Exhibit No.:	
Issue:	*Rate of Return*
Witness:	*David C. Parcell*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*ER-2007-0004*
Date Testimony Prepared:	*February 20, 2007*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICE DIVISION

REBUTTAL TESTIMONY

OF

DAVID C. PARCELL

AQUILA, INC.
d/b/a AQUILA NETWORKS-MPS-ELECTRIC AND
AQUILA NETWORKS-L&P-ELECTRIC

CASE NO. ER-2007-0004

Jefferson City, Missouri
February 20, 2007

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P, for authority to file tariffs increasing electric rates for the service provided to customers in the Aquila Networks-MPS and Aquila Networks-L&P service area.	))))))	Case No. ER-2007-0004

AFFIDAVIT OF DAVID C. PARCELL

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David C. Parcell, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, consisting of _____ pages to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

David C. Parcell

Subscribed and sworn to before me this 12th day of February 2007.

Notary Public

My Commission Expires:
3/31/10

SUSAN W. CREW
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA

REBUTTAL TESTIMONY

OF

DAVID C. PARCELL

ON BEHALF OF

MISSOURI PUBLIC SERVICE COMMISSION STAFF

AQUILA, INC.

d/b/a AQUILA NETWORKS MPS-ELECTRIC

AND AQUILA NETWORKS L&P-ELECTRIC

CASE NO. ER-2007-0004

REBUTTAL TESTIMONY

OF

DAVID C. PARCELL

ON BEHALF OF

MISSOURI PUBLIC SERVICE COMMISSION STAFF

AQUILA, INC.

d/b/a AQUILA NETWORKS MPS-ELECTRIC

AND AQUILA NETWORKS L&P-ELECTRIC

CASE NO. ER-2007-0004

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

A. My name is David C. Parcell. I am a consulting economist and Executive Vice President of Technical Associates, Inc. My address is 1051 East Cary Street, Suite 601, Richmond, Virginia 23219.

Q. ARE YOU THE SAME DAVID C. PARCELL WHO FILED DIRECT TESTIMONY ON BEHALF OF THE COMMISSION STAFF EARLIER IN THIS PROCEEDING?

A. Yes, I am.

EXECUTIVE SUMMARY

Q. WHAT IS THE PURPOSE OF THE TESTIMONY YOU ARE PRESENTLY PROV IDING?

A. The purpose of this testimony is to provide Rebuttal testimony to the Direct testimony of Samuel C. Hadaway, who has provided cost of capital testimony on behalf of Aquila, Inc., d/b/a Aquila Networks MPS (MPS) and Aquila Networks L&P (L&P).

Q. WHAT IS YOUR UNDERSTANDING OF DR. HADAWAY'S COST OF CAPITAL RECOMMENDATIONS IN THIS PROCEEDING?

A. Dr. Hadaway is recommending an 11.50 percent cost of equity for both MPS and L&P. He is also supporting the proposed hypothetical capital structure of the company.

Q. PLEASE OUTLINE THE PARTS OF DR. HADAWAY'S TESTIMONY THAT YOU ARE RESPONDING TO IN THIS CURRENT TESTIMONY.

A. I am responding to, and providing Rebuttal testimony on the following general areas of Dr. Hadaway's testimony.

- The proper standards for establishing a ratemaking capital structure for Aquila;
- The Discounted Cash Flow (DCF) analyses he performed; and,
- The risk premium analysis he performed.

CAPITAL STRUCTURE

Q. WHAT IS YOUR UNDERSTANDING OF DR. HADAWAY'S CAPITAL STRUCTURE RECOMMENDATIONS FOR AQUILA?

A. Dr. Hadaway recommends, on pages 9-16, the following capital structure ratios for both MPS and L&P:

Capital Components	Ratio
Debt	52.5%
Common Equity	47.5%

He acknowledges (page 9, lines 13-16) that this is a "hypothetical" capital structure that, at the time his testimony was prepared, was not supported by Aquila's actual capital structure, but rather was based on the ". . . 2005 year-end capital structure percentages of the investment grade 24-company reference group used to estimate ROE . . ." in his testimony. He also notes (page 9, lines 18-21) that this capital structure was derived by Aquila's "internal capital assignment process."

