

**Exh. DCP-1T**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**TESTIMONY OF**

**David C. Parcell**

**ON BEHALF OF STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

*Cost of Capital*

**November 22, 2019**

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**I. INTRODUCTION**

1

2

3 **Q. Please state your name, and address.**

4 A. My name is David C. Parcell. My address is 2218 Worchester Rd., Midlothian, VA  
5 23113.

6

7 **Q. By whom are you employed and in what capacity?**

8 A. I am a Principal and Senior Economist of Technical Associates, Inc.

9

10 **Q. Please state your qualifications to provide testimony in this proceeding**

11 A. I hold B.A. (1969) and M.A. (1970) degrees in economics from Virginia Polytechnic  
12 Institute and State University (Virginia Tech) and a M.B.A. (1985) from Virginia  
13 Commonwealth University. I have been a consulting economist with Technical  
14 Associates since 1970. I have provided cost of capital testimony in public utility  
15 ratemaking proceedings dating back to 1972 and I have previously filed testimony  
16 and/or testified in over 575 utility proceedings before about 50 regulatory agencies in  
17 the United States and Canada.

18

19 **Q. Have you testified previously before the Commission?**

20 A. Yes. I have previously filed testimony on behalf of the Staff of the Washington  
21 Utilities and Transportation Commission (Commission) in several proceedings  
22 involving Avista Corp., Cascade Natural Gas, and Pacific Power & Light Company,

1 as well as Puget Sound Energy, Inc. (“PSE”). Exh. DCP-2 provides a more complete  
2 description of my education and relevant work experience.

3

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. I have been retained by the Commission Staff to evaluate the cost of capital (“COC”)  
6 aspects of the current electric and natural gas rate cases of PSE. I have performed  
7 independent studies and I am making recommendations of the current COC for PSE.

8

9 **Q. Have you prepared an exhibit in support of your testimony?**

10 A. Yes. In addition to Exh. DCP-2, identified above, I have prepared Exh. DCP-3  
11 through DCP-15. These exhibits were prepared either by me or under my direction.  
12 The information contained in these exhibits is correct to the best of my knowledge  
13 and belief.

14

15 **II. RECOMMENDATIONS AND SUMMARY**

16

17 **Q. What are your COC recommendations in this proceeding?**

18 A. My overall COC recommendations for PSE are shown on Exh. DCP-3 and can be  
19 summarized as follows:

Item	Percent	Cost	Weighted Cost	
Short-Term Debt	2.3%	5.65%	0.13%	
Long-Term Debt	49.2%	5.57%	2.74%	
Common Equity	48.5%	8.9% 9.2% 9.5%	4.32%	4.46%
Total	100.0%		7.19%	7.48%
				7.33%

1 PSE's application requests a COC of 7.62 percent and a cost of equity  
2 ("ROE") of 9.80 percent.

3

4 **Q. Please summarize your analyses and conclusions.**

5 A. This proceeding is concerned with PSE's regulated electric utility and natural gas  
6 operations in Washington. My analyses concern the Company's COC. PSE has  
7 traditionally used its corporate structure to establish rates in Washington. In  
8 addition, it has not distinguished between its electric and natural gas operations from  
9 a cost of capital perspective. I have followed this tradition in my analyses and thus  
10 focus on PSE's capitalization and a single COC and ROE for both its electric and  
11 natural gas operations.

12 The first step in performing my COC analyses is to develop the appropriate  
13 capital structure. PSE proposes use of a capital structure comprised of 48.5 percent  
14 common equity and 51.5 percent debt.<sup>1</sup> I note that a similar capital structure was  
15 approved in its last rate proceedings of PSE, where the Commission adopted a  
16 capital structure with 48.5 percent common equity and 51.5 percent debt.<sup>2</sup> I use the  
17 48.5 percent common equity ratio from previously-adopted capital structure, which I  
18 believe remains the proper capital structure for the Company. I also include the  
19 short-term debt and long-term ratios, as proposed by PSE, in the capital structure.

---

<sup>1</sup> Doyle, Exh. DAD-1T at 24:4-7.

<sup>2</sup> *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy*, Dockets UE-170033 & UG-170034, Order 08, 28, ¶ 83, Table 3A; 34, ¶ 94 (Dec. 5, 2017) (2017 PSE GRC Order).

1           The second step in a cost of capital calculation is to determine the embedded  
2           cost rates of debt. PSE proposes use of a 5.65 percent cost of short-term and 5.57  
3           percent cost of long-term debt, which is an estimated cost rate as of March 31, 2021.<sup>3</sup>  
4           These costs of short-term and long-term debt are not shown in the Company's  
5           application, as the commitment fees and amortization of debt costs are not factored  
6           in the stated cost rates. As shown on Exh. DCP-3, I have derived the costs of short-  
7           term and long-term debt from the information contained in Exh. MDM-5, page 1.

8           The third step in the COC calculation is to estimate the ROE. I employ three  
9           recognized methodologies to estimate PSE's ROE, each of which I apply to two  
10          proxy groups of utilities. These three methodologies and my findings are:

<u>Methodology</u>	<u>Range</u>
Discounted Cash Flow ("DCF")	7.8%-8.9% (8.35% mid-point)
Capital Asset Pricing Model ("CAPM")	5.5%-5.6% (5.55% mid-point)
Comparable Earnings ("CE")	9.0%-10.0% (9.5% mid-point)

11  
12          Based upon these findings, I conclude that PSE's ROE is within a range of 8.9  
13          percent to 9.5 percent, which is based upon the upper end of the range of the results  
14          for the DCF model and mid-point of the range of results for the CE model. I  
15          specifically recommend a 9.2 percent ROE for PSE. I note that I do not give the  
16          results of my CAPM weight in my final recommendation, since these are low  
17          relative to the other model results and can be considered anomalous.

18

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<sup>3</sup> Parcell, Exh. DCP-3 at 2; McArthur, Exh. MDM-5 at 1.

1           **III.    ECONOMIC/LEGAL PRINCIPLES AND METHODOLOGIES**

2

3   **Q.    What are the primary economic and legal principles that establish the**  
4           **standards for determining a fair rate of return for a regulated utility?**

5    A.    Public utility rates are normally established in a manner designed to allow the  
6           recovery of their costs, including capital costs. This is frequently referred to as “cost  
7           of service” ratemaking. Rates for regulated public utilities traditionally have been  
8           primarily established using the “rate base – rate of return” concept. Under this  
9           method, utilities are allowed to recover a level of operating expenses, taxes, and  
10          depreciation deemed reasonable for rate-setting purposes, and are granted an  
11          opportunity to earn a fair rate of return on the assets utilized (i.e., rate base) in  
12          providing service to their customers.

13                 The rate base is derived from the asset side of the utility’s balance sheet as a  
14                 dollar amount and the rate of return is developed from the liabilities/owners’ equity  
15                 side of the balance sheet as a percentage. Thus, the revenue impact of the cost of  
16                 capital is derived by multiplying the rate base by the rate of return, including income  
17                 taxes.

18                 The rate of return is developed from the cost of capital, which is estimated by  
19                 weighting the capital structure components (i.e., debt, preferred stock, and common  
20                 equity) by their percentages in the capital structure and multiplying these values by  
21                 their cost rates. This is also known as the weighted cost of capital.

22                 Technically, “fair rate of return” is a legal and accounting concept that refers  
23                 to an *ex post* (after the fact) earned return on an asset base, while the cost of capital is



1 an economic and financial concept which refers to an *ex ante* (before the fact)  
2 expected, or required, return on a capital base. In regulatory proceedings, however,  
3 the two terms are often used interchangeably, and I have equated the two concepts in  
4 my testimony.

