reliable, the DCF estimates for the gas LDC sample are less reliable than they have been in the recent past.

IV. COST OF CAPITAL ESTIMATES

A. COMPANY BACKGROUND

Q41. Please describe Northwestern's South Dakota gas distribution assets?

A41. Northwestern serves approximately 83,900 customers in 59 communities in South Dakota with approximately 2,200 miles of distribution gas mains. Purchase adjustment clauses contained in South Dakota and Nebraska tariffs allow the Company to reflect increases or decreases in gas supply and interstate transportation costs on a timely basis, so the Company is generally allowed to pass natural gas prices through to customers. The Company does not have a weather adjustment clause in South Dakota.

B. SAMPLE SELECTION

Q42. How did you select your sample of natural gas LDCs?

A42. The goal was to create a sample of companies whose primary business is as a regulated natural gas LDC with business risk generally similar to that of NorthWestern's SD gas distribution operations. I considered the universe of 23 companies classified by the *Value Line Investment Survey Plus* as natural gas LDCs, and added Vectren Corporation to my sample because it is often viewed as a natural gas LDC. Vectren is involved in both gas and electric distribution activities, but now obtains a substantially amount of income from its gas distribution operations.[9] This company is also covered by *Value Line*, but is classified as an Electric Utility due to its regulated electric operations.

[9] Vectren Utility Holdings, Inc.'s 2006 10K reveals that about 45.4 percent of its income is from regulated gas distribution activities and 45.5 percent from regulated electric operations. Because it has a substantial amount of regulated electric activity, I exclude it from the sub-sample of companies I consider to be the most

Companies were first eliminated if their operating regions were outside of the continental USA. I then applied my standard selection criteria to narrow the sample to those companies likely to have reliable cost of equity estimates. This resulted in a benchmark sample of nine companies which are outlined in Table 1. NorthWestern Corporation has been added to Table 1 for comparison purposes. Additional details on the sample selection process can be found in Appendix B.

representative of the natural gas distribution line of business and to be most free of characteristics that may bias cost of equity estimates (see below).

Table 1: Summary of the Sample's Characteristics

Company	Business Activities [1]	Revenue (2006) ($MM) [2]	Regulated Gas Assets [3]	Total Regulated Assets [4]	Market Cap. (2006) ($MM) [5]	S&P Bond Rating (2007) [6]	Beta [7]	Long-Term Growth Estimate [8]
Atmos Energy Corp	D P ST M	6,152	95.5%	95.5%	2,622	BBB	0.80	5.8%
The Laclede Group	D M OTH	1,998	89.5%	89.5%	753	A	0.85	3.0%
Northwest Natural Gas Co	D ST OTH	1,013	98.0%	98.0%	1,161	AA-	0.75	4.8%
Piedmont Natural Gas Co	D P M ST	1,925	97.2%	97.2%	2,022	A	0.80	5.0%
South Jersey Industries Inc	D P ST M EM OTH	931	78.1%	78.1%	981	BBB	0.70	6.3%
Southwest Gas Corp	D PCon	2,025	96.2%	96.2%	1,613	BBB-	0.85	5.5%
WGL Holdings Inc	D ST M EM OTH	2,638	99.8%	99.8%	1,603	AA-	0.85	3.7%
AGL Resources Inc	D M WH EInv	2,621	74.3%	74.3%	3,042	A-	0.95	4.5%
Vectren Corp	D IE EM	2,042	56.8%	93.9%	2,156	A-	0.95	2.2%
NorthWestern Corp†	**D P ST IE ET ED**	**1,133**	**31.8%**	**96.4%**	**1,276**	**BB+**	**na**	**na**

Notes and Sources:

† Statistics specific to NorthWestern Corp's South Dakota regulated gas operations are unavailable.

[1] D – Distribution P – Pipeline M – Natural Gas Marketing ST – Natural Gas Storage ET - Electric Transmission ED - Electric Distribution IE – Integrated Electric EM – Electric Marketing EInv – Energy Investments PCon – Pipeline Construction WH – Wholesale Activities OTH – Other (small component).
Sources: Company 10-K's for 2006 fiscal year.

[2] See Table MJV-2.

[3] Estimated share of total assets based on company 10-K

[4] Estimated share of total assets based on company 10-K

[5] See Table MJV-3 for calculation.

[6] See Workpaper #1 to Table MJV-11

[7] Value Line Investment Survey – see Workpaper # 1 to Table MJV-10

[8] See Table MJV-5.

1. The Gas LDC Sub-Sample

Q43. Why do you advocate summarizing the cost of capital estimates from a sub-sample of the gas LDC companies as well as for the full sample?

A43. Although the sample selection criteria are designed to screen out any company that has characteristics that may bias the cost of equity estimates, some of the sample companies are better than others. For example, although still investment grade, Southwest Gas is at the bottom of the scale of investment grade credit ratings and has a relatively low average equity thickness over the past five years – 40.1 percent compared to 61.8 percent for the remaining companies. Closer investigation shows that Southwest Gas's capital structure has been shifting rapidly toward equity over the last five years, with a level of about 50 percent over the most recent two years. This kind of instability suggests a potential reliability problem for estimates of this company's cost of capital. The Laclede Group's market cap of $688 million is a bit smaller than the average of the group, but with revenues of more than $1.5 billion, it is still a large company. In 2006, Piedmont Natural Gas restated some portions of its 2003-2005 financial reports. Although this can generally lead to less reliable estimates from the equity estimation models, the restatements were not caused by fraudulent activities but were due to an accounting error in the classification of hedging amounts. This type of reclassification would not be expected to change the value of the firm and prices did not show any erratic behavior in the period surrounding the announcement of this reclassification. A potential concern for the DCF estimates is that the industry has experienced a sustained level of merger and acquisition activity over the last five years that has implication for the stability of the industry necessary for the reliable application of the DCF model. Due to the concerns with the sample, I also report the results for a sub-sample of the gas LDC sample that consists of companies with no material data issues.

