemaking, Vol. 1, No. 2, April 1982.

J. Robert Malko, Dennis J. Ray and Nancy L. Hassig, "Time-of-Day Pricing of Electricity Activities in Some Midwestern States," presented at the Midwest Economics Association Annual Meeting, Chicago, Illinois, April 1979; appears in Journal of Business Administration, Volume 12, Spring 1981.

Teri L. Vierima and J. Robert Malko, "Natural Gas Rate Design: Innovative Activities in Wisconsin," Public Utilities Fortnightly, October 1981 issue.

J. Robert Malko and Robert G. Uhler, "Helping Regulators Evaluate Load Management: An Update of The Rate Design Study," Public Utilities Fortnightly, October 1979 issue.

Carol T. Everett and J. Robert Malko, "Measuring the Impact of Residential Gas and Electric Rates," Public Utilities Fortnightly, December 1977 issue.

J. Robert Malko, Malcolm A. Lindsay, and Carol T. Everett, "Towards Implementation of Peak-Load Pricing of Electricity: A Challenge for Applied Economics," The Journal of Energy and Development, Autumn 1977 issue.

J. Robert Malko and David Stipanuk, "Electric Peak-Load Pricing: A Wisconsin Framework," Public Utilities Fortnightly, July 1976 issue.

Richard D. Cudahy and J. Robert Malko, "Electric Peak-Load Pricing: Madison Gas and Beyond," Wisconsin Law Review, Volume 1976, Number 1, Spring 1976.

J. Robert Malko and Ernst Harwig, "Municipal Electric Utility Pricing," Governmental Finance, February 1976.

## **II. Books**

Ahmad Faruqui and J. Robert Malko, editors, Customer Choice: Finding Value In Retail Electricity Markets, published by Public Utilities Reports, Inc., Vienna, Virginia, 1999.

Gregory B. Enholm and J. Robert Malko, editors, Reinventing Electric Utility Regulation, published by Public Utilities Reports, Inc., Vienna, Virginia, 1995.

Gregory B. Enholm and J. Robert Malko, editors, Electric Utilities Moving Into The 21st Century, published by Public Utilities Reports, Inc., Arlington, Virginia, 1994.

James M. Fischer, J. Robert Malko, and Richard L. Wallace, editors, Pricing Electric, Gas, and Telecommunication Services: Rate Symposium Proceedings, published by University of Missouri-Columbia, 1989.

## **III. Chapters in Books**

J. Robert Malko, "Pricing of Electricity: An Overview," appears in Pricing In Competitive Electricity Markets, edited by Ahmad Faruqui and Kelly Eakin, Kluwer Academic Publishers, 2000.

Ahmad Faruqui and J. Robert Malko, "The Brave New World of Customer Choice," appears in Customer Choice: Finding Value in Retail Electricity Markets, edited by Ahmad Faruqui and J. Robert Malko, Public Utilities Reports, 1999.

Ahmad Faruqui and J. Robert Malko, "What's in Our Future?" appears in Customer Choice: Finding Value In Retail Electricity Markets, edited by Ahmad Faruqui and J. Robert Malko, Public Utilities Report, 1999.

J. Robert Malko and Richard J. Williams, "Traditional and New Regulatory Tools," appears in Reinventing Electric Utility Regulation, edited by Gregory B. Enholm and J. Robert Malko, Public Utilities Reports, Inc., 1995.

Gregory B. Enholm and J. Robert Malko, "Assessing the Future of Electric Utility Regulation," appears in Reinventing Electric Utility Regulation, edited by Gregory B. Enholm and J. Robert Malko, Public Utilities Reports, Inc., 1995.

Gregory B. Enholm and J. Robert Malko, "Meshing New Regulation with New Utilities," appears in Reinventing Electric Utility Regulation, edited by Gregory B. Enholm and J. Robert Malko, Public Utilities Reports, Inc., 1995.

Gregory B. Enholm and J. Robert Malko, "Assessing the Electric Utility Industry's Future," appears in Electric Utilities Moving Into the 21st Century: 18 Views of the Elephant, edited by Gregory B. Enholm and J. Robert Malko, Public Utilities Reports, Inc., 1994.

Gregory B. Enholm and J. Robert Malko, "Electric Utilities in the 21st Century," appears in Electric Utilities Moving Into the 21st Century: 18 Views of the Elephant, edited by Gregory B. Enholm and J. Robert Malko, Public Utilities Reports, Inc., 1994.

J. Robert Malko and Philip R. Swensen, "Pricing And The Electric Utility Industry," appears in Public Utility Regulation: The Social Control Of Industry, edited by Kenneth Nowotny, David B. Smith, and Harry M. Trebing, Kluwer Academic Publishers, 1989.

Gregory B. Enholm and J. Robert Malko, "Financing The New Midwest Bell Holding Company - AMERITECH," presented at Midwest Finance Association Annual Meeting, held at Chicago, Illinois, April 1984; appears in: Albert L. Danielsen and David R. Kamerschen, editors, Telecommunications In The Post Divestiture Era, D.C. Heath and Company, 1986.

Gregory B. Enholm and J. Robert Malko, "State Regulatory Treatment of Electric Utility Diversification," presented at the Fifth Annual Public Utilities Conference, sponsored by New Mexico State University, held at Albuquerque, New Mexico, October 1982; appears in Terry A. Ferrar, James L. Plummer, and William Hughes, editors, Electric Power Strategic Issues: Deregulation and Diversification, Public Utilities Reports, Inc., 1983.