5 From an economic standpoint, a fair rate of return is normally interpreted to  
6 mean that an efficient and economically managed utility will be able to maintain its  
7 financial integrity, attract capital, and establish comparable returns for similar risk  
8 investments. These concepts are derived from economic and financial theory and are  
9 generally implemented using financial models and economic concepts.

10 Although I am not a lawyer and I do not offer a legal opinion, my testimony  
11 is based on my understanding that two United States Supreme Court decisions  
12 provide the controlling standards for a fair rate of return. The first decision is  
13 *Bluefield Water Works and Improvement Co. v. Public Serv. Comm'n of West*  
14 *Virginia*, 262 U.S. 679 (1923). In this decision, the Court stated:

15 The annual rate that will constitute just compensation depends upon  
16 many circumstances and must be determined by the exercise of fair  
17 and enlightened judgment, having regard to all relevant facts. A  
18 public utility is entitled to such rates as will permit it to earn a return  
19 on the value of the property which it employs for the convenience of  
20 the public equal to that generally being made at the same time and in  
21 the same general part of the country on investments in other business  
22 undertakings which are attended by corresponding risks and  
23 uncertainties; but it has no constitutional right to profits such as are  
24 realized or anticipated in highly profitable enterprises or speculative  
25 ventures. The return should be reasonably sufficient to assure  
26 confidence in the financial soundness of the utility, and should be  
27 adequate, under efficient and economical management, to maintain  
28 and support its credit and enable it to raise the money necessary for  
29 the proper discharge of its public duties. A rate of return may be  
30 reasonable at one time, and become too high or too low by changes

1 affecting opportunities for investment, the money market, and  
2 business conditions generally.  
3

4 It is generally understood that the *Bluefield* decision established the following  
5 standards for a fair rate of return: comparable earnings, financial integrity, and  
6 capital attraction. It also noted that required returns change over time, and there is an  
7 underlying assumption that the utility be operated efficiently.

8 The second decision is *Federal Power Comm'n v. Hope Natural Gas Co.*,  
9 320 U.S. 591 (1942). In that decision, the Court stated:

10 The rate-making process under the [Natural Gas] Act, i.e., the fixing  
11 of 'just and reasonable' rates, involves a balancing of the investor and  
12 consumer interests . . . From the investor or company point of view it  
13 is important that there be enough revenue not only for operating  
14 expenses but also for the capital costs of the business. These include  
15 service on the debt and dividends on the stock. By this standard the  
16 return to the equity owner should be commensurate with returns on  
17 investments in other enterprises having corresponding risks. That  
18 return, moreover, should be sufficient to assure confidence in the  
19 financial integrity of the enterprise, so as to maintain its credit and to  
20 attract capital.  
21

22 The three economic and financial parameters in the *Bluefield* and *Hope*  
23 decisions – comparable earnings, financial integrity, and capital attraction – reflect  
24 the economic criteria encompassed in the “opportunity cost” principle of economics.  
25 The opportunity cost principle provides that a utility and its investors should be  
26 afforded an opportunity (not a guarantee) to earn a return commensurate with returns  
27 they could expect to achieve on investments of similar risk. The opportunity cost  
28 principle is consistent with the fundamental premise on which regulation rests,  
29 namely, that it is intended to act as a surrogate for competition.  
30

1 **Q. How can the *Bluefield* and *Hope* parameters be employed to estimate the cost of**  
2 **capital for a utility?**

3 A. Neither the courts nor economic/financial theory has developed exact and  
4 mechanical procedures for precisely determining the cost of capital. This is the case  
5 because the cost of capital is an opportunity cost and is prospective-looking, which  
6 dictates that it must be estimated. However, there are several useful models that can  
7 be employed to assist in estimating the ROE, which is the capital structure item that  
8 is the most difficult to determine. These include the DCF, CAPM, CE and risk  
9 premium (“RP”) methods. I have not directly employed a RP model in my analyses  
10 although, as discussed later, my CAPM analysis is a form of the RP methodology.  
11 Each of these methodologies will be described in more detail later in my testimony.

12

13 **IV. GENERAL ECONOMIC CONDITIONS**

14

15 **Q. Are economic and financial conditions important in determining the costs of**  
16 **capital for a public utility?**

17 A. Yes. The costs of capital for both fixed-cost (debt and preferred stock) components  
18 and common equity are determined in part by current and prospective economic and  
19 financial conditions. At any given time, each of the following factors has an  
20 influence on the costs of capital:

- 21
  - The level of economic activity (i.e., growth rate of the economy);
  - The stage of the business cycle (i.e., recession, expansion, or
- 22
- 23 transition);

- 1                   • The level of inflation;
- 2                   • The level and trend of interest rates; and,
- 3                   • Current and expected economic conditions.

4           My understanding is that this position is consistent with the *Bluefield* decision, which  
5           noted “[a] rate of return may be reasonable at one time and become too high or too  
6           low by changes affecting opportunities for investment, the money market, and  
7           business conditions generally.”<sup>4</sup>

8

9   **Q.   What indicators of economic and financial activity did you evaluate in your**  
10 **analyses?**

11   A.   I examined several sets of economic statistics from 1975 to the present. I chose this  
12       time period because it permits the evaluation of economic conditions over four full  
13       business cycles, plus the current cycle, allowing for an assessment of changes in  
14       long-term trends. Consideration of economic/financial conditions over a relatively  
15       long period of time allows me to assess how such conditions have impacted the level  
16       and trends of the costs of capital. This period also approximates the beginning and  
17       continuation of active rate case activities by public utilities that generally began in  
18       the mid-1970s.

19                   A business cycle is commonly defined as a complete period of expansion  
20       (recovery and growth) and contraction (recession). A full business cycle is a useful  
21       and convenient period over which to measure levels and trends in long-term capital

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<sup>4</sup> *Bluefield*, 262 U.S. at 693.

1 costs because it incorporates the cyclical (i.e., stage of business cycle) influences  
2 and, thus, permits a comparison of structural (or long-term) trends.

3

4 **Q. Please describe the timeframes of the four prior business cycles and the current**  
5 **cycle.**

6 A. The four prior complete cycles and current cycle cover the following periods:

7

<u>Business Cycle</u>	<u>Expansion Cycle</u>	<u>Contraction Period</u>
1975-1982	Mar. 1975-July 1981	Aug. 1981-Oct. 1982
1982-1991	Nov. 1982-July 1990	Aug. 1990-Mar. 1991
1991-2001	Mar. 1991-Mar. 2001	Apr. 2001-Nov. 2001
2001-2009	Nov. 2001-Nov. 2007	Dec. 2007-June 2009
Current	July 2009 -	

10 Source: The National Bureau of Economic Research, "U.S. Business Cycle  
11 Expansions and Contractions."<sup>5</sup>

12

13 **Q. Do you have any general observations concerning the recent trends in economic**  
14 **conditions and their impact on capital costs over this broad period?**

15 A. Yes, I do. From the early 1980s until the end of 2007, the United States economy  
16 enjoyed general prosperity and stability. This period was characterized by longer  
17 economic expansions, relatively tame contractions, low and declining inflation, and  
18 declining interest rates and other capital costs.

19 However, in 2008 and 2009 the economy declined significantly, initially as a  
20 result of the 2007 collapse of the "sub-prime" mortgage market and the related  
21 liquidity crisis in the financial sector of the economy. Subsequently, this financial  
22 crisis intensified with a more broad-based decline initially based on a substantial

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<sup>5</sup> Available at <http://www.nber.org/cycles/cyclesmain.html>.