Q. DO YOU AGREE WITH THE USE OF A HYPOTHETICAL CAPITAL STRUCTURE FOR AQUILA?

A. No, I do not. As I indicated in my Direct testimony, Aquila has its own distinct capital structure that includes MPS and L&P. As a result, the proper capital structure for use is the actual capital structure of the Company, as long as this capital structure does not represent an inefficient or otherwise improper capital structure.

Q. ASIDE FROM YOUR DISAGREEMENTS WITH THE MANNER IN WHICH DR. HADAWAY'S CAPITAL STRUCTURE WAS DERIVED, DO YOU DISAGREE WITH THE ACTUAL CAPITAL STRUCTURE RATIOS PROPOSED BY AQUILA IN THIS PROCEEDING?

A. No, I do not. As I indicated in my Direct testimony, I propose use of Aquila's actual September 30, 2006, capital structure. This capital structure, however, is very similar to the capital structure proposed by the Company. As I noted in my Direct testimony, the primary reason for the change in Aquila's capital structure is the 2006 sale of certain regulatory and other assets by Aquila, the proceeds of which were used to retire a portion of the Company's debt.

I wish to emphasize that I am not endorsing Aquila's "internal capital assignment process" in this proceeding.

DISCOUNTED CASH FLOW METHODOLOGY

Q. PLEASE SUMMARIZE DR. HADAWAY'S RETURN ON EQUITY RECOMMENDATION.

A. Dr. Hadaway is recommending an 11.5 percent return on equity for Aquila. This 11.5 percent recommendation is primarily based on his DCF results (11.25 percent), which he "tests" by the risk premium approach (page 4, lines 7-8), and then adds 0.25 percent for his perception of Aquila's risk (page 6, lines 15-17). These returns and relationships are also summarized on Dr. Hadaway's Schedule SCH-11.

Q. WHAT IS YOUR UNDERSTANDING OF DR. HADAWAY'S DCF METHODOLOGIES AND CONCLUSIONS?

A. Dr. Hadaway applies three versions of the constant growth DCF model. First, he performs what he describes as the "traditional Constant Growth version" of the DCF model. In this, he uses stock prices for the three-month period March-May, 2006, along with "next year's" dividend levels, to get his dividend yield component (4.82% average and 4.74% median). He combines this yield with the average of four growth rates – the "projected" Retention Growth (BR) (i.e., retention rate times return on equity, a measure of expected growth due to the retention of earnings), two measures of earnings per share (EPS) growth and growth in gross domestic product (GDP). His results from this DCF model are 10.0 percent to 10.1 percent (Schedule SCH 9, page 2). It is apparent, however, that Dr. Hadaway does not give any weight to his "traditional" DCF results, primarily because the 10.0 percent to 10.1 percent results are "not consistent with consensus economic projections for higher

interest rates" and because of his perception that this level ". . . is 100 basis points or more below current risk premium checks of reasonableness."

Q. DO YOU HAVE ANY COMMENTS ON DR. HADAWAY'S ASSERTION ABOUT "CONSENSUS ECONOMIC PROJECTIONS FOR HIGHER INTEREST RATES?"

A. Yes, I do. Dr. Hadaway apparently believed, when his testimony was being prepared in the June 2006 time frame, that long-term interest rates were expected to increase. In fact, Dr. Hadaway stated (page 35, lines 17-19) his belief that interest rates would increase over the next twelve months. He also indicated his belief (page 4, lines 10-11) that long-term interest rates ". . . will increase by an additional 40 to 60 basis points during 2007." Apparently, his return on equity recommendation was significantly based on this assumption.