J. Robert Malko and Gregory B. Enholm, "Challenges For Electric Utilities and Regulatory Commissions in the Decade of the 1980s," appears in Albert L. Danielsen and David R. Kamerschen, editors, Current Issues in Public Utility Economics: Essays in Honor of James C. Bonbright, published by D.C. Heath and Company, 1983.

J. Robert Malko, Dennis J. Ray, and Nancy L. Hassig, "Time-Of-Day Pricing of Electricity Activities in Some Midwestern States," appears in Energy Crisis: Policy Response, edited by Peter Nemetz, The Institute for Research of Public Policy, Montreal, Canada, 1981.

Robert G. Uhler and J. Robert Malko, "Electricity Pricing for Conservation and Solar Energy Systems," appears as a chapter in Economics of Energy Conservation and Use of Solar Energy, edited by F. Keith and R. West, CRC Press, Volume I, 1980.

J. Robert Malko and Ahmad Faruqui, "Implementing Time-Of-Day Pricing of Electricity: Some Current Challenges and Activities," presented at Public Utility Conference, Graduate School of Business Administration, Rutgers University, Newark, New Jersey, October 1979; appears in, Issues In Public Utility Pricing and Regulation, edited by M. Crew, Lexington Books, 1980.



#### **IV. Academic and Policy Conferences with Published Proceedings**

Dani Wills and J. Robert Malko, "The Regulation of Electric Utilities and Prudence Review: Legal and Economic Relationships," presented at Utah Conference on Undergraduate Research (UCUR), Utah State University, Logan, Utah, February 2013.

Paul Rossiter, Landon Essig, and J. Robert Malko, "Identifying Business Risks for New Ventures Creation in Uganda," presented at Utah Conference on Undergraduate Research (UCUR), Weber State University, Ogden, Utah, February 2011.

Paul Rossiter, Craig Maughan, and J. Robert Malko, "Applying the Fama-French Model to Regulated Energy Utilities: Some Challenges and Issues," presented at Utah Conference on Undergraduate Research (UCUR), Southern Utah University, Cedar City, February 2010.

Justin Allred and J. Robert Malko, "Pricing Strategies for Municipal Water Services" presented at Utah Conference on Undergraduate Research (UCUR), Southern Utah University, Cedar City, February 2010.

Nicholas L. Rupp, Craig A. Maughan, and J. Robert Malko, "The Discounted Cash Flow Model and the Cost of Common Equity," presented at Utah Conference on Undergraduate Research (UCUR), Westminster College, Salt Lake City, February 2009.

Nicholas Rupp and J. Robert Malko, "Cost of Equity Methods and Valuing Energy Utility Property at the Utah State Tax Commission," presented at the Utah Conference on Undergraduate Research (UCUR), Utah Valley State College (Orem), February, 2008.

Jeremiah Harris and J. Robert Malko, "Ring Fencing (Insulating) The Regulated Utah Energy Utility That is a Subsidiary of a Parent Holding Company," presented at the Utah Conference on Undergraduate Research (UCUR), Utah Valley State College (Orem), February 2008.

J. Robert Malko and Philip R. Swensen, "Assessing Corporate Restructurings And The Electricity Markets: Some Issues And Framework," presented at 10th Annual Conference on Electricity Law and Regulation, sponsored by ABA Section of Natural Resource, Energy and Environmental Law, Denver, Colorado, February 1997; this paper appears in Conference Proceedings.

Gregory B. Enholm and J. Robert Malko, "Changing The Rules: The Pros and Cons of Incentive and Performance Based Regulation," presented at 106th Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, Reno, Nevada, November 1994; this paper appears in Symposium Proceedings.

J. Robert Malko and Philip R. Swensen, "Corporate Restructuring In The Electric Utility Industry: Some Thoughts," presented at Twenty-Third Annual Conference, sponsored by the Institute of Public Utilities at Michigan State University, Williamsburg, Virginia, December 1991, appears in Regulatory Responses to Continuously Changing Industry Structures, Michigan State University Public Utilities Papers, 1993.

Dennis Ray, Gary Mathis, and J. Robert Malko, "Electric Rate-Making Innovations In Wisconsin During the 1980s," presented at the Fifteenth Annual Rate Symposium, sponsored by the Missouri Public Services Commission, The University of Missouri-Columbia, and Utah State University, held in St. Louis, Missouri, February 1989; this paper appears in Conference Proceedings.

J. Robert Malko, "Utility Financial Planning In The Wake of Seabrook and Shoreham," presented at the One-Hundredth Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, San Francisco, California, November 1988, and appears in Proceedings, of this symposium.

Caryn L. Beck-Dudley and J. Robert Malko, "Nuclear Power Plant Decommissioning: Unanswered Questions Still Loam," presented at the American Business Law Association Annual Meeting, New Orleans, Louisiana, August 1988; this paper appears in the refereed Conference Proceedings, Fall 1988.

J. Robert Malko, Caryn L. Beck-Dudley, and Philip R. Swensen, "Corporate Restructurings In The Electric Utility Industry: Some Issues and Activities," presented at The Utility Industries In Transition Conference, sponsored by New Mexico State University, held in Albuquerque, New Mexico, April 1988; this paper appears in Conference Proceedings, 1988.

Ahmad Faruqui, J. Robert Malko, and Philip R. Swensen, "Competitive Electricity Pricing Strategies: A California Perspective," presented at the Fourteenth Annual Rate Symposium, sponsored by the Missouri Public Service Commission, the University of Missouri-Columbia and Utah State University, held in Kansas City, Missouri, February 1988; this paper appears in Conference Proceedings.