1 increase in petroleum prices and a dramatic decline in the U.S. financial sector of the  
2 economy.

3 This decline has been described as the worst financial crisis since the Great  
4 Depression of the 1930s and has been referred to as the “Great Recession.”  
5 Beginning in 2008, the U.S. and other governments implemented unprecedented  
6 policies to attempt to correct or minimize the scope and effects of this recession.  
7 Some of these policies are still in effect.

8

9 **Q. Please describe recent and current economic and financial conditions and their**  
10 **impact on the costs of capital.**

11 A. One impact of the Great Recession has been a reduction in actual and expected  
12 investment returns and a corresponding reduction in capital costs. This reduction is  
13 evidenced by a decline in both short-term and long-term interest rates and in the  
14 expectations of investors. The cost of capital model results (such as DCF, CAPM,  
15 and CE) reflect this reduction as well. Regulatory agencies throughout the U.S. have  
16 recognized the decline in capital costs by authorizing lower ROEs for regulated  
17 utilities in each of the last several years.<sup>6</sup>

18 Exh. DCP-4 shows several sets of relevant economic and financial statistics  
19 for the cited time periods. Page 1 contains general macroeconomic statistics, page 2  
20 shows interest rates, and page 3 contains equity market statistics.

21 Page 1 shows that in 2007 the economy stalled and subsequently entered a  
22 significant decline, as indicated by the lower growth rate in real (i.e., adjusted for

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<sup>6</sup> S&P, Regulatory Research Associates (RRA), “Regulatory Focus”, April 11, 2019.

1 inflation) Gross Domestic Product (“GDP”), lower levels of industrial production,  
2 and an increase in the unemployment rate. This recession lasted until mid-2009,  
3 making it a longer-than-normal, as well as a much deeper, recession. Since then,  
4 economic growth has been somewhat erratic, and the economy has grown more  
5 slowly than in prior expansions.

6 Page 1 also shows the rate of inflation. As reflected in the Consumer Price  
7 Index (“CPI”), inflation rose significantly during the 1975-1982 business cycle and  
8 reached double-digit levels in 1979-1980. The rate of inflation has declined  
9 substantially since 1981. Since 2008, the CPI has been 3 percent or lower on an  
10 annual basis, with 2014 and 2015 growth below 1 percent, 2016 and 2017 growth at  
11 2.1 percent, and 2018 growth at 1.9 percent. It is thus apparent that the rate of  
12 inflation has generally been declining over the past several business cycles. Recent  
13 and current levels of inflation are at the lowest levels of the past 35 years, which is  
14 reflective of lower capital costs.<sup>7</sup>

15  
16 **Q. What have been the trends in interest rates over the four prior business cycles**  
17 **and at the current time?**

18 A. Exh. DCP-4 page 2, shows several series of interest rates. Both short-term and long-  
19 term rates rose sharply to record levels in 1975-1982 when the inflation rate was  
20 high. Interest rates have declined substantially in conjunction with the  
21 corresponding declines in inflation since the early 1980s.

---

<sup>7</sup> The rate of inflation is one component of interest rate expectations of investors, who generally expect to receive a return in excess of the rate of inflation. Thus, a lower rate of inflation has a downward impact on interest rates and other capital costs.

1                   From 2008 to late 2015, the Federal Reserve System (“Federal Reserve”)  
2                   maintained the Federal Funds rate (i.e., short-term interest rate) at 0.25 percent, an  
3                   all-time low. Following much anticipation, the Federal Reserve subsequently raised  
4                   the Federal Funds rate on nine occasions between December of 2015 and December  
5                   of 2018.<sup>8</sup> Most recently, the Federal Reserve again lowered the Federal Funds rate  
6                   in July, September and October of 2019. The Federal Reserve also purchased U.S.  
7                   Treasury securities to stimulate the economy.<sup>9</sup>

8                   As seen on Exh. DCP-4 page 2, since 2011 both U.S. and public utility bond  
9                   yields have declined to their lowest levels in the past four business cycles and in  
10                  more than 35 years. Even with the “tapering” and eventual ending of the Federal  
11                  Reserve’s Quantitative Easing program, as well as the Federal Reserve’s raising of  
12                  the Federal Funds rate (prior to the most recent lowerings of the rate), interest rates  
13                  have remained relatively low. The rates on U.S. Treasury and public utility  
14                  securities increased somewhat in the first several months of 2018, before falling over  
15                  the past several months. Both government and utility long-term lending rates remain  
16                  near historically low levels, again reflective of lower capital costs.

17

---

<sup>8</sup> The Fed Funds increases took place in December 2015, December 2016, March 2017, June 2017, December 2017, March 2018, June 2018, September 2018, and December 2018. The declines took place in July 2019, September 2019, and October 2019.

<sup>9</sup> This is referred to as Quantitative Easing which was comprised of three “rounds.” In “round” 3, known as QE3, the Federal Reserve initially purchased some \$85 billion of U.S. Treasury Securities per month in order to stimulate the economy. The Federal Reserve eventually “tapered” its purchase of U.S. Treasury securities through October 2014, at which time Quantitative Easing ended.



1 **Q. What does Exh. DCP-4 show for trends of common share prices?**

2 A. Page 3 shows several series of common stock prices and ratios. These indicate that  
3 stock prices were essentially stagnant during the high inflation/high interest rate  
4 environment of the late 1970s and early 1980s. The 1983-1991 business cycle and  
5 the more recent cycles witnessed a significant upward trend in stock prices. The  
6 beginning of the recent financial crisis saw stock prices decline precipitously, as  
7 stock prices in 2008 and early 2009 were down significantly from peak 2007 levels,  
8 reflecting the financial/economic crisis. Beginning in the second quarter of 2009,  
9 prices recovered substantially and ultimately reached and exceeded the levels  
10 achieved prior to the “crash.” On the other hand, recent equity markets have been  
11 somewhat volatile, including much of 2018. As an example of this, the end of 2018  
12 witnessed significant declines in stock prices, with many indexes declining more  
13 than 20 percent (i.e., a “bear” market). Since the beginning of 2019, stocks have  
14 risen with many of the indices reaching record levels.

15  
16 **Q. What conclusions do you draw from your discussion of economic and financial**  
17 **conditions?**

18 A. Recent economic and financial circumstances have differed from any that have  
19 prevailed since at least the 1930s. Concurrent with the Great Recession, there was a  
20 decline in capital costs and returns which significantly reduced the value of most  
21 retirement accounts, investment portfolios, and other assets. One significant aspect  
22 of this has been a decline in investor expectations of returns even with the return of

1 stock prices to levels achieved prior to the “crash.”<sup>10</sup> This is evidenced by: (1) lower  
2 interest rates on bank deposits; (2) lower interest rates on U.S. Treasury and utility  
3 bonds; and (3) lower authorized returns on equity by regulatory commissions.  
4 Finally, as noted above, utility bond interest rates are currently at levels well below  
5 those prevailing prior to the financial crisis of late 2008 to early 2009 and remain  
6 near the lowest levels in the past 35 years and are also generally lower than the  
7 embedded cost rates for most utilities, including PSE.

8  
9 **Q. How do these economic/financial conditions impact the determination of a ROE**  
10 **for regulated utilities?**

11 A. The costs of capital for regulated utilities have declined in recent years. The current  
12 interest costs (e.g., the most recent yield on triple-B utility bonds is 3.72 percent, as  
13 shown on Exh. DCP-4 page 2) that utilities (including PSE) pay on new debt remain  
14 near the low point of the last several decades and are lower than existing embedded  
15 cost rates.