2. Relative Risk of the Sample and NorthWestern's SD Gas Utility

Q44. Could you please summarize the general characteristics of the companies in the sample and those of NorthWestern's SD operations?

A44. Yes. The sample consists of nine gas LDCs with generally similar risk characteristics to those of NorthWestern's SD operations. Like NorthWestern's SD operations, they all have fuel-cost adjustment clauses which either remove or significantly reduce their exposure to this risk. In their 10-Ks, all sample companies report that they engage in hedging activities to further reduce this risk. In addition, seven of the nine companies have weather adjustment clauses which NorthWestern does not have for its SD gas operations. NorthWestern is currently rated BB+ by S&P, and its S&P Business Profile is 5.[10]

[10] NorthWestern's SD gas operation does not have a separate S&P business profile rating.

Table 2: Risk Factors Summary for the Gas LDC Sample

Company Specific Risk Analysis					
Company [1]	**Fuel Cost Adjustment [2]**	**Weather Normalization [3]**	**Fuel Cost Hedging [4]**	**Storage Facilities [5]**	**S&P Business Profile [6]**
Atmos Energy (GA, KS, KY, LA, TX, MS, TN, VA)	Yes	Yes	S & D	Yes	4
Laclede Group (MO)	Yes	NO	D	Yes	3
Northwest Natural Gas (WA, OR)	Yes	Yes	S & D	Yes	1
Piedmont Natural Gas (SC, TN, NC)	Yes	Yes	Yes	Yes	2
South Jersey Industries (NJ)	Yes	Incentive Prog.	D	Yes	na
Southwest Gas (AZ, NV, CA)	Yes	Yes	Fix & Var Price	Yes	3
WGL Holdings (DC, VA, MD)	Yes	Yes	D	No	3
AGL Resources (GA, FL, MD, NJ, TN, VA)	Yes	Yes	D	Yes	4
Vectren (IN, OH)	Yes	Yes	D	Yes	3
NorthWestern Corp† (MT, SD, NE)	**Yes**	**No**	**Fix & Var Price**	**Yes**	**5**

Notes and Sources: *All company 10-K sources are for the 2006 fiscal year.*

† Statistics specific to NorthWestern Corp's South Dakota regulated gas operations are unavailable.

[1] States of operation as reported in company 10-Ks for significant operations.

[2] Yes indicates a mechanism was reported in company 10-Ks, but different mechanisms exist by company and by state. If a mechanism exists, it generally allows for 100% recovery of prudent costs.

[3] Yes indicates a mechanism was reported in company 10-Ks, but different mechanisms exist by company and by state. South Jersey Industries reports participation in a Conservation incentive program.

[4] S - Storage D - Financial Derivatives Fix & Var Price - Price formulas are used to help mitigate weather risks. As reported in company 10-K's

[5] Information from company 10-Ks.

[6] S&P Business Profile as published on April 28, 2006 in S&P's *U.S. Utility and Power Ranking List*

Q45. How does the risk of the sample compare to the risk of NorthWestern's SD gas distribution operations?

A45. In general, the benchmark sample has comparable business risk to NorthWestern's SD gas operations. NorthWestern has a higher business risk profile than the sample, but that is for the company as a whole, and its unsecured credit rating is lower than the sample. These factors suggest that it is conservative to view the business risk of the sample as comparable to NorthWestern's SD gas operations.

C. Cost of Capital and Cost of Equity Estimates

Q46. Please summarize the results of the risk positioning and DCF methodologies in estimating the average cost of capital for the benchmark sample and the implications for NorthWestern's SD operations' cost of equity?

A46. Table 3 below summarizes the risk positioning and DCF cost of equity estimates and the resulting sample average ATWACC estimates for the benchmark gas LDC sample, along with the implied cost of equity for NorthWestern's SD operations at a regulatory capital structure with 51.5 percent equity.

Q47. How did you determine a representative tax rate to use in your cost of capital estimation?

A47. South Dakota does not presently levy state corporate incomes taxes so I use the current federal corporate tax rate of 35 percent.

Q48. How were the cost of equity estimates derived from the risk positioning approach for the benchmark sample?