Rodney E. Stevenson, George R. Edgar, and J. Robert Malko, "An Assessment of Reforms and Deregulation in the Context of Societal Values and Equity," Nineteenth Annual Conference, sponsored by the Institute of Public Utilities at Michigan State University, Williamsburg, Virginia, December 1987; appears in Alternatives to Traditional Regulation: Options for Reform (Conference Proceedings), edited by Patrick C. Mann and Harry M. Trebing, Michigan State University Public Utilities Papers, 1988.

Caryn L. Beck-Dudley and J. Robert Malko, "Diversified Regulatory Approaches To Electric Utility Diversification," presented at the American Business Law Association Annual Meeting, Philadelphia, Pennsylvania, August 1987; appears in the Conference Proceedings.

George R. Edgar and J. Robert Malko, "Electric Utility Diversification And The Role of The Regulator: A Wisconsin Perspective," presented at the Current Issues Challenging The Regulatory Process Conference, sponsored by New Mexico State University, held at Albuquerque, New Mexico, April 1987; appears in Conference Proceedings.

J. Robert Malko, Clarence E. Mougin and Steven G. Kihm, "Funding For Nuclear Power Plant Decommissioning Expenses: Considerations of Financial Assurance And Federal Tax Regulations," presented at The Eighteenth Annual Williamsburg Conference, Institute of Public Utilities, Michigan State University, Williamsburg, Virginia, December 1986; appears in New Regulatory And Management Strategies In A Changing Market Environment, edited by Patrick C. Mann and Harry M. Trebing, Michigan State University Public Utilities Papers, 1987.

J. Robert Malko and Steven G. Kihm, "Internal vs. External Fund Approaches for Nuclear Power Plant Decommissioning Expenses: Current Issues and Activities," presented at The Fifth NARUC Biennial Regulatory Information Conference, National Regulatory Research Institute, The Ohio State University, Columbus, September 1986 and appears in Proceedings of this conference.

Terrance B. Nicolai and J. Robert Malko, "Electricity Costing and Ratemaking: Some Current Issues," presented at Twelfth Annual Rate Symposium on Problems of Regulated Industries, sponsored by the Institute for the Study of Regulation, the American University and the University of Missouri-Columbia, held at Washington, D.C., February 1986; appears in Proceedings of this conference.

J. Robert Malko, "Regulatory Strategic Planning and Electric Utilities," presented at Ninety-Seventh Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, New York City, New York, November 1985 and appears in Proceedings of this conference.

George R. Edgar and J. Robert Malko, "After Construction What Next?" presented at Sixteenth Annual Conference, sponsored by Institute of Public Utilities, Michigan State University, held at Williamsburg, Virginia, December 1984 and appears in The Impact of Deregulation and Market Forces on Public Utilities: The Future Role of Regulation, edited by Patrick C. Mann and Harry M. Trebing, Michigan State University Public Utilities Papers, 1985.

J. Robert Malko and Terrance B. Nicolai, "Using Accounting Cost and Marginal Cost In Electricity Rate Design," presented at Eleventh Annual Rate Symposium on Problems of Regulated Industries, sponsored by the Institute for the Study of Regulation, The American University and the University of Missouri-Columbia, held at Washington, D.C., February 1985, appears in Proceedings of this conference.

J. Robert Malko, "Electricity Rate Design For North Carolina: Some Comments," presented at the Influencing North Carolina's Energy Future Symposium, sponsored by North Carolina Alternative Energy Corporation, held at Raleigh, North Carolina, September 1984; appears in Symposium Proceedings.

J. Robert Malko, "Residential Time-of-Day Pricing of Electricity: Issues and Activities," presented at Tenth Annual Symposium on Problems of Regulated Industries, sponsored by the Institute for the Study of Regulation, the American University, and the University of Missouri-Columbia, held at Washington, D.C., February 1984; appears in Proceedings of this conference.

Gregory B. Enholm and J. Robert Malko, "Utility Diversification: Options For State Regulators," presented at The Third NARUC Biennial Regulatory Information Conference, The Ohio State University, Columbus, September 1982; appears in Proceedings of this conference.

Harold A. Meyer and J. Robert Malko, "Natural Gas Rate Design: A State Regulatory Perspective," presented at Eighth Annual Symposium on Problems of Regulated Industries, sponsored by the Institute for Study of Regulation and the University of Missouri-Columbia, held at Kansas City, Missouri, February 1982 and appears in Proceedings of this conference.

Stanley York, Phyllis Dube' and J. Robert Malko, "Electric Utility Diversification: A State Regulatory Perspective," presented at the Thirteenth Annual Conference, sponsored by Institute of Public Utilities, Michigan State University, held at Williamsburg, Virginia, December 1981 and appears in Diversification, Deregulation, and Increased Uncertainty in the Public Utility Industries, edited by Harry Trebing, Michigan State University Public Utilities Papers, 1983.

J. Robert Malko, "Electric Utility Diversification: Devilish or Divine?" presented at Ninety-Third Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, San Francisco, California, November 1981 and appears in Proceedings of this conference.

J. Robert Malko and E. Victor Niemeyer, "Load Management Options," presented at 8th Energy Technology Conference, Washington, D.C., March 1981; appears in Energy Technology VIII: New Fuels Era, edited by Richard F. Hill, Government Institutes, Washington, D.C., August 1981.

