BEFORE THE WASHINGTON

UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

DOCKETS UE-170033 & UG-170034 (*Consolidated*)

CROSS-ANSWERING TESTIMONY OF J. RANDALL WOOLRIDGE (JRW-17T)

ON BEHALF OF

WASHINGTON STATE OFFICE OF THE ATTORNEY GENERAL,

PUBLIC COUNSEL UNIT

AUGUST 9, 2017

CROSS-ANSWERING TESTIMONY OF J. RANDALL WOOLRIDGE (JRW-17T)

DOCKETS UE-170033 and UG-170034 (*Consolidated*)

TABLES

Q: Please state your name and business address.

A: My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, State College, PA 16801. I am a Professor of Finance, and the Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration at the University Park Campus of Pennsylvania State University.

Q: Have you previously provided testimony in this proceeding?

A: Yes, I provided testimony for the Public Counsel Unit of the Washington State Attorney General's Office on the overall fair rate of return or cost of capital for the regulated electric and gas utility service of Puget Sound Energy ("PSE" or "the Company"). I also provided an evaluation of PSE's rate of return testimony in this proceeding.[1]

Q: What is the purpose of your cross-answering testimony?

A: I am addressing the testimony and return on equity ("ROE") recommendation of Staff witness David Parcell.

Q: Please summarize Mr. Parcell's testimony.

A: Mr. Parcell's testimony includes a discussion of the following topics: (1) the economic and legal principles of the cost of capital for public utilities, (2) a review of general economic conditions, (3) a summary of PSE's operations, (4) PSE's capital structure and cost of debt, (5) proxy group selection, (6) discounted cash flow ("DCF") model, (7) Capital Asset Pricing Model ("CAPM"), (8) Comparable Earnings ("CE") analysis, (9) ROE recommendation, and (10) the total proposed cost of capital.

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[1] In my testimony, I use the terms 'rate of return' and 'cost of capital' interchangeably. This is because the required rate of return of investors on a company's capital is the cost of capital.

Q: What is Staff witness Mr. Parcell's cost of capital recommendation?

A: Mr. Parcell's cost of capital recommendation is summarized in Table 1.

Table 1
Staff's Cost of Capital Position

Item	Percent	Cost			Weighted Cost		
Short-Term Debt	1.0%		3.06%			0.03%	
Long-Term Debt	51.0%		5.73%			2.92%	
Common Equity	48.0%	8.85%	9.20%	9.50%	4.25%	4.42%	4.56%
Total	100.0%				7.20%		7.51%
						7.37%	

In his recommendation, Mr. Parcell adjusts PSE's common equity ratio from 48.5 percent to 48.0 percent and employs a common equity cost rate in the range of 8.85 percent to 9.5 percent, with a specific ROE recommendation of 9.20 percent.

Q: Which of the issues addressed by Mr. Parcell are you reviewing in your cross-answering testimony?

A: I am going to discuss (1) Mr. Parcell's review of general economic conditions, (2) his DCF, his CAPM, and his CE approaches and results, and (3) his ROE and cost of capital recommendations.

Q: Please summarize your conclusion on these issues.

A: I agree with Mr. Parcell's position on economic conditions. I agree that interest rates and capital costs have declined and that they are likely to stay low for some time. However, Mr. Parcell's ROE recommendation does not accurately reflect the results of his ROE studies. Simply put, Mr. Parcell's three ROE studies suggest a significantly lower ROE for PSE than he recommends. The specific infirmities include the following: (1) he has misstated the results of his DCF analysis by reporting DCF results that only include the single, high DCF growth rate; (2) he has completely ignored the results of his CAPM study, which point to a much lower ROE for PSE; and (3) he appears to be giving almost 100 percent weight to the results of his CE approach, which is a model of his own creation and interpretation, unlike the DCF and CAPM models, and is not a recognized approach to estimating the cost of equity capital.

Q: Please review Mr. Parcell's discussion of general economic conditions.

A: Between pages seven through 14 of his Direct Testimony, Mr. Parcell discusses general economic conditions. On page 14, he summarizes his view on economic conditions:

> The costs of capital for regulated utilities have declined in recent years. For example, the current interest costs that utilities pay on new debt remain near the low point of the last several decades. In addition, the results of the traditional ROE models (i.e., DCF, CAPM and CE) are lower than was the case prior to the Great Recession. In light of this, it is not surprising that the average equity returns authorized by state regulatory agencies declined through 2016, as follows: [2]

Year	Electric	Natural Gas
2007	10.31%	10.22%
2008	10.37%	10.39%
2009	10.52%	10.22%
2010	10.29%	10.15%
2011	10.19%	9.91%
2012	10.01%	9.93%
2013	9.81%	9.68%
2014	9.75%	9.78%
2015	9.60%	9.60%
2016	9.60%	9.49%

Q: Do you agree with Mr. Parcell's view of general economic conditions?