16 In addition, the results of the traditional ROE models (i.e., DCF, CAPM and  
17 CE) are lower than was the case prior to the Great Recession. In light of this, it is  
18 not surprising that the average ROEs authorized by state regulatory agencies have  
19 declined and continued to remain relatively low through 2019, as follows:<sup>11</sup>

20  
21  

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<sup>10</sup> See, e.g., Vanguard News & Perspectives, “Stabilization, Not Stagnation: Expect Modest Returns”, March 30, 2017, available at [www.personal.vanguard.com/us/insights/artical/infographic-stabilization-032017](http://www.personal.vanguard.com/us/insights/artical/infographic-stabilization-032017).

<sup>11</sup> S&P, RRA, “Regulatory Focus”, April 11, 2019, General Rate Cases, for electric and gas utilities.

	Electric		Natural Gas	
	Average	Median	Average	Median
2007	10.32%	10.23%	10.22%	10.20%
2008	10.37%	10.30%	10.39%	10.45%
2009	10.52%	10.50%	10.22%	10.26%
2010	10.29%	10.26%	10.15%	10.10%
2011	10.19%	10.14%	9.91%	10.05%
2012	10.02%	10.00%	9.93%	10.00%
2013	9.82%	9.82%	9.68%	9.72%
2014	9.76%	9.75%	9.78%	9.78%
2015	9.60%	9.53%	9.60%	9.68%
2016	9.60%	9.60%	9.53%	9.50%
2017	9.68%	9.60%	9.73%	9.60%
2018	9.56%	9.57%	9.59%	9.60%
2019 (1Q)		9.57%		9.55%

9

10 **Q. The table above appears to indicate that the average and median authorized**  
11 **ROEs for electric utilities in recent years, which may appear to indicate that the**  
12 **decline in ROEs has moderated. Is this a proper assessment of the trend in**  
13 **ROEs?**

14 A. No, this does not tell the whole story of the trend in authorized ROEs. Another  
15 relevant consideration is how the recently-authorized ROEs compare to the  
16 previously-authorized ROE for the various utilities that have had rate decisions in  
17 recent years. On average, general rate cases decided in 2017 and 2018 resulted in  
18 lower authorized ROE compared with all rate cases decided between 2012 and 2018.  
19 I have shown this comparison on Exh. DCP-5, which reflects the electric utility  
20 proceedings in 2017 and 2018 where an authorized ROE was identified. This exhibit  
21 also identifies the previously-authorized ROE if it was determined in 2012 or after.  
22 As this exhibit indicates, there were 64 proceedings that meet these criteria. Of these  
23 64, only nine reflected an increased ROE in 2017 or 2018, 14 reflected no change in

1 ROE, and 41 reflected a decrease in the ROE. Clearly, the vast majority of  
2 authorized ROEs represented a decline from the previously authorized ROE over this  
3 period. Furthermore, the average ROE declined by 0.22 percent and the median  
4 ROE declined by 0.20 percent.

5

6 **V. PUGET SOUND ENERGY'S OPERATIONS AND BUSINESS RISKS**

7

8 **Q. Please summarize PSE and its operations.**

9 A. PSE is a regulated combination electric and natural gas utility that generates,  
10 transmits and distributes electricity to about 1.1 million customers and natural gas to  
11 840,000 customers in the Puget Sound region of Western Washington.<sup>12</sup>

12

13 **Q. Please describe PSE's ownership structure.**

14 A. PSE is a subsidiary of Puget Energy, Inc. ("PE"), which was formed in 1997 by the  
15 merger of Puget Sound Power and Light Company and Washington Energy  
16 Company (parent of Washington Natural Gas Co.). PE existed as a publicly-traded  
17 entity until 2009, when it was acquired by the group of private investors<sup>13</sup> in a  
18 leveraged private equity buyout. PE is now a Washington-based holding company  
19 whose operations are conducted through PSE.

20

---

<sup>12</sup> Available at <https://www.pse.com/about-us>.

<sup>13</sup> Puget Holdings is currently owned by the following entities: Alberta Investment Management Corp., British Columbia Investment Co., Canada Pension Plan Investment Board, Ontario Municipal Employees Retirement System, and PGGM. *In re Joint Application for an Order Authorizing Proposed Sales of Indirect Interests in Puget Sound Energy*, Docket U-180680, Order 06, 3, ¶ 5 (March 7, 2019).

1 **Q. What are the current security ratings of PSE?**

2 A. The present debt ratings of PSE's debt are shown on Exh. DCP-6 and are as follows:

3

	<u>Secured</u>	<u>Corp./Issuer</u>
4 Moody's	A2	Baa1
5 Standard & Poor's	A-	BBB

6

6 **Q. What have been the trends in PSE's bond ratings?**

7 A. This is also shown on Exh. DCP-6. As this indicates, PSE's current ratings by  
8 Standard & Poor's and Moody's have remained the same throughout the period 2014  
9 to the present.

10

11 **Q. How do the bond ratings of PSE compare to other electric and combination  
12 gas/electric utilities?**

13 A. PSE's ratings are generally similar to most electric utilities in the U.S. This is  
14 evidenced by the relative Moody's and Standard & Poor's debt ratings, as shown on  
15 my Exh. DCP-9 and which indicates that PSE's ratings are generally similar to those  
16 of the two groups of proxy electric utilities used to develop the ROE  
17 recommendations in my testimony.

18

19 **VI. CAPITAL STRUCTURE AND COSTS OF DEBT**

20

21 **Q. What is the importance of determining a proper capital structure in a  
22 regulatory framework?**

1 A. A utility's capital structure is important because the concept of rate base – rate of  
2 return regulation requires the capital structure to be utilized in estimating the total  
3 cost of capital. Within this framework, it is proper to ascertain whether the utility's  
4 capital structure is appropriate relative to its level of business risk and relative to  
5 other utilities.

6 As discussed in Section III of my testimony, the purpose of determining the  
7 proper capital structure for a utility is to ascertain its capital costs. The rate base –  
8 rate of return concept recognizes the assets employed in providing utility services  
9 and provides for a return on these assets by identifying the liabilities and common  
10 equity (and their cost rates) used to finance the assets. In this process, the rate base  
11 is derived from the asset side of the balance sheet and the cost of capital is derived  
12 from the liabilities/owners' equity side of the balance sheet. The inherent  
13 assumption in this procedure is that the dollar values of the capital structure and the  
14 rate base are approximately equal and the former is utilized to finance the latter.

15 The common equity ratio (i.e., the percentage of common equity in the  
16 capital structure) is the capital structure item which normally receives the most  
17 attention. This is the case because common equity: (1) usually commands the  
18 highest cost rate; (2) generates associated income tax liabilities; and (3) causes the  
19 most controversy since its cost cannot be precisely determined.