A48. I derive two sets of risk-positioning estimates, one using long-term forecasts of the risk-free rate and market risk premium, and one using short-term forecasts. The long-term

Table 3: Cost of Equity Estimates for NorthWestern's SD Gas Operations

Regulatory Capital Structure: *51.5% Equity / 48.5% Debt* *2007 Tax Rate:* *35%*

	METHODS								
	RISK POSITIONING (using Long-Term Risk-Free Rate)			RISK POSITIONING (using Short-Term Risk-Free Rate)				DCF	
	CAPM	α = 0.5%	α = 1.5%	CAPM	α = 1%	α = 2%	α = 3%	Simple	Multi
[1] **Gas LDC Sample***									
Cost of Equity	11.1%	11.2%	11.4%	11.3%	11.5%	11.7%	11.9%	9.1%	9.7%
Average ATWACC	7.7%	7.7%	7.8%	7.7%	7.8%	7.9%	8.0%	6.6%	6.9%
[2] **Sub-sample* Average**									
Cost of Equity	11.5%	11.6%	11.8%	11.6%	11.9%	12.1%	12.3%	9.4%	10.3%
Average ATWACC	7.8%	7.9%	8.0%	7.9%	8.0%	8.2%	8.3%	6.8%	7.2%

[3] Risk Positioning Security Market Line Parameters:

Short-Term		*Long-Term*		Multi-Stage DCF Parameter:	
Risk Free Rate Estimate:	3.8%	Risk Free Rate Estimate:	4.9%	GDP	
Estimated Market Risk Premium:	8.0%	Estimated Market Risk Prem:	6.5%	Growth	5.1%

Sources and Notes:

* For the MJV US Gas LDC Sample , Risk Positioning data from Table No. MJV-12 and DCF data from Table No. MJV-6.

[1] , [2] The Gas LDC sample consists of Atmos Energy Corp, Laclede Group Inc, Northwest Natural Gas Co, Piedmont Natural Gas Co, South Jersey Industries Inc, Southwest Gas Corp, WGL Holdings Inc, AGL Resources Inc. and Vectren Corp. The sub-sample includes only Laclede Group Inc, Northwest Natural Gas Co, Piedmont Natural Gas Co. and WGL Holdings Inc.

[3] See Testimony, Section IV.C for details on Risk Positioning and DCF parameters used in estimates.

risk-free interest rate forecast is 4.9 percent and the corresponding estimated market risk premium is 6.5 percent. For the short-term risk-free rate, the corresponding values are 3.8 percent and 8.0 percent respectively.

The two risk positioning models (CAPM and ECAPM) are estimated for each horizon, with the long-term estimates utilizing two values of the ECAPM parameter (0.5% and 1.5%), and the short-term estimates utilizing three values of the ECAPM parameter (1%, 2%, and 3%). The risk positioning cost of equity estimates for the gas LDC sample are displayed in Table No. MJV-10, Panels A and B. The cost of equity estimates are subsequently combined with each company's estimated cost of debt and preferred equity to calculate the company's ATWACC using each company's market value capital structure. These calculations and the resulting sample average ATWACC for both the full sample and sub-sample are presented in Table No. MJV-11. Panels A-C of Table No. MJV-11 rely on the cost of equity estimates from the long-term version of the model,

while Panels D-G utilize the estimates from the short-term version of the model. The sample and sub-sample average ATWACC and corresponding cost of equity estimates at NorthWestern's 51.5 percent equity capital structure for each cost of equity estimation methods are displayed in Table No. MJV-12, Panels A and B. These results are summarized in Table 3 above.

Q49. What are the DCF estimates for the gas LDC sample?

A49. For each sample company, cost-of-equity estimates are calculated for the two versions of the DCF method. The DCF estimates for each company's cost of equity are displayed in Table No. MJV-6, Panel A (simple DCF) and Panel B (multistage DCF). The sample and sub-sample average ATWACCs for each method are calculated in Table No. MJV-7, Panels A and B, and are used in Table No. MJV-8, Panels A and B, to derive the resulting return on equity at NorthWestern's SD operations 51.5 percent equity capital structure. These results are summarized in Table 3 above, along with the sample and sub-sample average ATWACC numbers. Table 3 shows a cost of equity of 9.1 percent when using the simple DCF model but 9.7 percent from the multistage DCF model for the full sample. The corresponding results for the sub-sample are somewhat higher at 9.4 percent for the simple DCF and 10.3 percent for the multistage DCF. As discussed above, the sub-sample is likely to be a more reliable measure of the cost of capital for this industry. The industry has had more mergers and acquisition in recent years, and the companies in the industry have been more heavily involved in non-regulated activities such as gas marketing which has affected their earnings growth estimates. The variation in the estimates from the simple DCF compared to the multistage model, however, likely reflect the unique events in the industry and suggest that the simple DCF estimates are less reliable than the risk positioning estimates at this time.

V. CONCLUSIONS

Q50. What conclusions do you draw from the DCF estimates regarding the cost of equity for NorthWestern's SD gas operations?

A50. A review of Table No. MJV-6, Panel A shows that the simple DCF cost of equity estimates are highly variable and have a range of 3.6 percent, from a low of 6.5 percent for Vectren Corp. to a high of 10.1 percent for Atmos Energy Corp. The multistage estimates are much less variable, but still have a relatively wide range of 2.4 percent, from a low of 7.4 percent for Southwest Gas Corp. to a high of 9.8 percent for The Laclede Group Inc. The multistage DCF model adjusts for the fact that the earnings forecasts available for each company span only a five-year period, and in my view, the multistage DCF model provides more reliable results. Therefore, the most reliable of the DCF results for NorthWestern's SD gas operations is the 10.3 percent estimate for the multistage version of the DCF for the sub-sample. However, in my opinion, the variability of the DCF results demonstrates that the conditions for the completely reliable implementation of the DCF model do not obtain for the sample at this time. I therefore place little weight on the DCF results.

Q51. Do you have any general comments regarding the results of the risk positioning models?

