BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates.	A.12-04-019 (Filed April 23, 2012)

REBUTTAL TESTIMONY OF WILLIAM J. CHAMBERS

Lori Anne Dolqueist
Manatt, Phelps & Phillips, LLP
One Embarcadero Center
30th Floor
San Francisco, CA 94111
(415) 291-7400
ldolqueist@manatt.com

Attorneys for Applicant
California-American Water Company

Sarah E. Leeper
Javier Naranjo
California-American Water Company
333 Hayes Street, Suite 202
San Francisco, CA 94102
(415) 863-2960
sarah.leeper@amwater.com

Attorneys for Applicant
California-American Water Company

March 8, 2013

TABLE OF CONTENTS

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates.	A.12-04-019 (Filed April 23, 2012)

REBUTTAL TESTIMONY OF WILLIAM J. CHAMBERS

I. INTRODUCTION

Q1. Please state your name and business address.

A1. My name is William J. Chambers. I reside at 3 Albion Place, Charlestown, Massachusetts 02129.

Q2. By whom are you employed and in what capacity?

A2. I am currently an Associate Professor of Finance at Boston University. I teach finance courses that address topics such as cash flow analysis, capital budgeting, and project evaluation, investment analysis and financial markets.

Q3. What is your educational and work background?

A3. I received a B.A. in Economics & History at the College of Wooster. I then received M.A., M.Phil. and Ph.D. degrees in Economics at Columbia University.

I joined the faculty of Boston University in 2005. I teach courses in finance, investment analysis, portfolio management, capital markets and financial institutions. Prior to joining Boston University, I worked in various capacities for Standard & Poor's for 22 years. A complete listing of my professional experience is included in my curriculum vitae, which is attached as Attachment 1.

Q4. What were your responsibilities at Standard & Poor's?

A4. The large majority of my time at Standard & Poor's ("S&P") was in its debt rating division. Initially, I worked to rate sovereign governments, states and localities and government-owned enterprises, including utilities and financial institutions.

Subsequently, I had oversight over all corporate credit ratings for companies domiciled outside of the U.S. and was responsible for the merger and integration of the international group with the U.S. domestic corporate rating group. I was actively involved in the rating of many utilities as they moved from public to private ownership or underwent deregulation.

My last years at S&P were with a consulting unit established to work with corporate entities and financial institutions to improve their internal credit evaluation systems. Throughout my tenure in the credit rating part of the business, I was involved in the development and application of credit rating criteria for sovereign risk, general corporate risk and specific topics including parent-subsidiary relationships.

Q5. On whose behalf are you testifying?

A5. I am testifying on behalf California-American Water Company ("California American Water" or the "Company").

Q6. Have you testified before the California Public Utilities Commission ("Commission")?

A6. No. I have previously testified before other regulatory and judicial bodies. This testimony is listed in Attachment 1.

II. SCOPE OF TESTIMONY

Q7. What is the purpose of your testimony?

A7. California American Water has asked me to evaluate a number of important points raised in the testimony presented by Robert Larkins and David Stoldt on behalf of the Monterey Peninsula Water Management District ("MPWMD"), and the report of the Division of Ratepayer Advocates as to the financing of the proposed Monterey Peninsula Water Supply Project and its potential impact.

Q8. How does your experience relate to your testimony in this proceeding?

A8. The financing of the Monterey Peninsula Water Supply Project will have important implications for both the public utilizing the water supplied by California American Water as well as on the Company itself. As a consequence, achieving the best possible financing arrangement for the project is essential. There are many aspects which must be considered in evaluating financing alternatives. While some of these are not knowable at this time, certain key factors and principles can be discussed and addressed.

III. PRINCIPLES FOR EVALUATING FUNDING ALTERNATIVES

Q9. What are some of the factors that the Commission should consider in evaluating how the project should be funded?