Q. WHAT HAS BEEN THE ACTUAL TREND IN LONG-TERM INTEREST RATES SINCE DR. HADAWAY PREDICTED AN INCREASE IN THESE RATES?

A. Long-term interest rates have declined since Dr. Hadaway made this prediction. Consider, for example, the monthly averages of public utility bonds since May of 2006 (i.e., the latest interest rate levels reported on Dr. Hadaway's Schedule SCH-8):

Month	A-Rated	Baa-Rated
May, 2006	6.42%	6.59%
June, 2006	6.40%	6.61%
July, 2006	6.37%	6.61%
August, 2006	6.20%	6.43%
September, 2006	6.00%	6.26%
October, 2006	5.98%	6.24%
November, 2006	5.80%	6.04%
December, 2006	5.81%	6.05%

This indicates that long-term public utility bond yields have declined by some 50-60 basis points since Dr. Hadaway made his prediction of increasing interest rates. This also demonstrates that his reasoning for not considering the "traditional" DCF model is not legitimate. In addition, as I will indicate in a later part of my testimony, this interest rate decline questions Dr. Hadaway's use of projected interest rates in his risk premium analyses.

Q. DOES DR. HADAWAY ALSO STATE THAT HE DOES NOT CONSIDER THE "TRADITIONAL" DCF RESULTS BECAUSE THEY ARE LESS THAN HIS PERCEPTION OF RISK PREMIUM RESULTS?

A. Yes, he does. However, as I will point out in a later section of my Rebuttal testimony, Dr. Hadaway's risk premium analysis also produces excessive results. As a result, this also is not a legitimate reason to disregard the "traditional" DCF results.

Q. DO YOU AGREE WITH DR. HADAWAY'S "TRADITIONAL" DCF MODEL INPUTS AND CONCLUSIONS?

A. No, I do not. The "GDP Growth" input in Dr. Hadaway's DCF analyses, as shown on Schedule SCH-9, is 6.60 percent.

Q. WHAT IS THE SOURCE OF THIS 6.60 PERCENT GDP FIGURE?

A. According to Dr. Hadaway's Schedule SCH-9, page 5, this 6.60 percent GDP growth is the "Average of GDP Growth During the Last 10 year, 20 year, 30 year, 40 year, 50 year, and 57 year periods."

Q. IS THERE ANYTHING INCONSISTENT WITH DR. HADAWAY'S USE OF HISTORIC GDP GROWTH IN HIS DCF ANALYSES?

A. Yes, there is. All of Dr. Hadaway's other growth rates in his "traditional" DCF analyses (i.e., BR growth and EPS growth) reflect projections of future growth. On the other

hand, Dr. Hadaway only uses historic rates in his GDP growth input. Apparently, Dr. Hadaway believes it is not proper to use historic growth rates of financial indicators (i.e., BR growth and EPS growth), but it is proper to use only historic growth rates in his GDP input.

Q. ARE YOU AWARE OF ANY PROJECTIONS OF GDP GROWTH?

A. Yes, I am. There are at least three sources of projections of GDP growth. These are:

- Social Security Administration (SSA),
- Energy Information Administration (EIA), and
- Global Insight.

The first two organizations cited above are U.S. government-sponsored organizations, while the third is a private forecasting organization.

Q. WHAT ARE THE PROJECTIONS OF GDP GROWTH BY THESE THREE ORGANIZATIONS?

A. As of Spring, 2006 – the most recent period available at the time Dr. Hadaway was preparing his testimony – the projections of GDP growth by these three organizations were:

SSA – 2006-2080 – 4.44% (see Schedule 1)
EIA – 2006-2030 – 5.41% (see Schedule 2)
Global Insight – 2011-2036 – 4.89% (see Schedule 3)

Each of these projections are at least 100 basis points below the 6.60 percent GDP figure used by Dr. Hadaway.

Q. WOULD IT BE MORE APPROPRIATE TO USE HISTORIC OR PROJECTED GROWTH RATES OF GDP IN A DCF ANALYSIS SUCH AS THAT BEING USED BY DR. HADAWAY?