A51. The estimates based upon the short-term risk-free rate are higher on average than the estimates using the long-term risk-free rate, partially because the yield curve is currently flat or slightly inverted, i.e., the yield on short-term Treasury bills exceeds the yield on long-term Treasury bonds. Table No. MJV-9, Panel A shows that 30-day Treasury bills are currently yielding 5.16 percent compared to only 4.90 percent for long-term Treasury bonds. The calculations displayed in Panel B, Workpaper #1 to Table No. MJV-9 show that the yield on long-term Treasury bonds has averaged about 150 basis points more than the yield on 30-day Treasury bills over the last 80 years. The increased yield on short-term Treasury bills reflects the efforts by the Federal Reserve ("Fed") to prevent the rate of inflation from increasing any further. If the Fed believes that inflation is not yet

contained, short-term rates are likely to increase further. On the other hand, if inflation is judged to be under control, short-term rates may decline as fears of recession replace those of inflation. Because of this uncertainty, I believe that the estimates using the long-term risk-free rate are more reliable at this time.

Q52. Please describe the results from the long-term version of the risk positioning model.

A52. Of those results, the CAPM values deserve the least weight, because this method does not adjust for the empirical finding that the cost of capital is less sensitive to beta than predicted by the CAPM (which my testimony considers by using the ECAPM). Conversely, the ECAPM numbers deserve the most weight, because this method adjusts for the empirical findings.

For the gas LDC sample, the cost of equity estimates using the long-term risk free rate and adjusted for a capital structure with a 51.5 percent equity ratio range from 11.1 to 11.4 percent for the full sample and from 11.5 to 11.8 for the sub-sample. The short-term estimates are 20 to 50 basis points higher on average than the long-term ones, ranging from 11.3 to 11.9 percent in the full-sample and 11.6 to 12.3 percent for the sub-sample. A review of the results in Panels A and B of Table No. MJV-10 also shows that the estimates are much less variable than for the DCF model. For example, considering the long-term ECAPM (0.5%) results in Panel A, one sees that the range is only 1.5 percent, from a low of 9.6 percent to a high of 11.1 percent with no significant outliers, whereas the range for the DCF model are 6.5 to 10.1 percent (simple DCF) and 7.4 to 9.8 percent (multistage DCF). (See Table No. MJV-6, Panels A and B.)

Q53. Given the results of the two models, what is your conclusion regarding the cost of equity for NorthWestern's SD gas distribution assets?

A53. I believe that NorthWestern's SD operations are of comparable business risk to the sample so the sample average cost of equity estimates adjusted for differences in finance risk represent a good estimate of the cost of equity for NorthWestern's SD operations. I make no adjustment to the cost of equity estimates for business risk differences between

the sample and NorthWestern. Focusing on the middle values in Table 3 for the gas LDC sample, the results from the long-term risk positioning model (ECAPM with $\alpha = 0.5$), the average ATWACC for the full sample is 7.7 percent, with a corresponding cost of equity estimate of 11.3 percent for the full sample and 7.9 and 11.6 percent for the sub-sample. Although I do not give much weight to the DCF estimates, I note that those estimates for the more reliable multistage model are lower at 10.3 percent for the sub-sample.

Based upon consideration of all of the sample evidence, the best point estimate for the cost of equity for NorthWestern's SD operations is 11¼ percent. Given the results of the cost of capital estimation models, this is a conservation estimate because this value is about ½ percent lower than the average risk positioning results for the sub-sample when using the long-term risk-free rate, but it is also about 1 percent higher than the multistage DCF estimates. As noted earlier, I do not believe that the DCF estimates are completely reliable for the industry at this time. In addition, the point estimate is about ½ percent lower than the results from the short-term version of the risk positioning model for the full sample. However, it is more correct to say that the estimates from the sample provide a range of values from a low of 10¾ percent to a high of 11¾ percent.

Q54. Does this conclude your testimony?

A54. Yes.

APPENDIX A

RESUMÉ

MICHAEL J. VILBERT — **PRINCIPAL**

Michael Vilbert is an expert in cost of capital, financial planning and valuation who has advised clients on these matters in the context of a wide variety of investment and regulatory decisions. He received his Ph.D. in Financial Economics from the Wharton School of the University of Pennsylvania, an MBA from the University of Utah, an M.S. from the Fletcher School of Law and Diplomacy, Tufts University, and a B.S. degree from the United States Air Force Academy. He joined The Brattle Group in 1994 after a career as an Air Force officer, where he served as a fighter pilot, intelligence officer, and professor of finance at the Air Force Academy.

REPRESENTATIVE CONSULTING EXPERIENCE

- In a securities fraud case, Dr. Vilbert designed and created a model to value the private placement stock of a drug store chain as if there had been full disclosure of the actual financial condition of the firm. He analyzed key financial data and security analyst's reports regarding the future of the industry in order to recreate pro forma balance sheet and income statements under a variety of scenarios designed to establish the value of the firm.

- For pharmaceutical companies rebutting price-fixing claims in antitrust litigation, Dr. Vilbert was a member of a team which prepared a comprehensive analysis of industry profitability. The analysis replicated, tested and critiqued the major recent analyses of drug costs, risks and returns. The analyses helped develop expert witness testimony to rebut allegations of excess profits.