20

21 **Q. What are the historic capital structure ratios of PSE?**

22 A. I have examined the historic (2014-2018) capital structure ratios of PSE and PE,  
23 which are shown on Exh. DCP-7. The respective common equity ratios have been:

	<u>PSE Regulated Utility</u>		<u>PSE Consolidated</u>		<u>PE</u>	
	<u>Including S-T Debt</u>	<u>Excluding S-T Debt</u>	<u>Including S-T Debt</u>	<u>Excluding S-T Debt</u>	<u>Including S-T Debt</u>	<u>Excluding S-T Debt</u>
2014	48.2%	48.5%	45.8%	47.7%	39.6%	40.3%
2015	48.2%	48.5%	46.3%	47.3%	39.0%	39.7%
2016	48.9%	49.4%	46.6%	48.2%	39.7%	40.8%
2017	49.8%	50.3%	46.9%	49.0%	39.3%	40.7%
2018	49.0%	50.6%	46.5%	48.8%	38.9%	40.5%

1 This indicates that PSE and PE have had equity ratios that have generally been stable  
2 over the past five years.

3  
4 **Q. How do these capital structures compare to those of investor-owned electric  
5 utilities?**

6 A. Exh. DCP-8 shows the common equity ratios (excluding short-term debt in  
7 capitalization) for the groups of proxy electric utilities used in developing my cost of  
8 equity models and related conclusions. These are:

	<u>Period</u>	<u>Average</u>	<u>Median</u>
10 Parcell Proxy Group	2014-2018	53.2%	54.9%
	2022-2024	52.5%	52.0%
11 Morin Proxy Group	2014-2018	47.6%	48.5%
	2022-2024	48.1%	47.3%

12 The equity ratios for my proxy group are slightly higher than those of PSE Utilities  
13 (excluding short-term debt), whereas the equity ratios of the Morin group are similar  
14 to those of PSE Utilities

15  
16 **Q. What have been the average common equity ratios adopted by U.S. State  
17 Regulatory Agencies in recent years?**

1 A. Over the past several years, the average common equity ratios cited in U.S. state  
2 regulatory electric and gas rate proceedings have been:<sup>14</sup>

	<u>Electric</u>	<u>Gas</u>
3 2012	50.69%	51.13%
4 2013	49.25%	50.60%
5 2014	50.28%	51.11%
6 2015	49.54%	49.93%
7 2016	48.91%	50.06%
8 2017	48.90%	49.88%
9 2018	48.95%	50.09%

10 These are similar to those of PSE’s common equity ratios. It is noteworthy, on the  
11 other hand, that these equity ratios reflect a combination of approved capital  
12 structures, some of which include short-term debt and some of which exclude short-  
13 term debt.

14 **Q. What capital structure has PSE requested in the proceedings?**

15 A. PSE proposes a capital structure comprised as follows:

	<u>Percent</u>
16 Short-Term Debt	2.3%
17 Long-Term Debt	49.2%
18 Common Equity	48.5%

19 **Q. How does this proposed capital structure compare to the capital structure  
20 approved in PSE’s most recent rate proceedings?**

21 A. It reflects no change in PSE’s equity ratio, which remains at 48.5 percent. In  
22 Dockets UE-170033/UG-170034, the parties stipulated to a capital structure with  
51.5 percent debt/48.5 percent equity.

---

<sup>14</sup> S&P, RRA, “Regulatory Focus”, January 31, 2019.



1 **Q. What capital structure do you propose to use in these proceedings?**

2 A. I have also used a capital structure with 48.5 percent and the inclusion of short-term  
3 debt for the purposes of these proceedings. My proposed capital structure is derived  
4 in Exh. DCP-3 and is as follows:

5	Short-Term Debt	2.3%
6	Long-Term Debt	49.2%
7	Common Equity	48.5%

8 **Q. Why are you proposing a capital structure for PSE containing 48.5 percent**  
9 **common equity?**

10 A. I first note that PSE's actual capital structure as of December 31, 2018 contained  
11 49.0 percent common equity, as shown on Exh. DCP-7 page 1. Thus, my proposed  
12 capital structure is similar to the recent actual capital structure ratio of PSE (on a  
13 regulated utility basis).

14 Second, Exh. DCP-7 shows the actual equity ratios of PSE and PE have not  
15 increased in recent years.

16 Third, this capital structure matches the capital structure stipulated to by the  
17 parties and adopted by the Commission in PSE's prior rate proceeding.<sup>15</sup>

18 Fourth, the proposed capital structure is similar to that of other electric and  
19 combination electric utilities, as shown on Exh. DCP-8.

20

21 **Q. What is your understanding of this Commission's recent policy on the proper**  
22 **capital structure to use to determine the COC?**

---

<sup>15</sup> 2017 PSE GRC Order at 28, ¶ 83, Table 3A; 34, ¶ 94.

1 A. It is my understanding that the Commission’s policy on determining a capital  
2 structure balances safety (the preservation of investment quality credit ratings and  
3 access to capital) against economy (the lowest overall cost to attract and maintain  
4 capital). The Commission noted that the appropriate capital structure can either be  
5 the Company’s historical capital structure, the projected capital structure, or a  
6 hypothetical capital structure.<sup>16</sup>

7  
8 **Q. Is your recommended capital structure consistent with this policy?**

9 A. Yes. The capital structure that I use is similar to recent actual ratios of PSE, as well  
10 as its 2018 capital structure, and is consistent with the capital structure of other  
11 utilities. I also believe that the capital structure that I propose provides a “balance of  
12 safety and economy” as cited above.

13  
14 **Q. What are the cost rates of debt in PSE’s applications?**

15 A. PSE proposes the cost rates of debt as of March 31, 2021. After making the  
16 adjustments mentioned above PSE’s proposed cost of long-term debt is 5.57  
17 percent,<sup>17</sup> and its cost of short-term debt of 5.65 percent as of this same date.<sup>18</sup> The  
18 applications do not identify the cost of long-term debt for PSE, but I have derived  
19 these cost rates (5.65 percent for short-term debt and 5.57 percent for long-term debt)  
20 from the applications, as shown on Exh. DCP-3.

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<sup>16</sup> *Wash. Utils. & Transp. Comm’n v. Avista Corp.*, Dockets UE-170485 & UG-170486, Order 07, p. 39, ¶ 109 (April 26, 2018), *see also*, *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-040640 & UG-040641, Order 06 at 13, ¶ 27 (February 18, 2005).

<sup>17</sup> McArthur, Exh. MDM-1T at 15:1-2 and MDM-5 at 1; Parcell, Exh. DCP-3 at 2.

<sup>18</sup> McArthur, Exh. MDM-1T at 15; Parcell, Exh. DCP-3 at 2.

1 **Q. Can the ROE be determined with the same degree of precision as the cost of**  
2 **debt?**

3 A. No. The cost rates of debt are largely determined by interest payments, issue prices,  
4 and related expenses. The ROE, on the other hand, cannot be precisely quantified,  
5 primarily because this cost is an opportunity cost. As mentioned previously, there  
6 are several models that can be employed to estimate the ROE. Three of the primary  
7 methods – DCF, CAPM, and CE – are developed in the following sections of my  
8 testimony.

9  
10 **VII. SELECTION OF PROXY GROUPS**

11  
12 **Q. How have you estimated the ROE for PSE?**

13 A. PSE is a not publicly-traded company, nor is PE. Consequently, it is not possible to  
14 directly apply ROE models to PSE or PE. However, in COC analyses, it is  
15 customary to analyze groups of comparison, or “proxy,” companies as a substitute  
16 for PSE to determine its ROE.

17 I have accordingly selected two groups for comparison to PSE. I selected  
18 one group of electric and combination gas-electric utilities similar to the PSE using  
19 the criteria listed on Exh. DCP-9. These criteria area as follows:

- 20 (1) Market cap of \$1 billion to \$15 billion;  
21 (2) Common equity ratio 40% or greater;  
22 (3) Value Line Safety rank of 1 or 2;  
23 (4) S&P and Moody’s bond ratings of A or BBB;

- 1 (5) Currently pays dividends; and  
2 (6) Not involved in major merger or acquisition.

3 In addition, I have conducted studies of the cost of equity for the proxy group  
4 that was selected by PSE witness Roger Morin.