J. Robert Malko, "The Rate Design Study: Helping Regulators Evaluate Load Management," presented at Ninety-Second Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, Houston, Texas, November 1980; appears in Proceedings: Ninety-Second NARUC Annual Convention, NARUC, Washington, D.C., 1981.

Ahmad Faruqui and J. Robert Malko, "Time-of-Use Rates and the Modification of Electric Utility Load Shapes," presented at Twelfth Annual Conference, Institute of Public Utilities, Williamsburg, Virginia, December 1980; appears in Challenges for Public Utility Regulation in the 1980s, edited by H. M. Trebing, Michigan State University Public Utilities Papers, 1981.

J. Robert Malko, "Cost and Rates," Proceedings of the Rate Design Study Regional Conference, prepared by Resource Planning Associates, Inc., Electricity Utility Rate Design Study, Electric Power Research Institute, Palo Alto, California, Report No. 92, October 1980.

J. Robert Malko and James Simpson, "Time-of-Use Pricing in Practice: An Analysis of Some Recent Regulatory Actions," for the Ninth Annual Conference, Institute of Public Utilities, Williamsburg, Virginia, December 1977; appears in Assessing New Pricing Concepts in Public Utilities, edited by H. M. Trebing, Michigan State University Public Utilities Papers, 1978.

James Simpson and J. Robert Malko, "Environmental Impact Analysis of Electricity Tariffs: A Wisconsin Framework," presented at The NARUC Biennial Regulatory Information Conference, The Ohio State University, Columbus, Ohio, October 18-20, 1978; appears in Proceedings of this conference.

J. Robert Malko, "Municipal Fire Protection Services - Benefits of Business Firms and Households," presented at the Missouri Valley Economic Association Meetings, St. Louis, Missouri, October 1974; appears in Proceedings, Journal of Economics, edited by Steven Lin, Volume I, 1975.

#### **V. Academic and Policy Conferences**

J. Robert Malko, Howard Lubow, and Ryan Pfaff, "Applying A Framework For Ring Fencing An Electric Utility: Some Issues and Challenges," presented at Annual Unitary Appraisal Conference, Western States Association of Tax Administrators, Logan, Utah, February 2011.

J. Robert Malko, "Some Financial and Economic Issues and Models Concerning the Regulation of Electric Utilities," presented at International Regulatory Seminar, sponsored by the Colorado Public Utilities Commission, Denver, Colorado, January 2011.

J. Robert Malko, Ryan Pfaff, and Howard Lubow, "Constellation Energy/EFD Nuclear Joint Venture" presented at Annual Unitary Appraisal Conference, Western States Association of Tax Administrators, Logan, Utah, February, 2010.

J. Robert Malko, Craig Maughan, and Paul Rossiter, "Fama-French Three-Factor Model: Some Issues for Regulated Energy Utilities," prepared for Society of Utility and Regulatory Financial Analysts (SURFA), Forty-First Financial Forum, Georgetown University, Washington D.C., April 2009.

J. Robert Malko, "Economic Regulation and the Role of Natural Gas Utilities in a Clean Energy Economy: A Public Policy Perspective," presented at Regulatory Trends Conference, sponsored by American Gas Association, Washington, D.C., November 2008.

J. Robert Malko, Austin Kwag, Mykola Edvarchuk, and Nicholas Rupp, "Cost of Common Equity, Allowed Fair Return, and Behavioral Finance," presented at the Society of Utility and Regulatory Financial Analyst (SURFA) Fortieth Financial Forum, Georgetown University, Washington D.C., April 2008.

J. Robert Malko and Nicholas Rupp, "The Market Risk Premium: Historical and Prospective" presented at the 21<sup>st</sup> Annual Unitary Appraisal Conference, sponsored by the Western States Association of Tax Administrators, Logan, Utah, January 2008.

J. Robert Malko, "Cost of Equity Methods: Issues, Challenges, and Options," presented at NARUC Western Utility Rate School Conference, sponsored by the Institute of Public Utilities at Michigan State University, San Diego, California, May 2007.

J. Robert Malko, Philip R. Swensen, Joseph A. Monteleome, "Estimating The Cost Of Common Equity For A Regulated Business: Some Thoughts", presented at NARUC Western Utility Rate School Conference, sponsored by the Institute of Public Utilities at Michigan State University, San Diego, California, May 2006.

J. Robert Malko and Philip R. Swensen, "Applying CAPM to Regulated Businesses: Some Issues," presented at the Society of Utility and Regulatory Financial Analyst (SURFA) Financial Forum, Washington D.C., April 2005.

J. Robert Malko and Philip R. Swensen, "Regulation/Deregulation: Views from The Ivy Halls," presented at the Society of Utility and Regulatory Financial Analyst (SURFA) Financial Forum, Washington D.C., April 2004.

J. Robert Malko and Philip R. Swensen, "Valuing Electric Utilities: Some Business Risks and Regulation Issues," presented at the 17<sup>th</sup> Annual Unitary Appraisal Conference, sponsored by Western States Association of Tax Administrators, Logan, Utah, January 2004.

J. Robert Malko, "Some Cost of Capital Issues: Regulated Energy Utilities," presented at Utah State Tax Commission Staff Seminar, Salt Lake City, Utah, May 2003.

J. Robert Malko and Philip R. Swensen, "Assessing Corporate Restructurings In the Electricity Utility Industry," prepared for Society of Utility and Regulatory Financial Analyst (SURFA) Financial Forum, Washington D.C., April 2003.