- For an independent electric power producer, Dr. Vilbert created a model that analyzed the reasonableness of rates and costs filed by a natural gas pipeline. The model not only duplicated the pipeline's rates, but it also allowed simulation of a variety of "what if" scenarios associated with cost recovery under alternative time patterns and joint cost allocations. Results of the analysis were adopted by the intervenor group for negotiation with the pipeline.

- For the CFO of an electric utility, Dr. Vilbert developed the valuation model used to support a stranded cost estimation filing. The case involved a conflict between two utilities over the responsibility for out-of-market costs associated with a power purchase

contract between them. In addition, he advised and analyzed cost recovery mechanisms that would allow full recovery of the stranded costs while providing a rate reduction for the company's rate payers.

- Dr. Vilbert has assisted in the preparation of testimony and the development of estimation models in numerous cost of capital cases for natural gas pipeline, water utility and electric utility clients before the Federal Energy Regulatory Commission ("FERC") and state regulatory commissions. These have spanned standard estimation techniques (e.g., Discounted Cash Flow and Risk Positioning models). He has also developed and applied more advanced models specific to the industries or lines of business in question, e.g., based on the structure and risk characteristics of cash flows, or based on multi-factor models that better characterize regulated industries.

- Dr. Vilbert has valued several large, residual oil-fired generating stations to evaluate the possible conversion to natural gas or other fuels. In these analyses, the expected pre- and post-conversion station values were computed using a range of market electricity and fuel cost conditions.

- For a major western electric utility, Dr. Vilbert helped prepare testimony that analyzed the prudence of QF contract enforcement. The testimony demonstrated that the utility had not been compensated in its allowed cost of capital for major disallowances stemming from QF contract management.

- Dr. Vilbert analyzed the economic need for a major natural gas pipeline expansion to the Midwest. This involved evaluating forecasts of natural gas use in various regions of the United States and the effect of additional supplies on the pattern of natural gas pipeline use. The analysis was used to justify the expansion before the FERC and the National Energy Board of Canada.

- For a Public Utility Commission in the Northeast, Dr. Vilbert analyzed the auction of an electric utilities purchase power agreements to determine whether the outcome of the auction was in the ratepayers' interest. The work involved the analysis of the auction procedures as well as the benefits to ratepayers of transferring risk of the PPA payments to the buyer.

- Dr. Vilbert led a team tasked to determine whether bridge tolls were "just and reasonable" for a non-profit port authority. Determination of the cost of service for the authority required estimation of the value of the authority's assets using the trended original cost methodology as well as evaluation of the operations and maintenance budgets. Investment costs, bridge traffic information and inflation indices covering a 75 year period were utilized to estimate the value of four bridges and a passenger transit line valued in excess of $1 billion.

- Dr. Vilbert helped a recently privatized railroad in Brazil develop an estimate of its revenue requirements, including a determination of the railroad's cost of capital. He also helped evaluate alternative rate structures designed to provide economic incentives to shippers as well as to the railroad for improved service. This involved the explanation and analysis of the contribution margin of numerous shipper products, improved cost analysis and evaluation of bottlenecks in the system.

- For a utility in the Southeast, Dr. Vilbert quantified the company's stranded costs under several legislative electric restructuring scenarios. This involved the evaluation of all of the company's fossil and nuclear generating units, its contracts with Qualifying Facilities and the prudence of those QF contracts. He provided analysis concerning the impact of securitizing the company's stranded costs as a means of reducing the cost to the rate payers and several alternative designs for recovering stranded costs.

- For a recently privatized electric utility in Australia, Dr. Vilbert evaluated the proposed regulatory scheme of the Australian Competition and Consumer Commission for the company's electric transmission system. The evaluation highlighted the elements of the proposed regulation which would impose uncompensated asymmetric risks on the company and the need to either eliminate the asymmetry in risk or provide additional compensation so that the company could expect to earn its cost of capital.

- For an electric utility in the Southwest, Dr. Vilbert helped design and create a model to estimate the stranded costs of the company's portfolio of Qualifying Facilities and Power Purchase contracts. This exercise was complicated by the many variations in the provisions of the contracts that required modeling in order to capture the effect of changes in either the performance of the plants or in the estimated market price of electricity.

- Dr. Vilbert helped prepare the testimony responding to a FERC request for further comments on the appropriate return on equity for electric transmission facilities. In addition, Dr. Vilbert was a member of the team that made a presentation to the FERC staff on the expected risks of the unbundled electric transmission line of business.

- Dr. Vilbert and Mr. Frank C. Graves, also of The Brattle Group, prepared testimony evaluating an innovative Canadian stranded cost recovery procedure involving the auctioning of the output of the province's electric generation plants instead of the plants themselves. The evaluation required the analysis of the terms and conditions of the long-term contracts specifying the revenue requirements of the plants for their entire forecasted remaining economic life and required an estimate of the cost of capital for the plant owners under this new stranded cost recovery concept.

- Dr. Vilbert served as the neutral arbitrator for the valuation of a petroleum products tanker. The valuation required analysis of the Jones Act tanker market and the supply and demand balance of the available U.S. constructed tanker fleet.

PRESENTATIONS

"Utility Distribution Cost of Capital," *EEI Electric Rates Advanced Course*, Bloomington, IN, 2002, 2003.

"Issues for Cost of Capital Estimation," with Bente Villadsen, *Edison Electric Institute Cost of Capital Conference*, Chicago, IL, February 2004.

"Not Your Father's Rate of Return Methodology," *Utility Commissioners/Wall Street Dialogue*, NY, May 2004.