A. It would be appropriate to use projections of GDP growth, since Dr. Hadaway is using projections of the other growth rate indicators.

Q. IS IT REASONABLE TO BELIEVE THAT INVESTORS WOULD EXPECT GDP GROWTH TO BE 6.60 PERCENT, IN SPITE OF MUCH LOWER PROJECTIONS BY THE U.S. GOVERNMENT AND PRIVATE FORECASTING ORGANIZATIONS?

A. No, it is not.

Q. ARE YOU AWARE OF ANY UTILITY REGULATORY AGENCIES THAT UTILIZE GDP GROWTH AS A COMPONENT IN A DCF ANALYSIS?

A. The only regulatory agency that I am aware that directly uses GDP growth in a DCF context is the Federal Energy Regulatory Commission (FERC). The FERC regularly uses a two-stage DCF model in establishing the cost of equity for interstate natural gas pipelines. The first stage of the FERC two-stage DCF model is 5-year EPS forecasts, while the second stage is GDP projections for 6-25+ years into the future. My Schedule 3 indicates a FERC Staff analysis of GDP growth made at about the same time Dr. Hadaway was preparing his testimony.

Q. HOW MUCH WEIGHT DOES FERC GIVE TO THE GDP GROWTH RATE IN ITS TWO-STAGE DCF MODEL?

A. 33 percent.

Q. ARE YOU AWARE OF ANY REGULATORY AGENCIES THAT USE HISTORIC GDP GROWTH IN A DCF CONTEXT?

A. No, I am not.

Q. DO YOU HAVE ANY CONCLUDING COMMENTS ABOUT DR. HADAWAY'S FIRST DCF MODEL – THE "TRADITIONAL" DCF?

A. Yes, I do. Dr. Hadaway finds a 10.0 percent to 10.1 percent cost of equity result using this model. His two reasons for not considering these results are not valid. In addition, his 10.0 percent to 10.1 percent findings are excessive since his 6.60 percent GDP component is overstated by at least 100 basis points.

Q. WHAT WOULD BE THE IMPACT OF USING A PROJECTED GDP GROWTH RATE IN DR. HADAWAY'S "TRADITIONAL" DCF ANALYSIS?

A. As is shown below, the impact would be substantial.

Dividend Yield		4.82% (average)	
Growth Rates:			
	BR	3.92%	
	Zacks	5.22%	
	Value Line	5.21%	
	GDP	4.96%	(see Schedule 3)
Average		4.83%	
"Traditional" DCF		9.65%	

Q. PLEASE NOW TURN TO DR. HADAWAY'S SECOND DCF ANALYSIS.

A. Dr. Hadaway's second DCF model relies exclusively on the 6.60 percent GDP projections as the DCF growth rate. As such, it also results in an over-statement of the DCF cost of equity than does his "traditional" DCF model.

Q. WHAT IS THE IMPACT OF THE GDP GROWTH ON DR. HADAWAY'S SECOND DCF ANALYSIS?

A. As is shown below, the impact is even more substantial than was the case on his first DCF test:

Yield	4.82%
GDP	4.96% (see Schedule 3)
	9.78%

Q. PLEASE DESCRIBE DR. HADAWAY'S THIRD DCF MODEL.

A. Dr. Hadaway's third DCF analysis is a "two-stage growth" model that uses five years of "cash flows" (i.e., dividends) plus years 5-150 dividend growth (as measured by GDP growth at 6.60 percent). This DCF model employs a 150 year "internal rate of return" as the DCF result, which Dr. Hadaway finds to be 11.0 percent.

Q. IS THERE ANYTHING IMPROPER ABOUT THIS DCF MODEL AND RESULTS?

A. Yes, there are two significant problems with this DCF model. First, by estimating growth rates of up to 150 years into the future, this model incorporates questionable assumptions about future growth, not to mention measurement problems going so far into the future.