A9. Among the most important are:

- Any potential public contributions to the project's financing and the terms and conditions on which those contributions are made.
- The mix of equity and debt that will be used to finance the project;
- Sources for any borrowed funds
- Costs associated with those borrowings, including interest costs and the costs associated with underwriting and issuing the debt;

- Potential obstacles and delays associated with implementing any financing scheme, including any legal, political and regulatory issues;
- The effect of the financing scheme on California American Water and its parent, American Water Works Company Inc.;
- Reaction by investors and the independent credit rating agencies to the financing scheme.

Q10. What principles do you believe that the Commission should consider in reviewing the financing arrangements for the project?

A10. There are several key elements that should be incorporated into any decision. Clearly any financing scheme should focus on maintaining the financial integrity of the project as well as keeping customer charges as low as reasonably possible. To achieve these overall objectives several additional factors should be considered:

1. Funds that can be used to reduce the net capital cost which must be financed could reduce any subsequent charge on customers.
2. A reasonable balance of equity and debt financing should be maintained. Excessive levels of debt could threaten the financial integrity of the project.
3. Debt financing should be obtained with the best balance of terms and conditions.
    a. One consideration is the all-in cost for such debt, incorporating both the interest rate, legal and underwriting costs, and any other factors affecting the cost of the funds.
    b. The stated maturity of such debt and, to the extent necessary, the ability to refinance any residual debt at the maturity of the original debt is also critical. For example, non-amortizing debt might result in lower initial financing costs but would result in a requirement to refinance the principal balance in the future. Similarly, matching the term of the debt to the project life through the

use of longer-term debt reduces the refinancing risk imposed by use of shorter-term debt.

It is my understanding that the Commission has recognized that the cost of financing should not be the only criterion, but, rather, that other factors should be incorporated into the decision of the best overall financing package.

4. The complexity of any financing arrangement must also be considered. Given an already-complex project with multiple layers of regulatory approval required, adding yet more complexity through elaborate, complicated financing arrangements could adversely burden a project. The financing arrangement should facilitate the successful completion and implementation of a project with significant benefits to the community, not interfere with or threaten its success. Financing arrangements that require additional actions by public or private bodies, regulatory approvals, creation of special purpose entities, and the like could potentially and unintentionally pose impediments to the successful implementation of the project. Simplicity in financial structure is often superior to complexity for this basic reason.

5. The financing arrangements must be structured in such a way that they not create undue financial risk for California American Water, its parent, American Water Works Company, Inc. or any of the public bodies involved. The financing scheme must be stable and robust and able to accommodate any reasonably anticipated risks that might arise. This is not to say that there should be no risk; that is unrealistic. But the financial structure should have sufficient flexibility and durability that volatility caused by, for example, macro-economic cycles, do not threaten the project's viability and should not contribute additional volatility and uncertainty. Similarly, the overall financial arrangements should also protect the Company from actions beyond its control that might create stranded capital costs which it is unable to recover. The financial viability of California American Water, American Water Works Company, Inc. and the public authorities affected must not be imperiled by the financing scheme ultimately selected for the project.

Q11. California American Water's proposal suggested a fairly straightforward financing framework for the project, did it not?

A11. Yes. Following the testimony of Jeffrey Linam, California American Water's Director of Finance, the proposed framework is:

- Approximately \$100 million to be funded by a surcharge ("Surcharge 2") on customer rates, commencing in 2014
- The remainder of the project to be financed with a mix of 53% equity and 47% debt.
- To the extent that it will be available, the debt portion would be funded by the California State Revolving Fund ("SRF"). The SRF would provide the lowest effective interest rate on the debt.
- If SRF borrowings were not available, then California American Water has said it will pursue the lowest cost debt, which may be taxable or tax-exempt long-term fixed rate debt.

Q12. How does the financing scheme proposed by California American Water correspond with the principles you have identified?

A12. It corresponds very well with those principles. Funds raised by means of Surcharge 2 will meet a significant portion of the projected capital cost, reducing the amount of other financing required, thereby reducing the project's financial risk to some extent and future customer payment rates from what they otherwise would be. The capital structure of 53% equity and 47% debt preserves that of California American Water, as reviewed previously by the Commission, and does not, in itself, increase the risk profile of the company. To the extent that it is available, utilizing SRF debt would provide the lowest cost debt financing for the project. My understanding is that California American Water has pledged to pass through the benefit of the lower interest rate on SRF debt if SRF funds are available. If SRF funds are not available, then having California American Water borrow via American Water Capital Corporation should provide relatively low-cost corporate debt to the project with minimal complexity or impediment. Thus overall the California American Water proposal addresses the principles I've identified very well.