A: Yes. I discuss capital market conditions on pages five through 19 of my Direct Testimony. I show that capital costs are at historically low levels with interest rates at

[2] Direct Testimony of David C. Parcell, Exh. DCP-1T at 14:11-16.

historic lows and stock prices at all-time highs. Additionally, I note that interest rates are likely to remain low for some time. Specifically, I note that despite increases in the Federal Funds rate by the Federal Reserve, long-term interest rates have remained at low levels because long-term interest rates primarily reflect expected economic growth and inflation expectations and are not directly set by the Federal Reserve. Furthermore, expected economic growth and inflation expectations remain at low levels and are likely to remain there for some time.

Q: What are staff witness Mr. Parcell's summary ROE results?

A: Mr. Parcell's summary equity cost rate results for PSE are presented in Table 2.

Table 2
Staff's Summary ROE Results

	Mid-Point	Range
DCF	8.85%	8.7-9.0%
CAPM	6.75%	6.5-7.0%
CE	9.50%	9.0-10.0%

Taking these results, Mr. Parcell arrives at a 9.20 percent ROE for PSE based on the following:

> Based upon these findings, I conclude that PSE's ROE is within a range of 8.85 percent to 9.5 percent, which is based upon the mid-point of the range of the results for the DCF model and the mid-point of the range of results for the CE model. I specifically recommend the approximate mid-point of this range (9.20 percent) for PSE. [3]

Q: What are the reported results of staff witness Mr. Parcell's equity cost rate studies for PSE?

A: Mr. Parcell's reported equity cost rate results for his ROE studies are presented in Table 3.

[3] Parcell, Exh. DCP-1T at 4:2-5.

Table 3
Staff's Reported Cost of Equity Capital Position

Methodology	**Range**
Discounted Cash Flow ("DCF")	8.7%-9.0% (8.85% mid-point)
Capital Asset Pricing Model ("CAPM")	6.5%-7.0% (6.75% mid-point)
Comparable Earnings ("CE")	9.0%-10.0% (9.50% mid-point)

Q: Please review Mr. Parcell's CAPM results.

A: Mr. Parcell's CAPM results are presented in Table 4 for the Parcell and Morin Proxy Groups.

Table 4
Staff's CAPM Results

	Mean	Median
Parcell Proxy Group	7.0%	6.8%
Morin Proxy Group	6.6%	6.5%

Q: How much weight does Mr. Parcell give his CAPM results in his 9.20 percent ROE recommendation?

A: None. As noted above, Mr. Parcell's ROE recommendation is based upon the mid-point of the range of the results for the DCF model and the mid-point of the range of results for the CE model.

Q: What is your observation on this omission?

A: I have three observations.

First, the CAPM is a well-recognized methodology for measuring the cost of equity capital. The CAPM was developed in the late 1960s and early 1970s, has been around for a long time, is widely used to compute the cost of equity capital, has been used routinely in utility rate cases, and the academics who developed the model have won the Nobel prize in economics.

Second, Mr. Parcell offers no rational reason for discounting his CAPM results. In fact, Mr. Parcell's testimony supports considering, not ignoring, his CAPM results in analyzing PSE's cost of equity. Indeed, he states that the CAPM results are low because of lower interest rates and a lower market risk premium, and that the CAPM results should be considered in determining PSE's cost of equity:

> I note that, initially, investors may have believed that the decline in Treasury yields was a temporary factor that would soon be replaced by a rise in interest rates. However, this has not been the case as interest rates have remained low and continued to decline for the past six-plus years. As a result, it cannot be maintained that low interest rates (and low CAPM results) are temporary and do not reflect investor expectations. Consequently, the CAPM results should be considered as one factor in determining the cost of equity for PSE. For example, the lower CAPM results are further justification for a reduction in PSE's ROE.[4]

I wholeheartedly agree with Mr. Parcell's observations regarding interest rates, market risk premium, and view on CAPM results. I disagree with the ultimate treatment Mr. Parcell gives to his CAPM results.

Third, by ignoring the CAPM results, Mr. Parcell's analysis does not accurately reflect the result of the studies used to measure ROE. As a result, Mr. Parcell's ultimate conclusion is unreasonably inflated.

Q: Please review Mr. Parcell's DCF results.