"Current Issues in Cost of Capital," *EEI Electric Rates Advanced Course*, Madison, WI, July 2004.

"Cost of Capital Estimation: Issues and Answers," *MidAmerican Regulatory Finance Conference*, Des Moines, IA, April 7, 2005.

"Cost of Capital - Explaining to the Commission - Different ROEs for Different Parts of the Business," *EEI Economic Regulation & Competition Analysts Meeting*, May 2, 2005.

"Current Issues in Cost of Capital," with Bente Villadsen, *EEI Electric Rates Advanced Course*, Madison, WI, 2005.

"Current Issues in Estimating the Cost of Capital," *EEI Electric Rates Advanced Course*, Madison, WI, 2006.

"Revisiting the Development of Proxy Groups and Relative Risk Analysis," Society of Utility and Regulatory Financial Analysts: 39th Financial Forum, April 2007.

ARTICLES

"Flaws in the Proposed IRS Rule to Reinstate Amortization of Deferred Tax Balances Associated with Generation Assets Reorganized in Industry Restructuring," by Frank C. Graves and Michael J. Vilbert, white paper for *Edison Electric Institute* (EEI) to the IRS, July 25, 2003.

"The Effect of Debt on the Cost of Equity in a Regulatory Setting," by A. Lawrence Kolbe, Michael J. Vilbert, Bente Villadsen and The Brattle Group, *Edison Electric Institute*, April 2005.

"Measuring Return on Equity Correctly: Why current estimation models set allowed ROE too low," by A. Lawrence Kolbe, Michael J. Vilbert and Bente Villadsen, *Public Utilities Fortnightly*, August 2005.

"Understanding Debt Imputation Issues," by Michael J. Vilbert, Bente Villadsen and Joseph B. Wharton, *Edison Electric Institute*, forthcoming May 2007.

TESTIMONY

Direct and rebuttal testimony before the Alberta Energy and Utilities Board on behalf of TransAlta Utilities Corporation in the matter of an application for approval of its 1999 and 2000 generation tariff, transmission tariff, and distribution revenue requirement, October 1998.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Central Maine Power in Docket No. ER00-98[illegible]-000, December 1999.

Direct testimony before the Alberta Energy and Utilities Board on behalf of TransAlta Utilities Corporation for approval of its 2001 transmission tariff, May 2000.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Mississippi River Transmission Corporation in Docket No. RP01-292-000, March 2001.

Written evidence, rebuttal, reply and further reply before the National Energy Board in the matter of an application by TransCanada PipeLines Limited for orders pursuant to Part I and Part IV of the *National Energy Board Act*, Order AO-1-RH-4-2001, May 2001, Nov. 2001, Feb. 2002.

Written evidence before the Public Utility Board on behalf of Newfoundland & Labrador Hydro - Rate Hearings, October 2001.

Direct testimony (with Bill Lindsay) before the Federal Energy Regulatory Commission on behalf of DTE East China, LLC in Docket No. ER02-1599-000, April 2002.

Direct and rebuttal reports before the Arbitration Panel in the arbitration of stranded costs for the City of Casselberry, FL, Case No. 00-CA-1107-16-L, July 2002.

Direct reports before the Arbitration Board for Petroleum products trade in the Arbitration of the Military Sealift Command vs. Household Commercial Financial Services, fair value of sale of the Darnell, October 2002.

Direct testimony and hearing before the Arbitration Panel in the arbitration of stranded costs for the City of Winter Park, FL, In the Circuit Court of the Ninth Judicial Circuit in and for Orange County, FL, Case No. C1-01-4558-39, December 2002.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Florida Power Corporation, dba Progress Energy Florida, Inc. in Docket No. SC03-___-000, March 2003.

Direct report before the Arbitration Panel in the arbitration of stranded costs for the Town of Belleair, FL, Case No. 000-64[illegible]7-C1-007, April 2003.

Direct and rebuttal reports before the Alberta Energy and Utilities Board in the matter of the Alberta Energy and Utilities Board Act, R.S.A. 2000, c. A-17, and the Regulations under it; in the matter of the Gas Utilities Act, R.S.A. 2000, c. G-5, and the Regulations under it; in the matter of the Public utilities Board Act, R.S.A. 2000, c. P-45, as amended, and the Regulations under it; and in the matter of Alberta Energy and Utilities Generic Cost of Capital Hearing, Proceeding No. 1271597, July 2003, November 2003.

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and 9 Generating Plants Operating Under an Reliability Must Run Contract, August 2006 and September 2006.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER07-46-000, on behalf of Northwestern Corporation on the Cost of Capital for Transmission Assets, October 2006.

Direct and rebuttal testimony before the Tennessee Regulatory Authority, Case No. 06-00290, on behalf of Tennessee American Water Company, on the Cost of Capital, November, 2006 and April 2007.

APPENDIX B

SELECTING THE GAS LDC SAMPLE AND USE OF MARKET VALUES

I. SAMPLE SELECTION AND THE SAMPLE'S CHARACTERISTICS

Q1. How do you select the U.S. gas LDC sample?