IV. EVALUATION OF MPWMD TESTIMONIES

Q13. Did Mr. Larkins propose several alternative financing schemes for the project?

A13. Yes. Mr. Larkins identified several possible alternatives. These include:

- Securitization of perhaps $100 million of debt through a tax-exempt special purpose entity created for the sole purpose of issuing such debt by MPWMD. This debt would be repaid via a first claim on any revenues generated by the project. The debt would be issued on a non-recourse basis, meaning that neither MPWMD nor California American Water would be legally responsible for that debt if project revenues were not sufficient to meet the debt obligations.
- Issuing debt on a tax-exempt basis via the California Pollution Control Financing Authority, which would require California American Water to obtain a so-called "private activity bond allocation" through the California Debt Limit Allocation Committee.
- Obtaining public financing issued by MPWMD in the form of a certificate of participation. Again such financing would be tax exempt and would be repaid via a surcharge on customers' bills.

Q14. Would you dismiss any of the alternative proposals identified by Mr. Larkins out of hand?

A14. No. Each alternative deserves to be explored, but any of these proposals could easily carry with it additional unforeseen costs or other hurdles which would affect its viability as an alternative to the California American Water proposal. While a given alternative might at first glance appear attractive, one should consider any legal, administrative or regulatory issues that may increase the effective all-in cost of the financing scheme. In addition, one should consider whether any of these alternatives creates uncertainties or has any inherent risks that would reduce the alternative's attractiveness or eliminate it entirely as a viable candidate. I also understand that California American Water has indicated that it may consider such public agency financing proposals if certain principles are met, as discussed in the rebuttal testimony of Mr. Linam.

Q15. Would the use of Surcharge 2 be a beneficial component of the overal financing package?

A15. Yes. California American Water has included Surcharge 2 as part of its proposal, and the testimony of both Mr. Larkins and Mr. Stoldt support this. Funds from Surcharge 2 can be used to fund a portion of the construction cost, thereby reducing the amount that needs to be financed from other sources. The financial risk for the project will be reduced as a result. This will also reduce California American Water's rate base going forward, thus reducing rates from what they otherwise would be.

Q16. Earlier you said that the use of the SRF Funds would be the cheapest source of funding. Is the use of the SRF, as described by Mr. Larkins, a reasonable proposal?

A16. Yes it is. Mr. Larkins states that use of the SRF Funds would be the preferred method of financing the debt portion of the project. Using the SRF would be a low-cost way to fund the project. It would be straightforward and not depend on outside investors, investment banks, rating agencies, or other outside participants. It is my understanding that the Company's discussions with the State Water Resources Control Board ("SWRCB") have indicated that California American Water is eligible for SRF funding for the entire project.[1] The entire project includes the California American Water-Only Facilities that were previously approved as well as the new components submitted as part of this application. More information on this is provided in the direct and rebuttal testimony of California American Water's Vice President of Engineering, Richard Svindland.

[1] See discussion in the Application of California-American Water Company (U210W) For Approval Of The Monterey Peninsula Water Supply Project and Authorization To Recover All Present and Future Costs In Rates at pp 13-14.

Q17. Can you offer any particular comments re the proposed securitization of $100 million of debt?