A: As shown in Table 3, Mr. Parcell states that his DCF results are in the range of 8.7 percent to 9.0 percent for the Parcell and Morin Proxy Groups.

Q: Do you agree?

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[4] Parcell, Exh. DCP-1T at 46:1-7.

A: No. Mr. Parcell's DCF results are shown below in Table 5 for the Parcell and Morin Proxy Groups.

Table 5
Staff's DCF Results

	Mean	Median	Mean Low[32]	Mean High[33]	Median Low[32]	Median High [33]
Parcell Proxy Group	7.9%	7.6%	6.8%	9.0%	6.8%	8.9%
Morin Proxy Group	8.0%	7.8%	7.1%	8.7%	7.1%	8.9%

These results indicate that the mean ROE results for the Parcell and Morin Proxy Groups are 7.9 percent and 8.0 percent. Mr. Parcell has reported the mean high DCF results, which used only the highest DCF growth rate. As a result, his reported DCF equity cost rate for PSE is higher than indicated by his DCF study.

Q: What are your observations on how Mr. Parcell reports his DCF results?

A: I have four observations.

First, I agree with Mr. Parcell when he states: "The DCF model is one of the oldest and most commonly-used models for estimating the ROE for public utilities."[5]

Second, we use proxy groups and take a measure of central tendency, such as a mean to get an indication of the common equity cost rate for a utility. Using the results for a group, as opposed to individual companies, is intended to average out any measurement error in individual company results. Mr. Parcell seems to agree with this observation in his testimony:

> I note that the individual DCF calculations shown on Exh. DCP-9 should not be interpreted to reflect the expected cost of capital for individual companies in the proxy groups; rather, the individual values shown should be interpreted as alternative information considered by investors.[6]

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[5] *Id.* at 32:19-20.
[6] *Id.* at 36:2-5.

Therefore, Mr. Parcell violates this procedure in his testimony when he only uses the highest DCF growth rate and not the average. He is basing his DCF ROE recommendation on only one growth rate observation – the high one.

Third, reporting results by using only the highest DCF growth rate overstates the results of his DCF study. Mr. Parcell claims that this approach is "conservative."[7] To be more correct, he is misstating his DCF results. If Mr. Parcell reported the actual range of the mean results, 7.9 percent to 8.0 percent, he could not have reasonably recommended an equity cost rate of 9.2 percent.

Forth, misreporting the DCF results is further evidence that his equity cost rate studies indicate a lower ROE for PSE, and that Mr. Parcell's ROE recommendation is not supported by the results of his ROE studies.

Q: Please review Mr. Parcell's CE results.

A: Mr. Parcell's CE results are presented in Table 6 for the Parcell and Morin Proxy Groups.

Table 6
Staff's CE Results

	Parcell Proxy Group	Morin Proxy Group
Historic ROE		
Mean	9.1-9.2%	10.5-11.3%
Median	9.3-9.5%	10.3-10.7%
Historic M/B		
Mean	145-148%	162-165%
Median	143-150%	155-157%
Prospective ROE		
Mean	9.4-10.0%	10.5-11.3%
Median	9.3-9.5%	10.3-10.8%

Q: How does Mr. Parcell explain his CE model?

[7] Parcell, Exh. DCP-1T at 36:16.

A: Mr. Parcell summarizes his CE model in the following:

> The CE method normally examines the experienced and/or projected return on book common equity. The logic for examining returns on book equity follows from the use of original cost rate base regulation for public utilities, which uses a utility's book common equity to determine the cost of capital. This cost of capital is, in turn, used as the fair rate of return which is then applied (multiplied) to the book value of rate base to establish the dollar level of capital costs to be recovered by the utility. This technique is thus consistent with the rate base – rate of return methodology used to set utility rates.[8]

Q: Is the CE model as used by Mr. Parcell a model that is recognized to compute an equity cost rate?

A: No. As noted above, the DCF and CAPM models are well-recognized in the academic and professional financial worlds and are used to calculate equity cost rates. Mr. Parcell's CE approach is a model of his own creation that is not generally recognized as a cost of equity capital model. Moreover, his interpretation of the results of the CE model is highly subjective.

Q: Do you agree with any of the statements made by Mr. Parcell about his CE model?

A: Yes. Mr. Parcell makes some general observations regarding ROEs, the cost of equity capital, and market-to-book ("M/B") ratios that I do agree with. Specifically, he notes the following:

> For my proxy group, recent ROEs of 9.1 percent to 9.5 percent have resulted in M/Bs of 143 percent and over. Prospective ROEs of 9.3 percent to 10.0 percent have been accompanied by M/Bs over 170 percent. As a result, it is apparent that authorized returns below this level would continue to result in M/Bs of well above 100 percent. As I indicated earlier, the fact that M/Bs substantially exceed 100 percent indicates that historic and prospective ROEs of 9.5 percent reflect earning levels that are well above the actual cost of equity for those regulated companies. I also note that a company whose stock sells above book value can attract capital in a way that enhances the

[8] *Id.* at 41:3-9.