5

6 **Q. Please explain why you are using two proxy groups in your cost of equity**  
7 **analyses.**

8 A. It has long been my practice to develop my own independently-determined proxy  
9 group and to also conduct cost of equity analyses on the utility witness' proxy group.  
10 My conclusions and recommendations, in turn, are based upon the results of both  
11 proxy groups.

12

13 **VIII. DCF ANALYSIS**

14

15 **Q. What is the theory and methodological basis of the DCF model?**

16 A. The DCF model is one of the oldest and most commonly-used models for estimating  
17 the ROE for public utilities.

18 The DCF model is based on the “dividend discount model” of financial  
19 theory, which maintains that the value (price) of any security or commodity is the  
20 discounted present value of all future cash flows.

21 The most common variant of the DCF model assumes that dividends are  
22 expected to grow at a constant rate (the “constant growth” or “Gordon DCF model”).

23 In this framework, the ROE is derived from the following formula:

1 
$$K = \frac{D}{P} + g$$

2 where: P = current price

3 D = current dividend rate

4 K = discount rate (cost of capital)

5 g = constant rate of expected growth

6 This formula essentially recognizes that the return expected or required by investors  
7 is comprised of two factors: the dividend yield (current income) and expected  
8 growth in dividends (future income).

9

10 **Q. Please explain how you employ the DCF model.**

11 A. I use the constant growth DCF model. In doing so, I combine the current dividend  
12 yield for each of the proxy utility stocks described in the previous section with  
13 several indicators of expected dividend growth.

14

15 **Q. How did you derive the dividend yield component of the DCF equation?**

16 A. Several methods can be used to calculate the dividend yield component. These  
17 methods generally differ in the manner in which the dividend rate is employed (i.e.,  
18 current versus future dividends or annual versus quarterly compounding variant). I  
19 used a quarterly version of the dividend yield, which is expressed as follows:

20 
$$Yield = \frac{D_0(1 + 0.5g)}{P_0}$$

21 This dividend yield component recognizes the timing of dividend payments and  
22 dividend increases.

1           The  $P_0$  in my yield calculation is the average of the high and low stock price  
2           for each proxy company for the most recent three-month period (August-October  
3           2019). The  $D_0$  is the current annualized dividend rate for each proxy company.

4

5   **Q.   How do you estimate the dividend growth component of the DCF equation?**

6   A.   The DCF model's dividend growth rate component is usually the most crucial and  
7       controversial element involved in using this methodology. The objective of  
8       estimating the dividend growth component is to reflect the growth expected by  
9       investors that is embodied in the price (and yield) of a company's stock. As such, it  
10      is important to recognize that individual investors have different expectations and  
11      consider alternative indicators in deriving their expectations. This is evidenced by  
12      the fact that every investment decision resulting in the purchase of a particular stock  
13      is matched by another investment decision to sell that stock.

14           A wide array of indicators exists for estimating investors' growth  
15      expectations. As a result, it is evident that investors do not always use one single  
16      indicator of growth. It therefore is necessary to consider alternative dividend growth  
17      indicators in deriving the growth component of the DCF model. I have considered  
18      five indicators of growth in my DCF analyses. These are:

- 19           1. Years 2014-2018 (5-year average) earnings retention, or fundamental  
20           growth (per Value Line);
- 21           2. Five-year average of historic growth in earnings per share (EPS),  
22           dividends per share (DPS), and book value per share (BVPS) (per Value  
23           Line);

- 1                   3. Years 2019, 2020 and 2022-2024 projections of earnings retention growth
- 2                   (per Value Line);
- 3                   4. Years 2016-2018 to 2022-2024 projections of EPS, DPS, and BVPS (per
- 4                   Value Line); and
- 5                   5. Five-year projections of EPS growth (per First Call).

6           I believe this combination of growth indicators is a representative and appropriate set  
7           with which to begin the process of estimating investor expectations of dividend  
8           growth for the groups of proxy companies. I also believe that these growth  
9           indicators reflect the types of information that investors consider in making their  
10          investment decisions. As I indicated previously, investors have an array of  
11          information available to them, all of which would be expected to have some impact  
12          on their decision-making process.

13  
14   **Q.    Please describe your DCF calculations.**

15   A.    Exh. DCP-10 presents my DCF analysis. Page 1 shows the calculation of the “raw”  
16          (i.e., prior to adjustment for growth) dividend yield for each proxy company. Pages  
17          2 and 3 show the growth rates for the groups of proxy companies. Page 4 shows the  
18          DCF calculations, which are presented on several bases: mean, median, low and  
19          high values. These results can be summarized as follows:

20  
21  
22  
23

	<u>Mean</u>	<u>Median</u>	<u>Mean Low<sup>19</sup></u>	<u>Mean High<sup>20</sup></u>	<u>Median Low<sup>21</sup></u>	<u>Median High<sup>22</sup></u>
Parcell Proxy Group	7.2%	7.2%	6.4%	8.0%	6.3%	7.8%
Morin Proxy Group	7.7%	7.7%	6.7%	8.9%	6.5%	8.5%

I note that the individual DCF calculations shown on Exh. DCP-10 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.

8

**Q. What do you conclude from your DCF analyses?**

A. The DCF rates resulting from the analysis of the proxy groups fall into a wide range between 6.3 percent and 8.9 percent. The highest DCF rates are 7.8 percent to 8.9 percent.

I believe a range of 7.8 percent to 8.9 percent (8.35 percent mid-point) represents the current DCF-derived ROE for the proxy groups. This range includes the highest DCF rates and exceeds the low and mean/median DCF rates. My recommendation focuses on the highest of the DCF results to incorporate my recognition that these results are relatively lower than historic DCF results. As a result, my recommendation should be considered conservative.

19

---

<sup>19</sup> Using only the lowest average growth rate.  
<sup>20</sup> Using only the highest average growth rate.  
<sup>21</sup> Using the lowest median growth rate.  
<sup>22</sup> Using only the highest median growth rate.



1 **IX. CAPM ANALYSIS**

2

3 **Q. Please describe the theory and methodological basis of the CAPM.**

4 A. CAPM was developed in the 1960s and 1970s as an extension of modern portfolio  
5 theory (MPT), which studies the relationships among risk, diversification, and  
6 expected returns. The CAPM describes and measures the relationship between a  
7 security's investment risk and its market rate of return.

8

9 **Q. How is the CAPM derived?**

10 A. The general form of the CAPM is:

11 
$$K = R_f + \beta(R_m - R_f)$$

12 where: K = cost of equity

13 R<sub>f</sub> = risk free rate

14 R<sub>m</sub> = return on market

15 β = beta

16 R<sub>m</sub>-R<sub>f</sub> = market risk premium

17 The CAPM is a variant of the RP method. I believe the CAPM is generally superior  
18 to the simple RP method because the CAPM specifically recognizes the risk of a  
19 particular company or industry (i.e., beta), whereas the simple RP method assumes  
20 the same ROE for all companies exhibiting similar bond ratings or other  
21 characteristics.

22

1 **Q. What do you use for the risk-free rate?**

2 A. The first input of the CAPM is the risk-free rate ( $R_f$ ). The risk-free rate reflects the  
3 level of return that can be achieved without accepting any risk.

4 In CAPM applications, the risk-free rate is generally recognized by use of  
5 U.S. Treasury securities. Two general types of U.S. Treasury securities are often  
6 utilized as the  $R_f$  component, short-term U.S. Treasury bills and long-term U.S.  
7 Treasury bonds.