A17. I believe that Mr. Larkins's proposal has several key weaknesses, among which are the following:

- Significantly higher organizational, legal and underwriting costs than the SRF funds or the corporate debt alternative. These costs would offset some or possibly all of the apparent lower interest rate applying to the financing.
- Securitized debt would effectively be a super-senior obligation. Payments on the debt would be the first obligation, relegating operating costs and other debt costs of California American Water to a subordinated position.
- The overall proportion of debt financing for this scheme would also be significantly higher, raising the overall risk profile for the project. Mr. Larkins's suggested scenario would entail approximately 77% total debt financing, a combination of the $100 million in securitized debt and additional $35.5 million in SRF debt (out of a total project finance of $175.6 million). It is my understanding that previous Commission decisions have identified a high proportion of debt to support any project or organization as a substantial risk concern. It is also likely that, from a practical standpoint, the securitized debt would be considered to be part of the MPWMD's and/or California American Water's overall debt burden, thereby reducing its creditworthiness.

Q18. But the non-recourse stipulation on the securitized debt would limit MPWMD's and Company's legal liability, would it not?

A18. Superficially this would be true from a legal standpoint. But from a practical standpoint and from the perspective of the credit rating agencies it would still be included.

Let's hypothesize that, for whatever reason, the project encountered significant problems, for example, the equipment was not functioning as expected and costly repairs were necessary. From a narrow, legal perspective MPWMD and/or California American Water could walk away from the project debt and there would be no legal recourse. But from a practical, operational standpoint could or would MPWMD or California American Water simply walk away? The simple answer is no. The effect on the public would be significant, if not catastrophic. That facility will be essential to supplying the region with water. It cannot be permitted to simply disappear into bankruptcy. Thus the image and allure of "non-recourse" financing is something of a mirage.

The rating agencies take this approach and incorporate such off-balance sheet debt into their calculation of the company's overall debt burden. In some ways this is similar to the imputed debt attributable to power purchase agreements (PPAs) that the Commission has long recognized.

Q19. Is your analysis consistent with the criteria applied by the rating agencies?

A19. Yes. For example, Standard & Poor's has stated:

> … securitizations do not ordinarily transform the risks or the underlying economic reality of the business activity–that is, provide what is commonly referred to as "equity relief." Equity relief is rarely achieved when a company has a recurring financing requirement, in contrast to one that uses securitization only as a means to monetize a non-core asset on a one-time basis. If securitization is used to supplant other debt, its effect on credit quality is likely to be close to neutral. Because the accounting treatment of securitization frequently is not congruent with Standard & Poor's Ratings Services' analytical perspective, adjustments to the reported financials are often necessary. In the event of a bankruptcy, an issuer's

reliance on securitization can be detrimental to the ultimate recovery prospects of unsecured creditors–and so may well warrant notching down of unsecured debt issue ratings from the issuer credit rating.[2]

Q20. Are there other relevant concerns regarding the securitization option?

A20. Yes. The issuance of any asset-backed security like this involves a complex set of legal arrangements. Mr. Larkins's testimony highlights some of these concerns. Larkins Exhibit WD-4 authored by Sidley Austin LLP regarding legal issues surrounding the financing alternatives notes that "Securitization would require legislation from the California legislature and a 'financing order' issued by the California PUC pursuant to the legislation."[3] The complexity of issuing asset-backed securities has increased in the wake of the financial crisis when many asset-backed securities encountered problems and many investors, having been burned during the financial crisis, are wary of many proposed asset securitizations. I am not suggesting that the proposed financing could not successfully address any of these requirements or concerns, but the time and cost required to do so could be substantial.

Q21. Please identify some the factors that might affect the MPWMD financing proposal?

A21. Yes, they would be similar to those identified regarding the two alternate proposals though not identical. Since Mr. Larkins's testimony is offered on behalf of MPWMD, presumably his recommendation of this financing scheme has been reviewed by and endorsed by MPWMD. Nevertheless, even with informal approval, the negotiation of any formal agreement regarding the certificate of participation could raise additional, unforeseen issues. Under this proposal, the MPWMD financing would cover up to $100 million of the total financing burden, similar to the securitization proposal, leaving the remainder to be financed by SRF funds. Again the complexity of the proposal is apparent,

[2] Standard & Poor's, Securitization's Effect On Corporate Credit Quality, November 2005

[3] Direct Testimony of Robert Larkins, Exhibit WD-4, pg 3.

and the need for approvals from multiple entities can raise many issues regarding the timing or even the ultimate success of the financing for the project. As with the securitized alternative, it would also increase the total proportion of debt used to finance the project, thus adding further financial risk. The certificate of participation financing would be attributed to California American Water, thereby affecting the Company's overall creditworthiness.