Second, the primary growth rate in this analysis, and the growth rate that is used in 145 of the 150 years in the "internal rate of return" model, is the 6.60 percent GDP growth discussed above. In other words, Dr. Hadaway's 150 year projected DCF model uses only historic figures to estimate 145 years of data, notwithstanding the existence of GDP projections by both U.S. government and private forecasting organizations. Thus, this DCF model suffers from the same significant flaw that causes Dr. Hadaway's first and second DCF models to over-state the cost of equity.

Q. HOW MUCH WEIGHT IS GIVEN TO THE GDP GROWTH RATE IN DR. HADAWAY'S TWO-STAGE DCF ANALYSIS?

A. Dr. Hadaway gives the GDP growth rate approximately 97 percent weight on an unweighted basis (i.e., each year given equal weight). Even allowing for the discounted nature of his internal rate of return process, the weight given to GDP growth represents the vast majority of his DCF growth.

Q. DO YOU HAVE ANY CONCLUDING COMMENTS ABOUT DR. HADAWAY'S DCF CALCULATIONS?

A. Yes, I do. Each of Dr. Hadaway's three DCF models over state the cost of equity due to the use in each model of a 6.60 percent GDP growth rate. This growth rate is based exclusively on historic growth in GDP, in spite of the fact that both U.S. government and private forecasting organizations provide long-term forecasts of GDP growth. In addition, Dr. Hadaway's exclusive use of historic GDP growth is inconsistent with his exclusive avoidance of other historic financial data in his DCF analyses.

RISK PREMIUM ANALYSIS

Q. PLEASE DESCRIBE DR. HADAWAY'S RISK PREMIUM ANALYSIS.

A. As noted above, Dr. Hadaway appears to use his risk premium analysis as a "check" on his DCF results. Dr. Hadaway's primary risk premium test is a comparison of public utility bond yields and "authorized electric returns" over the period 1980-2005. His Schedule SCH-10 indicates an average differential of 3.09 percent over this entire period. He then performs a regression analysis to reflect an "inverse relationship between risk premiums and interest rate levels." His conclusion is a risk premium of 4.20 percent (Schedule SCM-10, page 1), notwithstanding his acknowledgement on page 43, lines 13-15, that ". . .

[i]n most recent years, with lower interest rates, allowed regulatory risk premiums have generally been the three- to four-percent range."

Q. WHAT ARE YOUR COMMENTS ABOUT DR. HADAWAY'S RISK PREMIUM METHODOLOGY AND CONCLUSIONS?

A. I note, first of all, that Dr. Hadaway applies his 4.20 percent risk premium to his "projected triple-B bond yield," which he derives (Schedule SCH-10, page 1) by adding 125 basis points to projected long-term Treasury bonds. I have previously shown that, since Dr. Hadaway prepared his testimony in the first half of 2006, interest rates have actually declined. For example, Dr. Hadaway projected a triple-B bond yield of 6.85 percent in his risk premium analysis. Current yields on Triple-B utility bonds are only about 6.0 percent. This alone, indicates that Dr. Hadaway's risk premium results are overstated by some 85 basis points.

In addition, it should be noted that his risk premiums were derived using actual bond yields, not projected bond yields. This further questions his use of projected interest rates.

Finally, it is worth noting that the annual cost rate differences between authorized electric returns and public utility bonds are not necessarily reliable indicators of investor-required risk premiums. This is true for three reasons. First, authorized returns are simply averaged over all the available rate case decisions during a calendar year. That means that any capital market data that the various regulatory bodies considered was drawn from time periods prior to the decision rendered. In some cases, that period of time between the hearing and the decision can be substantial. In any event, there would be a significant differential among the various authorized returns.

Second, the relative risk of the utility for which the equity return was determined is not a factor in Dr. Hadaway's analysis. Third, while the inclusion of an outlier may not be problematic in years in which there are many rate case decisions, this would not be the case in years in which the number of decisions is small, as in recent years.