8 I have performed CAPM calculations using the three-month average yield  
9 (August-October 2019) for 20-year U.S. Treasury bonds. I use the yields on long-  
10 term Treasury bonds since this matches the long-term perspective of ROE analyses.  
11 Over this three-month period, these bonds had an average yield of 1.96 percent.

12

13 **Q. What is beta and what betas do you employ in your CAPM?**

14 A. Beta is a measure of the relative volatility (and thus risk) of a particular stock in  
15 relation to the overall market. Betas less than 1.0 are considered less risky than the  
16 market, whereas betas greater than 1 are riskier. Utility stocks traditionally have had  
17 betas below 1. I utilize the most recent Value Line betas for each company in the  
18 proxy groups.

19

20 **Q. How do you estimate the market risk premium component?**

21 A. The market risk premium component ( $R_m - R_f$ ) represents the investor-expected  
22 premium of common stocks over the risk-free rate, or long-term government bonds.

23 For the purpose of estimating the market risk premium, I considered alternative

1 measures of returns of the S&P 500 (a broad-based group of large U.S. companies)  
2 and 20-year U.S. Treasury bonds (i.e., same timeframe as employed in Duff &  
3 Phelps source used to develop risk premiums).

4 First, I compared the actual annual returns on equity of the S&P 500 with the  
5 actual annual income returns of U.S. Treasury bonds. Exh. DCP-11 shows the ROE  
6 for the S&P 500 group for the period 1978-2018 (all available years reported by  
7 S&P). This schedule also indicates the annual yields on 20-year U.S. Treasury  
8 bonds and the annual differentials (i.e., risk premiums) between the S&P 500 and  
9 U.S. Treasury 20-year bonds. Based upon these returns, I conclude that the risk  
10 premium from this analysis is 7.26 percent.

11 I next considered the total returns (i.e., dividends/interest plus capital  
12 gains/losses) for the S&P 500 group as well as for long-term government bonds, as  
13 tabulated by Duff & Phelps (formerly Morningstar/Ibbotson), using both arithmetic  
14 and geometric means. I considered the total returns for the entire 1926-2018 period  
15 reported by this source, which are as follows:

16

	<u>S&amp;P 500</u>	<u>L-T Gov't Bonds</u>	<u>Risk Premium</u>
17 Arithmetic	11.9%	5.9%	6.0%
18 Geometric	10.0%	5.5%	4.5%

19 I conclude from this analysis that the expected risk premium is about 5.9 percent (i.e.  
20 average of all three risk premiums: 7.26 percent from Exh. DCP-11; 6.0 percent  
21 arithmetic and 4.5 percent geometric from Duff & Phelps). I believe that a  
22 combination of arithmetic and geometric means is appropriate since investors have

1 access to both types of means<sup>23</sup> and presumably, both types are reflected in  
2 investment decisions and thus, stock prices and the ROE.

3

4 **Q. What are your CAPM results?**

5 A. Exh. DCP-12 shows my CAPM calculations. The results are:

	<u>Mean</u>	<u>Median</u>
Parcell Proxy Group	5.6%	5.5%
Morin Proxy Group	5.5%	5.5%

6

7

8 **Q. What is your conclusion concerning the CAPM ROE?**

9 A. The CAPM results collectively indicate a ROE of 5.5 percent to 5.6 percent for the  
10 groups of proxy utilities. I conclude that an appropriate CAPM ROE estimation for  
11 PSE is 5.5 percent to 5.6 percent.

12

13

## X. CE ANALYSIS

14

15 **Q. Please describe the basis of the CE methodology.**

16 A. The CE method is derived from the “corresponding risk” concept discussed in the  
17 *Bluefield* and *Hope* cases. This method is thus based upon the economic concept of  
18 opportunity cost. As previously noted, the ROE is an opportunity cost: the  
19 prospective return available to investors from alternative investments of similar risk.

---

<sup>23</sup> For example, Value Line uses compound (i.e., geometric) growth rates in its projection. In addition, mutual funds report growth rates on a compound basis.

1           The CE method is designed to measure the returns expected to be earned on  
2           the original cost book value of similar risk enterprises. Thus, it provides a direct  
3           measure of the fair return, since it translates into practice the competitive principle  
4           upon which regulation rests.

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

13  
14   **Q.   How do you apply the CE methodology in your analysis of PSE's ROE?**

15   A.   I apply the CE methodology by examining realized ROEs for the groups of proxy  
16          utilities, as well as unregulated companies. My CE analysis also uses prospective  
17          returns and thus is not backward looking. I evaluate investor acceptance of these  
18          returns by reference to the resulting market-to-book ratios ("M/Bs"). In this manner  
19          it is possible to assess the degree to which a given level of return equates to the  
20          COC. It is generally recognized for utilities that an M/B of greater than one (i.e.,  
21          100 percent) reflects a situation where a company is able to attract new equity capital  
22          without dilution (i.e., above book value). As a result, one objective of a fair cost of  
23          equity is the maintenance of stock prices at or above book value. There is no

1 regulatory obligation to set rates designed to maintain an M/B significantly above  
2 one.

3 I further note that my CE analysis is based upon market data (through the use  
4 of M/Bs) and is thus essentially a market test. Given that public utilities have their  
5 rates set based upon the book value of their assets (i.e., rate base) and capital  
6 structure (i.e., cost of capital), when a utility's stock price exceeds its book value (i.e.,  
7 M/B greater than 1) this indicates that investors consider its current and prospective  
8 earnings as adequate. As a result, my CE analysis is not subject to the criticisms  
9 occasionally made by some who maintain that past earned returns do not represent  
10 the cost of capital.

11

12 **Q. What time periods do you examine in your CE analysis?**

13 A. My CE analysis considers the experienced ROEs of the proxy groups of utilities for  
14 the period 2002-2018 (i.e., the last 17 years). The CE analysis requires that I  
15 examine a relatively long period of time in order to determine trends in earnings over  
16 at least a full business cycle. Further, in estimating a fair level of return for a future  
17 period, it is important to examine earnings over a diverse period of time in order to  
18 avoid any undue influence from unusual or abnormal conditions that may occur in a  
19 single year or shorter period. Therefore, in forming my judgment of the current cost  
20 of equity, I focused on two periods: 2009-2018 (the current business cycle) and  
21 2002-2008 (the most recent business cycle). I have also considered projected ROEs  
22 for 2019, 2020 and 2022-2024.

23

1 **Q. Please describe your CE analysis.**

2 A. Exhibits DCP-13 and DCP-14 contain summaries of experienced ROEs and M/Bs  
3 for three groups of companies, while Exh. DCP-15 presents a risk comparison of  
4 utilities versus unregulated firms.

5 Exh. DCP-13 shows the ROEs and M/Bs for the groups of proxy utilities.

6 These can be summarized as follows:

	<u>Parcell Proxy Group</u>	<u>Morin Proxy Group</u>
7		
8		
9	Historic ROE	
10	Mean	9.4%
11	Median	10.4-10.9%
12	Historic M/B	10.0-10.6%
13	Mean	152-161%
14	Median	171-174%
15	Prospective ROE	148-154%
16	Mean	9.4-9.8%
17	Median	9.6-10.2%
18		9.8-10.0%

19 These results indicate that historic ROEs of 9.4 percent to 10.9 percent have been  
20 adequate to produce M/Bs of 148 percent to 174 percent for the groups of utilities.  
21 Furthermore, projected returns on equity for 2019, 2020 and 2022-2024 are within a  
22 range of 9.3 percent to 10.2 percent for the utility groups. These relate to 2018 M/Bs  
23 of 180 percent or greater. I note that Dr. Morin’s proxy group exhibits both higher  
24 ROEs and M/Bs relative to those of my proxy group.