Q22. California American Water does not currently have a separate credit rating from the major rating agencies. Will this be required?

A22. California American Water's parent American Water Works currently holds a solid credit rating from the two largest credit rating agencies – Moody's Investors Service and Standard & Poor's. California American Water does not hold a separate credit rating and has accessed the debt capital markets by borrowing funds via its affiliate American Water Capital Corporation. This arrangement has apparently worked well in the past, and it is California American Water's intention to continue with this arrangement. The Company does not seek at this time to obtain such a separate credit rating. It is possible that some of the financing alternatives identified by Mr. Larkins could require California American Water to obtain an independent rating. Such a requirement could potentially impede the financing arrangement from proceeding if it created delays or required a higher rating from the rating agencies than the Company could achieve on its own. In addition, as noted, both the securitization and MPWMD certificate of participation financing alternatives suggested by Mr. Larkins, would result in California American Water bearing a higher effective actual or imputed debt burden, thus diminishing the Company's creditworthiness in the eyes of the rating agencies and private investors.

Q23. What other aspects of Mr. Larkins's testimony raise issues with you?

A23. I believe that Mr. Larkins's emphasis on the net present value (NPV) of each of the alternatives he explores provides only minimal value in comparing and analyzing the alternatives or the issues before the Commission. First, it is my understanding that the results are not actually the calculations of the NPV, but more simply the present value of the future cash flows received from customers. These calculations can provide some insight. For example in comparing the alternatives with or without the customer Surcharge which reduces the effective capital cost, with California American Water financing the remainder with 53% equity and 47% corporate debt (Alternatives A vs. F), the lower present value of future revenue requirements resulting from the Surcharge are highlighted. However, other comparisons are more obscure. For example, Mr. Larkins suggests that the benefits of using the SRF funding (Alternative A vs. C), with a presumed interest rate of 1.7%, are modest as compared with using California American Water's corporate debt, with a presumed interest rate of 5%. One would think that the difference and implied benefit would be larger.

Consequently I believe that a simpler basis of comparison might render a clearer understanding. In this case a single project is being considered, in contrast to a situation where several competing projects are being compared, each with a different capital costs . The question is what mix of equity and debt is most appropriate to use to finance this capital expenditure. And once that financing mix is set, consideration should be given to what is the most cost effective source of debt for the project. If, for example, SRF funding is available, that would appear to be the least expensive source of debt financing. The discussion effectively can end there. The calculation of a present value beyond that determination provides only limited additional useful information that could meaningfully assist the Commission in making its decision.

To the extent that the Commission focuses on a present value or NPV calculation, Mr. Stoldt argues, and Mr. Larkins incorporates in his calculations, a discount rate of 6% which might be applicable to a public sector project. In contrast, I believe that the appropriate discount rate to be applied is the weighted average cost of capital ("WACC") for California American Water.[4] This approach is in keeping with the basic principles of corporate finance and is consistent with the approach that the Company has taken in its analysis. So long as California American Water is expected to bear the risk for the project, it is the Company's WACC that is the appropriate discount rate to be applied. The application of lower discount rates, such as those reflecting a public entity's cost of capital, would be reasonable and appropriate only under conditions whereby the public entity is willing to effectively guarantee the project and assume any risk of the private sector entity involved.

Q24. Did you review any other testimony filed by intervenors?

A24. Yes, I reviewed the testimony filed by the Division of Ratepayer Advocates ("DRA").

Q25. Do you have any comments on that testimony?