Q. WHAT WOULD BE THE IMPACT ON DR. HADAWAY'S RISK PREMIUM ANALYSES USING CURRENT LEVELS OF TRIPLE-B INTEREST RATES?

A. The result would be as follows:

Triple-B Yields	6.0%
Risk Premium	4.2%
Total	10.2%

In addition, if we more properly used the "recent years" premium of 3 percent to 4 percent, the result would be 9.0 percent to 10.0 percent.

Q. ASIDE FROM YOUR ABOVE-STATED CONCERNS ABOUT DR. HADAWAY'S RISK PREMIUM ANALYSIS, DO YOU HAVE ANY ADDITIONAL COMMENTS CONCERNING THE USE OF AWARDED PUBLIC UTILITY RETURNS?

A. Yes, I do. Dr. Hadaway's risk premium analysis, as shown on his Schedule SCH-10, ends in 2005. I note that this schedule indicates a declining trend in recent years:

2002	11.16%
2003	10.97%
2004	10.75%
2005	10.54%

When this is updated for the first three quarters of 2006, a further decline is evident:

1st Qtr	10.38%
2nd Qtr	10.69%
3rd Qtr	10.06%
4th Qtr	10.39%
Average	10.36%

This also has implications for Dr. Hadaway's risk premium analysis. When the 10.36 percent average authorized returns on equity for 2006 is compared to the yields on Triple-B rated utility bonds for the year 2006 (i.e., 6.32 percent), the 2006 "risk premium" is 4.04 percent (i.e., 10.36 percent less 6.32 percent). Combining this with the current yield on Triple-B public utility bonds (i.e., 6.0 percent) results in a "risk premium" return on equity of 10.0 percent.

Q. DO YOU HAVE ANY PERSONAL EXPERIENCE WITH AUTHORIZED RETURNS OF EQUITY FOR PUBLIC UTILITIES IN CASES THAT HAVE BEEN DECIDED IN 2006 AND 2007?

A. Yes, I do. I have been personally involved in the following four proceedings which were both heard and decided in 2006 and 2007:

Company	State	Docket	ROE
Delmarva P&L	Delaware	05-304	10.0%
Virginia Natural Gas	Virginia	2005-00062	10.0%
Sierra Pacific Power	Nevada	05-100005	10.6%
PPL Gas	Pennsylvania	R-00061398	10.4%

It is noteworthy that none of these authorized returns even remotely approached the 11.5 percent recommended by Dr. Hadaway in this proceeding.

Q. DO YOU HAVE ANY CONCLUDING REMARKS ABOUT DR. HADAWAY'S REFERENCE TO AUTHORIZED RETURNS ON EQUITY?

A. Yes, I do. Dr. Hadaway attempts to use authorized returns on public utilities to develop his recommended return on equity. In reality, authorized returns are much closer to my recommended return on equity (9.0 percent to 10.25 percent) than to his recommended return on equity (11.50 percent).

Q. PLEASE COMMENT ON DR. HADAWAY'S OTHER RISK PREMIUM STUDIES.

A. On pages 44-45, Dr. Hadaway describes two "other risk premium studies." The first is derived as follows:

Ibbotson Risk Premium	
Prospective Triple-B yields	6.85%
Risk Premium	4.50%
Total	11.35%

Again, substituting the current 6.0 percent risk free rate produces a risk premium result of 10.4 percent.

It should be noted that this risk premium is derived using "long-term corporate bond" yields, not just Triple-B bond yields. Since Triple-B bonds are the lower-end of the investment grade spectrum, it follows that these bonds have higher yields than corporate bonds in general, and takes a lower risk premium.