> book value of existing stockholders, thus creating a favorable environment for financial integrity.[9]

Also, we are in agreement about the relationship between ROEs, the cost of equity capital, and M/B ratios. I discussed this exact point on pages 27-28 of my Direct Testimony. On this topic, I agree with Mr. Parcell's observation in the above excerpt that "the fact that M/Bs substantially exceed 100 percent indicates that historic and prospective ROEs of 9.5 percent reflect earning levels that are well above the actual cost of equity for those regulated companies."

Q: What does this tell you about the results of Mr. Parcell's CE approach?

A: It tells me that the cost of equity capital that results from Mr. Parcell's CE approach is well below 9.5 percent. Additionally, I am not in agreement with Mr. Parcell's interpretation of the CE results, in which he concludes that the results suggest a ROE of 9.0 percent to 10.0 percent, with a midpoint of 9.5 percent. This is a highly subjective interpretation and recommendation, which are at odds with the ROE – M/B discussion cited above. It is also very much at odds with the results of his DCF and CAPM studies.

Q: What other specific issues occur within Mr. Parcell's CE approach?

A: First, these companies do not receive 100 percent of their revenues from providing regulated electric and gas service. As I show in Exhibit JRW-4, on average these utilities only receive about 80 percent of their revenues from regulated operations. Therefore, the earnings, ROEs, and M/B ratio also reflect the unregulated operations of the peer groups companies.

Second, I believe that Mr. Parcell's historical analysis is flawed in that it does not account for the lower risk of regulated utilities today. Whereas Mr. Parcell reviews current

[9] Parcell, Exh. DCP-1T at 44:9-20.

risk measures, he does not review historic risk measures. As I demonstrated on page 60 of my direct testimony, the riskiness of electric utility and gas distribution companies, as indicated by credit ratings, has declined in recent years. Much of the decline in risk is attributed to ratemaking mechanisms, which allow for more timely and certain recovery of expenses and capital investments. Therefore, the decline in risk in recent years distorts the comparison of today's ROE, cost of equity, and M/B ratios with those from the past.

Q: Please review Mr. Parcell's ROE results and recommendation.

A: Mr. Parcell summarizes his ROE recommendation in the following:

> My three ROE analyses produced the following:
>
> | | Mid-Point | Range |
> |---|---|---|
> | DCF | 8.85% | 8.7-9.0% |
> | CAPM | 6.75% | 6.5-7.0% |
> | CE | 9.50% | 9.0-10.0% |
>
> These results indicate an overall broad range of 6.5 percent to 10.0 percent, which focuses on the respective individual model results. Using mid-point values, the range is 6.75 percent to 9.5 percent. I recommend a ROE range of 8.85 percent to 9.5 percent for PSE (approximate mid-point of 9.20 percent). This range includes the mid-point of my DCF results and the mid-point of my CE results. My specific ROE recommendation is 9.20 percent.[10]

Q: Please summarize your assessment of Mr. Parcell's, testimony, ROE results, and recommendation.

A: First, I agree with Mr. Parcell's position on economic conditions, in which interest rates and capital costs have declined and are likely to stay low for some time. However, I do not believe that Mr. Parcell's ROE recommendation reflects the low capital cost environment

[10] Parcell, Exh. DCP-1T at 45:4-11.

because this recommendation does not accurately reflect the results of his ROE studies. The fact is that Mr. Parcell's three ROE studies suggest a significantly lower ROE for PSE than he recommends. Specifically, Mr. Parcell has misstated the results of his DCF analysis by reporting DCF results that only include the single, high DCF growth rate. He reports a DCF range of 8.7 percent to 9.0 percent using only the high DCF growth rate for each proxy company. The DCF range using the mean growth rates is 7.9 percent to 8.0 percent. Mr. Parcell's CAPM analysis produces a range of 6.5 percent to 7.0 percent. However, he has completely ignored these results. Furthermore, given that he has misstated his DCF results and ignored his CAPM results, he appears to be giving almost 100 percent weight to the results of his CE approach, which is a model of his own creation and interpretation, and unlike the DCF and CAPM models, is not a recognized approach to estimating the cost of equity capital.

Q: Does this conclude your testimony?

A. Yes.