A25. Yes. In the comments supporting the imposition of Surcharge 2, at page 6-14 of the testimony, DRA asserts that "... Surcharge 2 funds should accrue interest at the same rate as Cal Am's authorized return on equity." I found this proposal ill-advised for several reasons. Most importantly, the application of these funds will be used to meet construction costs and will ultimately reduce California American Water's regulated rate base. This will make a significant contribution to reducing the rates that customers would otherwise need to pay in the future. This provides a significant benefit to customers and customers will effectively be earning a return equal to the overall rate of return on invested capital allowed to the Company. The Surcharge 2 funds will be applied in a similar manner as interim borrowings to meet construction costs as incurred. Hence an argument can be made that they should accrue interest in like manner to AFUDC. Attributing a higher rate of return during the construction phase of the project would create an unfair distortion to the overall financing of the project.

[4] Pre-tax WACC would apply to cash-flow and after-tax WACC would apply to the returns.

Q26. DRA has also recommended a "hard" cost cap for the project. From a financing perspective how would a hard cost cap be viewed?

A26. I believe that it would be impractical and ill-advised to establish a hard cost cap for the project. All of us, from the individual homeowner consulting a plumber or electrician about home repairs to corporations and governments undertaking major capital project, such as that currently under consideration, would like a hard and fast number for the construction cost. The reality, however, is that there are a myriad of uncertainties, particularly for any major project, and that, despite everyone's best efforts, the precise cost of construction can be extremely difficult to predict. Construction budgets contain contingency amounts, but nevertheless uncertainties exist. Overages can arise due to many factors, many of which are outside the contracting entity's control. To set a hard construction cap raises the inevitable question of what happens should the cost cap be exceeded for whatever reason. Establishing a hard cost cap would add further uncertainties onto the project and raise questions as to whether the project can be completed and commissioned in a timely manner. Simply suggesting that any additional costs should be laid on the shoulders of California American Water is also unrealistic. Consequently, while superficially attractive, I believe that it would be inappropriate to set a hard cost cap on the project as a condition for its approval.

Q27. Having reviewed the financing alternatives, in your opinion what is the best source of funding if California American Water is not able to access SRF funds?

A27. I believe that the Company's proposal represents a cost effective and efficient financing plan for the project. If SRF funds are not available and assuming the availability of Surcharge 2 funds to defray construction costs, a 53% equity contribution and 47% corporate debt mix will present a reasonable financing structure for the project. The overall cost of funds should be reasonable. But critically, the use of corporate debt will provide the fewest uncertainties or chances that the project will be delayed or derailed by financing issues. This plan will not require any special actions tied solely to the financing structure as any of Mr. Larkins's proposed alternatives would. While the direct interest cost might be modestly higher for such corporate debt financing the speed and certainty with which it could be achieved strongly recommend it.

Q28. Does that conclude your testimony?

A28. Yes.

ATTACHMENT 1

Attachment 1: Curriculum Vitae of Willliam J. Chambers

WILLIAM J. CHAMBERS, Ph.D.
Curriculum Vitae

3 Albion Place
Charlestown, Massachusetts 02129

Home: 617-242-2046
Mobile: 857-540-9556
E-mail: wchamber@bu.edu

Independent Consultant September 2005 – Present

Typical assignments include:

- Development and delivery of expert testimony regarding creditworthiness, credit ratings, and the impact of credit ratings on the financial viability of companies, their access to capital markets and cost of capital
- Development and improvement of credit evaluation models, templates and scorecards
- Evaluation and validation of internal credit evaluation systems
- Review of credit evaluations of individual companies
- Review or simulation of rating agency ratings
- Assessment of economic and capital models
- Instruction at professional courses concerning internal credit evaluation systems

Boston University September 2005 - Present

Metropolitan College
Department of Administrative Sciences
Associate Professor

Responsible for teaching graduate and undergraduate courses in corporate finance, investment analysis, portfolio management, multinational finance, international investments and capital markets.
Coordinate on-line instructional program for banking & financial services, project management, international marketing, insurance, business continuity and human resources management.

Standard & Poor's, New York, New York

Consultant to Risk Solutions September 2005 – September 2006

Managing Director January 2001-August 2005
Risk Solutions Americas Practice Leader
Global Head of Content Development & Quality Assurance

Responsible for Americas operations of newly formed group covering consulting, credit training, credit modeling, default& recovery information, etc. Coordinated work with other departments of S&P including Structured Finance and Corporate & Government Ratings. A major portion of the work was with banks and other financial institutions, improving their internal rating systems and compliance with Basel II international capital standards.
Developed and co-taught courses on internal credit scoring systems, credit scoring, loss given default and portfolio management.