Dr. Hadaway's second "other risk premium" study is a "Harris-Marston Risk Premium" analysis, which he does not appear to consider in his conclusions.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Exhibit___(DCP-2)
Schedule 1

Social Security Administration
Projections of Gross Domestic Product

Year	GDP Price Index	Real GDP	GDP
2006	2.2%	3.4%	5.6%
2007	1.9%	3.3%	5.2%
2008	2.2%	3.0%	5.2%
2009	2.4%	2.6%	5.0%
2010	2.4%	2.6%	5.0%
2011	2.4%	2.5%	4.9%
2012	2.4%	2.3%	4.7%
2013	2.4%	2.0%	4.4%
2014	2.4%	2.0%	4.4%
2015	2.4%	2.2%	4.6%
2016	2.4%	2.1%	4.5%
2017	2.4%	2.1%	4.5%
2018	2.4%	2.1%	4.5%
2019	2.4%	2.1%	4.5%
2020	2.4%	2.1%	4.5%
2021	2.4%	1.9%	4.3%
2022	2.4%	1.9%	4.3%
2023	2.4%	1.9%	4.3%
2024	2.4%	1.9%	4.3%
2025	2.4%	1.9%	4.3%
2026	2.4%	1.9%	4.3%
2027	2.4%	1.9%	4.3%
2028	2.4%	1.9%	4.3%
2029	2.4%	1.9%	4.3%
2030	2.4%	1.9%	4.3%
2031	2.4%	1.9%	4.3%
2032	2.4%	1.9%	4.3%
2033	2.4%	1.9%	4.3%
2034	2.4%	1.9%	4.3%
2035	2.4%	1.9%	4.3%
2036	2.4%	2.0%	4.4%
2037	2.4%	2.0%	4.4%
2038	2.4%	2.0%	4.4%
2039	2.4%	2.0%	4.4%
2040	2.4%	2.0%	4.4%
2041	2.4%	2.0%	4.4%
2042	2.4%	2.0%	4.4%
2043	2.4%	2.0%	4.4%
2044	2.4%	2.0%	4.4%
2045	2.4%	2.0%	4.4%
2046	2.4%	2.0%	4.4%
2047	2.4%	2.0%	4.4%
2048	2.4%	2.0%	4.4%
2049	2.4%	2.0%	4.4%
2050	2.4%	2.0%	4.4%
2051	2.4%	2.0%	4.4%
2052	2.4%	2.0%	4.4%
2053	2.4%	2.0%	4.4%
2054	2.4%	2.0%	4.4%
2055	2.4%	1.9%	4.3%
2056	2.4%	1.9%	4.3%
2057	2.4%	1.9%	4.3%
2058	2.4%	1.9%	4.3%
2059	2.4%	1.9%	4.3%
2060	2.4%	1.9%	4.3%
2061	2.4%	1.9%	4.3%
2062	2.4%	1.9%	4.3%
2063	2.4%	1.9%	4.3%
2064	2.4%	1.9%	4.3%
2065	2.4%	2.0%	4.4%
2066	2.4%	2.0%	4.4%
2067	2.4%	2.0%	4.4%
2068	2.4%	2.0%	4.4%
2069	2.4%	2.0%	4.4%
2070	2.4%	2.0%	4.4%
2071	2.4%	2.0%	4.4%
2072	2.4%	2.0%	4.4%
2073	2.4%	2.0%	4.4%
2074	2.4%	2.0%	4.4%
2075	2.4%	2.0%	4.4%
2076	2.4%	2.0%	4.4%
2077	2.4%	2.0%	4.4%
2078	2.4%	2.0%	4.4%
2079	2.4%	2.0%	4.4%
2080	2.4%	1.9%	4.3%
Average			4.44%

Source: 2006 OASDI Trustees Report, available on-line as www.ssa.gov/OACT/TR/TR06/V.