J. Robert Malko, Philip R. Swensen and Heather S. Malko, "Some Costing and Pricing Issues in Regulated Electricity Markets," presented at the Regulation and Electricity Utilities in India Conference, sponsored by the Institute for International Education, Salt Lake City, UT, September 2002.

J. Robert Malko and Philip R. Swensen, "Disaggregating Risks of Electricity Generation, Transmission, and Distribution Assets: Some Issues," prepared for Society of Utility and Regulatory Financial Analysts (SURFA) Financial Forum, Clearwater Beach, Florida, April 2002.

J. Robert Malko, "Capital Structure and the Cost of Equity: Some Issues," presented at the 15<sup>th</sup> Annual Unitary Appraisal School, sponsored by Western States Tax Administrators and Utah State University, Logan, Utah, January 2002.

J. Robert Malko, "Financial Expert Certification Examination: Some Activities," presented at Valuation Seminar, sponsored by WSATA, Park City, Utah, October 2001.

J. Robert Malko, "Business Risks in the Electricity Industry," prepared for Society of Utility and Regulatory Financial Analysts (SURFA) Conference, Washington, DC, Spring 2001.

J. Robert Malko, "Estimating the Cost of Common Equity: Some Issues and Thoughts," presented at the 14<sup>th</sup> Annual Unitary Appraisal School, sponsored by Western States Tax Administrators and Utah State University, Logan, Utah, January 2001.

J. Robert Malko, "Electric Utility Restructurings and Property Valuations," presented at the 13<sup>th</sup> Annual Unitary Appraisal School, sponsored by Western States Association of Tax Administrators and Utah State University, Logan, Utah, January-February 2000.

J. Robert Malko, "Restructurings and Electric Utility Valuations: Some Issues," presented at Strategic Finance Management for Utilities Conferences, sponsored by IBC-USA, New York City, New York, January 2000.

J. Robert Malko, "Some Financial Agency Issues and Electric Utility Corporate Restructurings," presented at 31st Financial Forum, sponsored by Society of Utility and Regulatory Financial Analysts (SURFA), Washington, D.C., April 1999.

J. Robert Malko, "Corporate Restructurings and Electric Utility Valuations," presented at Financial Valuation Issues and Energy Utilities Services, sponsored by California Board of Equalization Staff, Sacramento, California, March 1999.

Judith Johnson, David Carter, and J. Robert Malko, "Financial Agency Issues and Electric Restructurings," presented at 1999 Annual Meeting of the American Economic Association/TPUG, New York City, January 1999.

J. Robert Malko, "Innovative Electricity Pricing Strategies," presented at Pricing of Electricity in Competitive Market Conference, sponsored by EPRI, Washington, D.C., June 1998.

J. Robert Malko, "Corporate Restructurings and Electric Utilities: Some Financial Issues," presented at the 11<sup>th</sup> Annual Unitary Appraisal School, sponsored by Western States Association of Tax Administrators and Utah State University, Logan, Utah, February 1998.

J. Robert Malko, "Financial and Economic Analysis of Electric Utilities In A Competitive Environment," NARUC Conference, sponsored by Michigan State University, East Lansing, Michigan, August 1997.

J. Robert Malko, "Assessing Corporate Restructurings And The Electricity Markets," presented at 10th Annual Unitary Appraisal School, sponsored by Western States Association of Tax Administrators, Logan, Utah, February 1997.

J. Robert Malko, "Restructuring Electricity Service Markets: Some Comments," presented at the Transportation and Public Utility Group Sessions, American Economic Association Annual Meeting, San Francisco, California, January 1996.

J. Robert Malko and Philip R. Swensen, "A General Framework For Electricity Pricing In A World Of Competition And Regulation: Some Thoughts," prepared for the DOE-NARUC Second National Electricity Forum, Providence, Rhode Island, April 1995.

J. Robert Malko, "Emerging Competitive Forces and Structures in the Energy Utility Industries," presented at Energy Utility Training Seminar, Wisconsin Public Utility Institute, University of Wisconsin, Madison, Wisconsin, September 1994.

J. Robert Malko, "Estimating An Energy Utility's Cost of Equity Capital In A Changing Business Environment: Some Thoughts," presented at the Eighth Annual Regulatory Educational Conference, sponsored by the Canadian Association of Members of Public Utility Tribunals, Banff, Alberta, Canada, May 1994.

J. Robert Malko, "The Electric Utility In The Year 2000: A Forecast," presented at Energy Utility Training Seminar, Wisconsin Public Utility Institute, University of Wisconsin, Madison, Wisconsin, September 1993.

Ajay Krishnan, Rajiv Mallick, and J. Robert Malko, "Leverage: Adjustment to Beta In The Capital Asset Pricing Model," prepared for Twenty-Fifth Financial Forum, sponsored by The National Society of Rate of Return Analysts, Philadelphia, Pennsylvania, April 1993.

J. Robert Malko, "Some Current Financial And Economic Issues In The Electric Utility Industry," presented at Applied Economics Seminar, sponsored by the Krannert Graduate School of Management, Purdue University, West Lafayette, Indiana, September 1992.

J. Robert Malko, "Corporate Restructuring In The Electric Utility Industry: Some Thoughts," presented at Energy Utility Seminar, sponsored by World Bank Energy Analysis Group, Washington, D.C., May 1992.

J. Robert Malko, "Emerging Issues In Interfuel Competition," presented at Demand-Side Management In The Natural Gas Industry Seminar, sponsored by AUS, Philadelphia, Pennsylvania, October 1991.