Oversaw research on default, credit transition, loss given default
Oversaw development of credit risk models

Managing Director, Corporate Ratings
Strategic Planning, Product Development & **Marketing** December 1996-December 2000

Headed team responsible for Corporate Ratings Group strategic planning, product research, development and launch and marketing.
Oversaw development of Bank Loan Ratings and Rating Evaluation Service, which provides advice regarding the impact of identified strategic actions such as acquisitions or recapitalization on firm's creditworthiness.
Oversaw acquisition of Portfolio Management Data and Canadian Bond Rating Service
Oversaw development of credit risk models and creation of loss given default database

Managing Director, International Corporate Ratings January 1992-December 1996

Responsible for all non-US corporate ratings including developed and emerging markets, including first corporate ratings assigned in Latin America, China and Southeast Asia.
Developed criteria for evaluating corporate entities, parent-subsidiary relationships, sovereign risk impact on corporate creditworthiness, and structured financings.

Director, Standard & Poor's Australia January 1990-December 1991

Oversaw acquisition of Australian Ratings in Melbourne and its integration into the S&P network
Reviewed all existing debt ratings and coordinated conversion to international rating scale

Director, International Public Sector Ratings September 1983-December 1989

Responsible for rating of sovereign, municipal and government-owned institutions in Canada, Australia, New Zealand, Sweden and Germany. Responsible for analysis of multi-lateral lending institutions, including the International Bank for Reconstruction & Development (World Bank, IFC), Inter-American Development Bank & Asian Development Bank.
Participated in development of criteria and first assignment of ratings to international structured finance, bond insured transactions, sovereign risk effect on private sector borrowers (sovereign ceiling) and preferred creditor status of multi-lateral lenders.
Researched and developed office plans for Canada and Australia

G.M. Stamm Economic Research Associates, Toronto, Ontario
Vice President and Director of Research March 1979-September 1983

Oversaw all economic and financial research for consultant specializing in real estate and public finance sectors. Developed background analysis, expert testimony and support for hearings before the Ontario Municipal Board and Ontario Energy Board, regarding impact of energy pricing on corporate customers, impact of real estate development on municipalities and existing businesses, etc.

Regional Municipality of Durham, Whitby, Ontario
Senior Economist March 1976-March 1979

Conducted a wide variety of financial and economic studies for the region concerning fiscal capacity and impact of development, capital works financing, budgets, self insurance, etc.

Newfields Development Corp., Dayton, Ohio
Director of Financial Planning June 1974-March 1976

Analyzed all financial aspects of large, new town development
Taught economics as an Adjunct at Miami University of Ohio

Education:

Columbia University, New York, New York
Department of Economics M.A., M. Phil, Ph.D. June 1975
Fields of Specialization: Urban Economics, Public Finance, Monetary Theory, Microeconomic Theory
Dissertation: The Optimal Allocation of Land to Transportation in Urban Areas
William Vickrey, Advisor

College of Wooster, Wooster, Ohio
Major in Economics and History B.A., June 1968

Summary of Relevant Expert Witness Experience

1980-1983 Testimony before the Ontario Energy Board on behalf of the Association of Major Power Consumers of Ontario (AMPCO) for Ontario Hydro's annual rate hearings.

2009 *Rohm & Haas vs. The Dow Chemical Company*
2009 *General Electric Capital Canada Inc. vs. Her Majesty The Queen*
2009 *In The Matter Of The Current And Future Financial Condition Of Baltimore Gas And Electric Company Before The Public Service Commission Of Maryland*
2011 *El Fassi Realty Corp. v. 31 West 34th Street LLC*
2011 NA General Partnership & Subsidiaries, Iberdrola Renewables Holdings, Inc. & Subsidiaries, Successor in Interest to NA General Partnership & Subsidiaries v. Commissioner of Internal Revenue, Docket No. 525-10