Schedule DCP 1

Exhibit___(DCP-2)
Schedule 2

Energy Information Administration
Projections of Gross Domestic Product

Year	GDP Price Index		Real GDP		GDP
2006	1.141		11513		
2007	1.161	1.75%	11875	3.14%	4.90%
2008	1.185	2.07%	12288	3.48%	5.55%
2009	1.209	2.03%	12671	3.12%	5.14%
2010	1.235	2.15%	13043	2.94%	5.09%
2011	1.264	2.35%	13417	2.87%	5.22%
2012	1.296	2.53%	13793	2.80%	5.33%
2013	1.330	2.62%	14191	2.89%	5.51%
2014	1.363	2.48%	14622	3.04%	5.52%
2015	1.398	2.57%	15082	3.15%	5.71%
2016	1.433	2.50%	15575	3.27%	5.77%
2017	1.471	2.65%	16092	3.32%	5.97%
2018	1.512	2.79%	16599	3.15%	5.94%
2019	1.554	2.78%	17064	2.80%	5.58%
2020	1.597	2.77%	17541	2.80%	5.56%
2021	1.640	2.69%	18021	2.74%	5.43%
2022	1.684	2.68%	18515	2.74%	5.42%
2023	1.729	2.67%	19026	2.76%	5.43%
2024	1.773	2.54%	19562	2.82%	5.36%
2025	1.818	2.54%	20123	2.87%	5.41%
2026	1.863	2.48%	20701	2.87%	5.35%
2027	1.909	2.47%	21286	2.83%	5.30%
2028	1.955	2.41%	21871	2.75%	5.16%
2029	2.000	2.30%	22482	2.79%	5.10%
2030	2.048	2.40%	23112	2.80%	5.20%
2006-2030 Average					5.41%

Source: Energy Information Administration, Annual Energy Outlook 2006.

Exhibit___(DCP-2)
Schedule 3

Note: This schedule reproduces two pages of the testimony of Federal Energy Regulatory Trial Staff Witness William M. Rappolt in F.E.R.C. Docket No. RP06-0072-000 (Northern Border Pipeline Company). The schedule reproduced indicates the F.E.R.C. methodology for estimating long-term growth in a discounted cash flow context for interstate natural gas pipelines. As this indicates, the F.E.R.C. calculates GDP growth from five-years into the future until some longer period into the future (i.e., 30 years for Global Insight, 24 years for EIA, and 50 years for SSA). The F.E.R.C. DCF methodology uses short-term growth (i.e., e-year EPS forecasts) with two-thirds weight and long-term growth with on-third weight.

EXHIBIT NO. S-37

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF ADMINISTRATIVE LITIGATION

NORTHERN BORDER PIPELINE COMPANY

DOCKET NO. RP06--0072 --000

PREPARED DIRECT AND ANSWERING TESTIMONY

OF

COMMISSION TRIAL STAFF WITNESS

WILLIAM M. RAPPOLT

May 31, 2006

WASHINGTON, D.C. 20426

Long-term U.S. Gross Domestic Product (GDP) Growth Estimates

Using Global Insight's 30-year forecast

Source	Year Beginning	Nominal GDP ($Billion)	Year Ending	Nominal GDP ($Billion)	Annual GDP Growth (%)
Global Insight [1]	2011	$ 16,844	2036	$ 55,626	4.89%
EIA [2]	2011	$ 16,960	2030	$ 47,326	5.55%
SSA [3]	2011	$ 16,721	2061	$ 146,046	4.43%
Average:					4.96%

Notes

[1] Global Insight: Long-Term Macro Forecast - Baseline (U.S. Economy 30-Year Focus, Table Summary 1 Release date: 03/29/2006) http://www.globalinsight.com/

[2] Energy Information Administration Annual Energy Outlook 2006 with Projections to 2030 (February 2006), Table 19. Macroeconomic Indicators. Nominal GDP=(Real GDP)*(GDP Chain-Type Price Index). http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html

[3] Social Security Administration: The 2005 OASDI Trustees Report, Table VI.F4.-- OASDI and HI Annual and Summarized Income, Cost, and Balance as a Percentage of GDP, Calendar Years 2005-80, Intermediate Assumptions. Note: $(GDP_{2061})=(GDP_{2060})*((GDP_{2065}/GDP_{2060})^(1/5))$ http://www.ssa.gov/OACT/TR/TR05/VI_OASDHI_GDP.html#wp126693