J. Robert Malko and Philip R. Swensen, "Selecting A Portfolio of Comparable Electrical Utilities," prepared for the Twenty-Second Financial Forum, sponsored by The National Society of Rate of Return Analysts (NSRRA), Washington, D.C., May 1990.

J. Robert Malko, "Nuclear Power Plant Decommissioning: Some Issues For The 1990s," presented at Economic Regulation Seminar, sponsored by Council On Economic Regulation, Washington, D.C., March 1990.

Bradley R. Baker, J. Robert Malko, and Philip R. Swensen, "Estimating The Cost Of Capital For Diversified Utilities -- The Pure Play Technique," prepared for the Twenty-First Financial Forum, sponsored by The National Society of Rate of Return Analysts, Washington, D.C., May 1989.

J. Robert Malko, Keith Brown, Philip R. Swensen, and Caryn L. Beck-Dudley, "Regulation And The Restructuring Of Energy Utilities: Mergers, Diversification, and Corporate Reorganization," presented at the Transportation and Public Utility Group Sessions, American Economic Association One Hundredth and First Annual Meeting, New York City, New York, December 1988.

J. Robert Malko, "Energy Utility Diversification In Wisconsin: 1981-1986," presented at the Energy Utilities and Regulation Conference, sponsored by the Wisconsin Public Utility Institute, the University of Wisconsin, Madison, Wisconsin, September 1988.

J. Robert Malko, Keith C. Brown, and Harry N. Fugate, "External Funding For Nuclear Power Plant Decommissioning Expenses: Some Current Issues, Considerations, And Activities," presented at the Nuclear Decommissioning Trust Forum, sponsored by Institutional Investor, held in Oak Brook, Illinois, July 1988.

J. Robert Malko, Keith C. Brown, and Alan A. Stephens, "Natural Gas Distribution Utility Diversification: Financial Regulation In An Uncertain World," presented at the Seventh Annual Regulation and Public Utility Economics Conference, sponsored by Rutgers University, held in New Paltz, New York, May 1988.

Stephen Fogel, David Effron, J. Robert Malko, and Caryn L. Beck-Dudley, "External Funding for Nuclear Decommissioning: Some Issues And Considerations Concerning Financial Assurance," presented at the New Developments In Nuclear Decommissioning Costs And Funding Methods Conference, sponsored by the Northwest Center for Professional Education, held in Arlington, Virginia, April 1988.

J. Robert Malko, Ahmad Faruqi, and Philip R. Swensen, "Time-of-Day Pricing of Electricity: Industrial and Commercial Customers," presented at the Transportation and Public Utility Group Sessions, American Economic Association One Hundredth Annual Meeting, Chicago, Illinois, December 1987.

J. Robert Malko and Philip R. Swensen, "Corporate Restructuring In The Electric Utility Industry: Some Important Issues," presented at the Tenth Annual Public Utilities Conference, sponsored by New Mexico State University, Albuquerque, New Mexico, October 1987.

Thomas R. Tuschen, J. Robert Malko, and Steven G. Kihm, "Implementing And Managing An External Fund for Nuclear Power Plant Decommissioning Expenses: Activities In Some Midwest States," presented at the Midwest Finance Association 1987 Annual Meetings, St. Louis, Missouri, March 1987.

J. Robert Malko and Steven G. Kihm, "An External Fund Approach for Nuclear Power Plant Decommissioning Expenses: Some Financial Issues," presented at Financial Management Association, 1986 Annual Meeting, New York City, October 1986.

J. Robert Malko and Steven G. Kihm, "Regulatory Strategic Planning and Electric Utilities: Some Thoughts," presented at Current Issues Challenging The Regulatory Process Conference, sponsored by New Mexico State University, held at Albuquerque, New Mexico, April 1986.

Gregory B. Enholm and J. Robert Malko, "Earned Return on Electric Utility Common Equity, 1972-1984: Selected Midwest Utilities," presented at Midwest Finance Association Annual Meeting, held at Cincinnati, Ohio, March 1985.

J. Robert Malko, "The DCF Method and Regulated Utility Rate Cases," presented at Third Annual Basic Course on Public Utilities and Regulation, sponsored by the Wisconsin Public Utility Institute, held at University of Wisconsin-Madison, October 1984.

J. Robert Malko and Paul R. Lenz, "Strategic Pricing of Electricity," presented at Seventh Annual Public Utilities Conference, sponsored by New Mexico State University, held at Albuquerque, New Mexico, September 1984.

J. Robert Malko, "Residential Time-of-Day Pricing of Electricity: Mandatory Vs. Voluntary," presented at Sixth Annual Public Utilities Conference, sponsored by New Mexico State University, held at Albuquerque, New Mexico, October 1983.

Gregory B. Enholm and J. Robert Malko, "Electric Utilities In The 1980s: Financial Performance and Diversification," presented at American Economic Association Ninety-Fifth Annual Meeting, New York City, December 1982.

J. Robert Malko, Gregory B. Enholm, and Theodore M. Jaditz, "Energy Utility Diversification, Holding Companies, and Regulation," prepared for the Public Service Commission of Wisconsin, September 1981, and presented at the Fourth Annual Public Utilities Conference, sponsored by New Mexico State University, held at El Paso, Texas, October 1981.

J. Robert Malko and Gregory B. Enholm, "Regulation and Electric Utilities: Some Current Issues," presented at Ninth Annual National Utilities Conference, sponsored by Planmetrics and Energy Management Associates, Chicago, Illinois, May 1981.