A1. To select this sample, I started with the universe of publicly traded natural gas distribution utilities covered by *Value Line Investment Survey Plus*. This resulted in an initial group of 23 companies, to which I added Vectren Corporation because it is often viewed as a natural gas LDC. Vectren is involved in both gas and electric distribution activities, but more of its regulated assets are invested in the gas distribution operations.[1] This company is also covered by *Value Line*, but is classified as an Electric Utility due to its regulated electric operations.[2] I then eliminated companies by applying additional selection criteria designed to remove companies with unique circumstances which may bias the cost of capital estimates. The final sample consists of nine gas LDCs, from which I also consider a sub-sample of four companies with the fewest reliability concerns. Table No. MJV-2 reports the estimated share of total assets for each company devoted to regulated activities in 2006.

Q2. What are the other selection criteria you applied?

A2. Companies were first eliminated if their operating regions were outside of the continental USA. I then applied my standard selection criteria to narrow the sample to those companies likely to have reliable cost of equity estimates. Specifically, I eliminated all companies whose S&P bond rating as reported by Bloomberg was not investment grade, i.e., less than BBB-. To guard against measurement bias caused by "thin trading," I also restricted the sample to companies with total operating revenues greater than $300 million (USD) in 2006 as reported by Bloomberg.[3] Companies that had a large merger

[1] Vectren Utility Holdings, Inc.'s 2006 10K reveals that about 57 percent of its assets are regulated natural gas distribution assets and 37 percent are regulated electric assets. Because it has a substantial amount of regulated electric activity, I exclude it from the sub-sample of companies I consider to be the most representative of the natural gas distribution line of business and to be most free of characteristics that may bias cost of equity estimates.

[2] The 24 companies are from *Value Line Investment Survey Plus*, reviewed March 9, 2007.

[3] Data was reviewed during the first week of April 2007.

during the period January 2004 to April 2007 (i.e., just over the past three years) were also generally removed from the sample, although two companies which would otherwise not survive the process were included since their primary merger activity occurred in 2004. These two companies were Atmos Energy and AGL Resources, and they were subsequently excluded from a sub-sample of *cleanest* companies I also considered as part of my analysis. The screen for merger activity was primarily done by scanning each company's news history on Bloomberg and a search of company web pages.[4]

Finally, I required that the companies have historical data available from Bloomberg for the relevant period and had no dividend cuts or restatement of financial statements in the past five years, since the latter can be signs of financial distress.

Q3. Please elaborate on how companies were eliminated from your sample?

A3. Six companies were immediately eliminated due to a lack of long-term earnings per share ("EPS") growth rate estimates from Bloomberg. Of these, five also experienced dividend cuts and had either no bond rating or were rated less than BBB-. From the remaining companies, three were not rated and one had a rating of B+. Keyspan Corp. was eliminated for high levels of merger and acquisition activity ("M&A") and recent dividend cuts. UGI Corp. was removed for high levels of merger activity, and because it primarily sells propane which is not regulated. Southern Union was eliminated for its unusually high levels of M&A activity. Nicor Inc. was eliminated from the sample because it restated earnings for 1999-2001 and because it settled regulatory compliance issues with the Federal Energy Regulatory Commission ("FERC") in 2003.[5] Finally, New Jersey Resources was eliminated because of a very high percentage of revenues from other comprehensive income.

[4] Company web pages were searched in December 2003 for merger and acquisition activities during the 2001-2003 period, in July 2006 for merger and acquisition activities during the period 2004 through July 2006, and in December 2006 for the period August through December 2006.

[5] Nicor announced on October 29, 2002 that its earnings for 1999-2001 would be revised downwards by $15-35 million. March 4, 2003, Nicor released its restated earnings for 1999-2001 along with 2002 earnings.

Q4. Are there any issues with the remaining companies in your sample?

A4. Perhaps. Several companies in the sample engage in natural gas marketing activities (see Table 2 in the MJV Direct Testimony).[6] Given the turmoil of the energy trading markets, the companies' cost of capital estimates may be more volatile than those of more stable companies. Although still investment grade, Southwest Gas is at the bottom of the scale of investment grade credit ratings and has a relatively low average equity thickness over the past five years – 40.1 percent compared to 61.8 percent for the remaining companies. Closer investigation shows that Southwest Gas's capital structure has been shifting rapidly towards equity over the last five years, with a level of about 50 percent over the most recent two years. These factors suggest a potential reliability problem for estimates of this company's cost of capital at this time. The Laclede Group's market cap of $688 million is a bit smaller than the average of the group, but with revenues of more than $1.5 billion, it is still a large company. In 2006, Piedmont Natural Gas restated some portions of its 2003-2005 financial reports. Although this can generally lead to less reliable estimates from the equity estimation models, the restatements were not caused by fraudulent activities but were due to an accounting error in the classification of hedging amounts. This type of reclassification would not be expected to change the value of the firm and prices did not show any erratic behavior in the period surrounding the announcement of this reclassification. A potential concern for the DCF estimates is that the industry has experienced a sustained level of merger and acquisition activity over the last five years that has implication for the stability of the industry necessary for the reliable application of the DCF model. Due to the concerns with the sample, I also report the results for a sub-sample of the gas LDC sample that consists of companies with no material data issues.

[6] The percentages of regulated assets calculated for the samples are only estimates due to data reporting limitations.

Q5. Please compare the relative risk of the sample with respect to NorthWestern's SD operations.