Ahmad Faruqui and J. Robert Malko, "Response of Residential Electric Loads to Time-of-Use Rates: Evidence from Eleven Pricing Experiments," presented at Midwest Economics Association Annual Meeting, Louisville, Kentucky, April 1981.

J. Robert Malko and James D. Simpson, "Considering and Implementing Time-Of-Day Pricing of Electricity: Activities in Some Eastern States," presented at Eastern Economics Association Annual Meeting, Montreal, Canada, May 1980.

James Kaul, Dennis Ray, and J. Robert Malko, "Estimating Usage Response of Wisconsin Industrial Customers to Time-of-Day Electricity Rates: A Preliminary Analysis," presented at Midwest Economics Association Annual Meeting, Chicago, Illinois, March 1980.

John Schaefer, and J. Robert Malko, "Some Current Load Management Activities," presented at Thirty-Second Annual Power Distribution Conference, University of Texas, Austin, Texas, October 1979.

J. Robert Malko, "Implementing Time-of-Use Pricing," presented at the Engineering Economy for Public Utilities Seventeenth Annual Program, Stanford University, Palo Alto, California, July, 1978.

Dennis J. Ray, J. Stanley Black, and J. Robert Malko, "Developing and Implementing a Peak-Load Pricing Experiment for Residential Electricity Customers. A Wisconsin Experience," presented at the Midwest Economics Association Annual Meeting, Chicago, Illinois, April 1978.

J. Robert Malko, "Some Necessary Activities and Important Considerations for Formulating and Implementing a Workable Time-of-Use Pricing Program," presented at the Mid-America Regulatory Commissioners Conference, Des Moines, Iowa, June 1977.

J. Robert Malko and Bernard Morzuch, "Peak-Load Pricing in Wisconsin: An Update," for National Rural Electric Cooperative Association, Load Management Conference, Kansas City, April 1977.

J. Robert Malko and Gary Couillard, "Cost-Based Pricing of Electricity in Wisconsin: A Process in Flux," presented at the Wisconsin Telephone Seminar on Utilities, Madison, April 1976.

J. Robert Malko and David Stipanuk, "Peak-Load Pricing of Electricity in Wisconsin," presented at Midwest Economics Association Annual Meeting, St. Louis, April 1976.

## **VI. Technical Reports**

Electric Utility Cost Allocation Manual (1992), prepared by various professionals including J. Robert Malko, published by the National Association of Regulatory Utility Commissioners, Washington, D.C., 1992.

1982 Report of the Ad Hoc Committee on Utility Diversification, prepared by various regulatory commissioners and regulatory staff (including J. Robert Malko), published by the National Association of Regulatory Utility Commissioners, Washington, D.C., October 1982.

J. Robert Malko, Darrell Smith, and Robert G. Uhler, Costing For Ratemaking, Topic #2, a report to the National Association of Regulatory Utility Commissioners, Electric Utility Rate Design Study, Report No. 85, Electric Power Research Institute, Palo Alto, California, August 1981, 212 pages.

Generic Environmental Impact Statement On Electric Utility Tariffs, prepared by Wisconsin Public Service Commission Staff (including J. Robert Malko) for the Wisconsin Public Service Commission, Docket No. 1-AC-10, June 1977, 308 pages.

Generic Preliminary Environmental Report On Electric Utility Tariffs, prepared by Wisconsin Public Service Commission Staff (including J. Robert Malko) for the Wisconsin Public Service Commission, Docket No. 1-AC-10, November 1976, 105 pages.

A Program Performance Budget Analysis of Sanitation Service Provided By The City of Bloomington, prepared by J. Robert Malko, prepared for the Municipal Government of Bloomington, Illinois, August 1973.

An Analysis of Revenue Sources For The City of Bloomington, prepared by J. Robert Malko, prepared for the Municipal Government of Bloomington, Illinois, September 1972.

#### **VII. PRESENTATIONS:**

Electric Utility Rate Design Study Activities (1979-80) Electric Power Research Institute (EPRI)

Utah Public Service Commission Staff, Salt Lake City, Utah, July 1980

NARUC Committee on Electricity, San Francisco, California, July 1980

Northwest Public Power Association Rates Symposium, Vancouver, B.C., Canada, July 1980

Quebec Hydro Staff, Montreal, Quebec, Canada, July 1980

Illinois Commerce Commission Staff, Springfield, Illinois, June 1980

Western Conference of Public Service Commission, Anchorage, Alaska, June 1980

Alaska Public Utilities Commission, Anchorage, Alaska, June 1980

APPA Load Management Conference, Kansas City, Missouri, June 1980

Commonwealth Edison Company Staff, Chicago, Illinois, March 1980

Electricite de France Staff, Paris, France, February 1980

ANIE/INTEL Conference, Milan, Italy, February 1980

The Electricity Council Staff, London, England, February 1980

Tennessee Valley Authority Staff, Knoxville, Tennessee, December 1979

APPA Rates Workshop, San Francisco, California, November 1979

Commonwealth Club, San Francisco, California, November 1979

APPA Rates and PURPA Conference, Denver, Colorado, November 1979

Colorado Public Utilities Commission Staff, Denver, Colorado, November 1979

Bonneville Power Administration Staff, Portland, Oregon, October 1979

Iowa State Legislature, Public Utility Joint Subcommittee, Des Moines, Iowa, October 1979

Iowa State Commerce Commission Staff, Des Moines, Iowa, October 1979

Edison Electric Institute Rate Research Committee, Delavan, Wisconsin, September 1979

Tennessee Valley Authority Staff, Chattanooga, Tennessee, September 1979

NARUC Staff and District of Columbia Public Service Commission Staff, Washington, D.C., September 1979

Edison Electric Institute Staff, Washington, D.C., September 1979

United States Department of Energy, Economic Regulatory Administration, Office of Utility Systems Staff, Washington, D.C., September 1979

National Rural Electric Cooperative Association Staff, Washington, D.C., September 1979

Connecticut Public Utilities Control Authority Staff, Hartford, September 1979

New Hampshire Public Utilities Commission, Concord, September 1979

Ontario Hydro Staff, Toronto, Ontario, Canada, August 1979

NARUC Committee on Electricity, San Francisco, California, August 1979

1979 NARUC Annual Regulatory Studies Programs, Michigan State University, August 1979

Michigan Public Service Commission, Lansing, August 1979



California Public Utilities Commission, San Francisco, California, July 1979  
 Minnesota Public Service Commission, St. Paul, July 1979  
 Virginia State Corporation Commission, Richmond, July 1979  
 North Carolina Utilities Commission, Raleigh, July 1979  
 Research Triangle Institute, Economics Section, Raleigh, July 1979  
 Wisconsin Public Service Commission, Madison, July 1979  
 University of Wisconsin, Utility Rates Conference, Madison, July 1979  
 American Public Power Association Conference, Seattle, June 1979  
 Washington Utility and Transportation Commission, Olympia, June 1979  
 Stanford University, Public Utilities Conference, Palo Alto, June 1979  
 Massachusetts Department of Public Utilities, Boston, May 1979  
 University of California, Graduate School of Business, Berkeley, May 1979  
 Federal Energy Regulatory Commission, Washington, D.C., April 1979  
 University of Wisconsin, Utility Load Management Conference, Madison, April 1979  
 Electric Power Research Institute, Energy Analysis Department Symposium, Palo Alto, March 1979  
 United States Department of Energy, Economic Regulatory Administration, Washington, D.C., February 1979  
 Edison Electric Institute Rate Research Committee Conference, New Orleans, January 1979

**VII. TESTIFYING EXPERIENCE:**

Presented testimony before the following:

Alaska Public Utilities Commission (1982-83, Workshop),  
 Arizona Corporation Commission (1989, 1998),  
 California Public Utilities Commission (2013),  
 Colorado Public Utilities Commission (2011, Workshop),  
 Connecticut Public Utilities Control Authority (1976-77),  
 District of Columbia Public Service Commission (1990),  
 Federal Energy Regulatory Commission (1986),  
 Hawaii Public Utilities Commission, (1981, 1984-85, 1990, 1992, 1994),  
 Illinois Commerce Commission (1987-88),  
 Kentucky Public Service Commission (1981, Workshop)  
 Maryland Public Service Commission (1990-1991, 2009-11),  
 Minnesota Public Utilities Commission (2006),  
 New Hampshire Public Utilities Commission (1997),  
 New Jersey Board of Public Utilities (2006),  
 Nevada Public Service Commission (1982),  
 New York Public Service Commission (1994),  
 Pennsylvania Public Utility Commission (1977),  
 Public Service Commission of Wisconsin (1975-77, 1981-86),  
 Utah Public Service Commission (1994, 2011-13),  
 Utah State Tax Commission (1998-2004),  
 Virginia State Corporation Commission (1985, 1993)  
 West Virginia Public Service Commission (2005-6, Workshops).

**IX. ORGANIZATIONS AND COMMITTEES:**

The Society of Utility and Regulatory Financial Analysts (SURFA), formerly named The National Society of Rate of Return Analysts, Board of Directors, 1984- 1986, 1990-1996, 2000-2002, and 2004-2010; Vice President, 1986-1988, and 2004 – 2006; and President 1988-1990.  
 The National Regulatory Research Institute, housed at the Ohio State University, Board of Directors, 1997-2003.

American Economics Association; Transportation and Public Utility Group, Vice-Chair, 1992, Chair, 1993, and Executive Committee, 1994-1996.  
National Association of Regulatory Commissioners - Staff Subcommittee on Economics and Finance (Chairman, 1976-77 and Vice Chairman, 1981-86)  
Faculty Associate for the Institute of Public Utilities at Michigan State University, 2008 – present  
Financial Management Association, 2006 - present  
Council on Economic Regulation Fellow, Washington D.C., 1986-2000.  
Rate and Regulatory Symposium, University of Missouri, Advisory Council, 1987-2000.  
University of Wisconsin-Madison, Wisconsin Public Utility Institute, Executive Board (Chairman 1981-82), 1981-1985.  
New Mexico State University, Public Utility Center Advisory Council, 1981-2003.  
Electric Power Research Institute, Demand and Conservation Program, Project Review Committee, 1982-83.  
American Finance Association, 1982-1992  
Midwest Finance Association, 1985-1990  
Alpha Sigma Nu, the National Jesuit Honor Society  
Beta Gamma Sigma, National Honor Society for Business Schools.  
Who's Who in California Business and Finance, 1980  
Electric Ratemaking Journal, Board of Advisors, 1982-83.  
Electric Potential Journal, Honorary Board of Editors, 1987-88.  
Forum For Applied Research and Public Policy, Editorial Board, 1987-91.  
The Kentucky Journal of Economics and Business, Board of Editors 1987-97.  
The Electricity Journal, Board of Editors 1988-present.

January 2015