A5. The sample consists of nine gas LDCs with generally similar risk characteristics to those of NorthWestern's SD gas operations (see Table 3 in the MJV Direct Testimony). Like NorthWestern's SD operations, they all have fuel-cost adjustment clauses which significantly reduce exposure to this risk. In their 10-Ks, all sample companies report that they engage in hedging activities to further reduce this risk. In addition, seven of the nine companies have weather adjustment clauses, but NorthWestern's SD operations does not have such a provision. The sample evidences a high degree of regulated activities, with the estimated share of regulated assets averaging about 87 percent across the companies in 2006 (see Table No. MJV-2). For the sub-sample, the percentage of regulated assets is even higher at 96 percent. As mentioned earlier in my direct testimony, Vectren Corp. earns a significant amount of its income from regulated electric activities despite being very active in the regulated gas LDC line of business. As such, it may be considered to be of slightly different business risk than the rest of the sample.[7]

Q6. What companies are in the sub-sample?

A6. The sub-sample consists of Laclede Group, Northwest Natural Gas, Piedmont Natural Gas and WGL Holdings. Vectren was eliminated because of its mix of both regulated natural gas and regulated electric operations. Atmos Energy and AGL Resources were eliminated because of M&A activities in 2004, and South Jersey Industries was eliminated from the sub-sample because of the accounting restatements.

Q7. What do you conclude from the comparison of the sample companies to NorthWestern's SD operations?

A7. I believe that the sample of regulated gas utility companies has business risk that is comparable on average to that of NorthWestern's SD gas operations.

[7] Vectron was excluded from the sub-sample for this reason.

II. Market Value Capital Structure, Costs of Debt & Costs of Preferred Equity

Q8. What capital structure information do you require?

A8. For reasons discussed in my written evidence and explained in detail in Appendix E, explicit evaluation of the market-value capital structures of the sample companies versus the capital structure used for rate making is vital for a correct interpretation of the market evidence. This requires estimates of the market values of common and preferred equity and debt, and the current market costs of preferred equity and debt.

Q9. How do you calculate the market-value capital structures of the sample companies?

A9. I estimate the capital structure for each company by estimating the market values of common equity, preferred equity and debt from publicly available data. The calculations are in Panels A to I of Table No. MJV-3.

The market value of equity is straightforward: the price per share times the number of shares outstanding. The market value of preferred is set equal to its book value because the portion of the capital structure financed with preferred equity is generally small. The market value of debt is estimated at the book value of debt reported by Bloomberg plus or minus the difference in the estimated fair (market) value and book value of long-term debt as reported in the companies' 10-Ks or annual reports.[8]

For purposes of assessing financial risk to common shareholders, I add an adjustment for short-term debt to the debt portion of the capital structure. This adjustment is used only for those companies whose short-term (current) liabilities exceed their short-term (current) assets. I add an amount equal to the minimum of the difference between short-term liabilities and short-term assets or the amount of short-term debt. The reason for this adjustment is to recognize that when current liabilities exceed current

[8] See Panels A through I in Table No. MJV-3 for details. The adjustment relies on the difference between the companies' self-reported fair value of long-term debt and the carrying value of the same line items. This information was obtained from the sample companies' annual reports.

assets, a portion of the companies long-term assets are being financed, in effect, by short-term debt.

The market value capital structure is calculated to be consistent with the time period over which the cost of capital is estimated for the sample. The capital structure is determined over the historical period over which the relevant risk positioning parameters were determined and as of the date analysts provide forward looking growth forecasts. Therefore, Table No. MJV-3 reports the market value capital structure at year end for the years ending 2002 - 2006. The output of these tables is the market equity-to-value, debt-to-value, and preferred equity-to-value ratios. The overall cost of capital calculation for the gas LDC risk positioning estimates rely on the average of the market value capital structure computed for the years 2002 through 2006 as shown in Table No. MJV-4. The results in columns [1]-[3] are used in the DCF model calculations, while columns [4]-[6] are for the risk positioning models.

Q10. How do you estimate the current market cost of preferred equity?

A10. For companies with preferred equity, the cost of preferred equity for each company was set equal to the yield on an index of preferred stock as reported in the Mergent Bond Record corresponding to the S&P rating of that company's debt. The yields from Mergent were as of March 10, 2007. In general, the average amount of preferred equity in the sample companies' capital structures is very small and frequently zero. No company has more than two percent on average.[9]

Q11. How do you estimate the current market cost of debt?

A11. The market cost of debt for each company in the DCF analysis is the current yield reported by Bloomberg for a public utility company bond corresponding to the sample company's current debt rating as classified by S&P. The risk positioning analysis, on the other hand, uses the current yield of a utility bond that corresponds to the five-year average debt rating of each company so as to match consistently the horizon of

[9] NorthWestern itself has no preferred securities in its regulatory capital structure.

information used by *Value Line* to estimate company betas. The current S&P debt ratings were obtained from Bloomberg.

Bloomberg reports that as of March 27, 2007, the average yield on A-rated Public Utility bonds was 5.85 percent, and 6.11 percent on average for BBB-rated Public Utility bonds.[10] (See Panel C of Workpaper #1 to Table No. MJV-11 for the yields on utility bonds and preferred stock by credit rating.) Calculation of the after-tax cost of debt uses the current federal corporate marginal tax rate of 35 percent, since South Dakota does not currently collect corporate level taxes.

[10] All companies in the U.S. gas LDC samples are either BBB or A rated except WGL Holdings which is AA-rated. The yield on AA-rated utility bonds is calculated as the yield on A-rated utility bonds minus ½ times the spread between the yield on BBB and A rated utility bonds.