25  
26 **Q. Do you also review the earnings of unregulated firms?**

27 A. Yes. As an alternative, I also examine the S&P’s 500 Composite group. This is a  
28 well-recognized group of firms that is widely utilized in the investment community  
29 and is indicative of the competitive sector of the economy. Exh. DCP-14 presents

1 the earned ROEs and M/Bs for the S&P 500 group over the past seventeen years  
2 (i.e., 2002-2018). As this schedule indicates, over the two business cycle periods,  
3 this group's average ROEs ranged from 12.4 percent to 13.6 percent, with average  
4 M/Bs ranging between 249 percent and 275 percent.

5  
6 **Q. How can the above information be used to estimate PSE's ROE?**

7 A. The recent ROEs of the proxy utilities and S&P 500 group can be viewed as an  
8 indication of the level of return realized and expected in the regulated and  
9 competitive sectors of the economy. In order to apply these returns to the ROE for  
10 the proxy utilities, however, it is necessary to compare the risk levels of the utilities  
11 and the competitive companies. I do this in Exh. DCP-15, which compares several  
12 risk indicators for the S&P 500 group and the utility groups. The information in this  
13 exhibit indicates that the S&P 500 group is riskier than the utility proxy groups.

14  
15 **Q. What ROE is indicated by your CE analysis?**

16 A. Based on recent ROEs and M/Bs, my CE analysis indicates that the ROE for the  
17 proxy utilities is no more than 9 percent to 10 percent (9.5 percent mid-point).  
18 Recent ROEs of 9.4 percent to 10.9 percent have resulted in M/Bs of 148 percent and  
19 over. Prospective ROEs of 9.3 percent to 10.2 percent have been accompanied by  
20 M/Bs over 180 percent. As a result, it is apparent that authorized returns below this  
21 level would continue to result in M/Bs of well above 100 percent. As I indicated  
22 earlier, the fact that M/Bs substantially exceed 100 percent indicates that historic and  
23 prospective ROEs of 9.5 percent reflect earning levels that are well above the actual



1 cost of equity for those regulated companies. I also note that a company whose stock  
2 sells above book value can attract capital in a way that enhances the book value of  
3 existing stockholders, thus creating a favorable environment for financial integrity.  
4 Finally, I note that my 9.0 percent to 10.0 percent CE recommendation generally  
5 reflects the actual and prospective ROEs for my proxy group. I have made no  
6 adjustments to these return levels to reflect the high M/Bs.

7

8 **XI. RETURN ON EQUITY RECOMMENDATION**

9

10 **Q. Please summarize the results of your three ROE analyses.**

11 A. My three ROE analyses produced the following:

12

	<u>Mid-Point</u>	<u>Range</u>
13 DCF	8.35%	7.8-8.9%
14 CAPM	5.55%	5.5-5.6%
CE	9.5%	9.0-10.0%

15 These results indicate an overall broad range of 5.5 percent to 10.0 percent, which  
16 focuses on the respective individual model results. Using mid-point values, the  
17 range is 5.55 percent to 9.5 percent. I recommend a ROE range of 8.9 percent to 9.5  
18 percent for PSE (mid-point of 9.2 percent). This range includes the upper end of my  
19 DCF results and the mid-point of my CE results. My specific ROE recommendation  
20 is 9.2 percent.

21

1 **Q. It appears that your CAPM results are less than your DCF and CE results.**  
2 **Does this imply that the CAPM results should not be considered in determining**  
3 **the cost of equity for PSE?**

4 A. No. It is apparent that the CAPM results are less than the DCF and CE results.  
5 There are two reasons for the lower CAPM results. First, risk premiums are lower  
6 currently than was the case in prior years. This is the result of lower equity returns  
7 that have been experienced over the past several years. This is also reflective of a  
8 decline in investor expectations of equity returns and risk premiums. Second, the  
9 level of interest rates on U.S. Treasury bonds (i.e., the risk-free rate) has been lower  
10 in recent years. This is partially the result of the actions of the Federal Reserve  
11 System to stimulate the economy. This also impacts investor expectations of returns  
12 in a negative fashion. I note that, initially, investors may have believed that the  
13 decline in Treasury yields was a temporary factor that would soon be replaced by a  
14 rise in interest rates. However, this has not been the case, as interest rates have  
15 remained low and continued to decline for the past eight-plus years. As a result, it  
16 cannot be maintained that low interest rates (and low CAPM results) are temporary  
17 and do not reflect investor expectations. Investors have now experienced nearly a  
18 ten-year period of low and declining interest rates, such that these are the “new  
19 norm.” Consequently, even though the CAPM results have not been given weight in  
20 developing my recommended ROE range, they should be considered as one factor in  
21 determining where, within the recommended range, the cost of equity for PSE should  
22 fall. Therefore, I recommend that PSE’s ROE be set at no higher than the mid-point  
23 of the ROE range for the proxy companies.

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## **XII. TOTAL COST OF CAPITAL**

**Q. What is the total COC for PSE?**

A. Exh. DCP-3 reflects the total COC for PSE using the Company’s proposed capital structure and embedded costs of debt, as well as my ROE recommendations. The resulting COC is a range of 7.19 percent to 7.48 percent. With my 9.2 percent ROE, my COC recommendation is 7.33 percent.

**Q. PSE is requesting a two-year rate plan as part of its filings. Do your ROE and COC recommendations apply to all years of this rate plan?**

A. Yes, they do. I note, in this regard, that the proposed capital structure matches PSE’s recent capital structures, and so my COC recommendations reflect an “on-going” capital structure. The costs of debt reflect 2021 figures and I am not aware of any significant proposed new issues that would impact the 2021 cost of debt. Finally, my ROE recommendation is based on financial models which are forward-looking and thus reflect an on-going perspective.

## **XIII. COMMENTS ON COMPANY TESTIMONY**

**Q. What ROE is PSE requesting in this proceeding?**

A. PSE is requesting a 9.8 percent ROE. This 9.8 percent ROE is recommended by PSE witness Dr. Roger A. Morin. Dr. Morin’s ROE estimates are summarized

1 below:<sup>24</sup>

2	Study	ROE
3	DCF-Combination Utilities Value Line Growth	9.7%
4	DCF-Combination Utilities Analysts Growth	8.3%
5	Traditional CAPM	8.9%
6	Empirical CAPM	9.6%
7	Historical Risk Premium Electric	10.3%
8	Allowed Risk Premium	10.4%
9	<b>Average (excluding 8.3% value)</b>	<b>9.8%</b>

7

8 **Q. Do you have any disagreements with Dr. Morin’s ROE conclusions?**

9 A. Yes, I do. Each of his ROE methodologies over-states, to some degree, the required  
10 ROE for PSE.

11

12 **Q. What is your understanding of Dr. Morin’s DCF analyses?**

13 A. Dr. Morin performs two sets of DCF analyses for his proxy group of combination  
14 gas and electric utilities, using data as of April 2019.<sup>25</sup> In these analyses, he uses  
15 “spot” dividend yields for each company.<sup>26</sup> For the growth rates, he used two  
16 indicators of growth – 5-year EPS growth projections and Value Line projections of  
17 EPS growth.

18 The major problem with Dr. Morin’s DCF analyses is the fact that he has  
19 used only one type of growth indicator– projections of EPS growth. As I indicated  
20 in my DCF analysis, it is customary and proper to use alternative measures of  
21 growth.

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<sup>24</sup> Morin, Exh. RAM-1T at 56:2.

<sup>25</sup> *Id.* at 19:3-4.

<sup>26</sup> *Id.* at 19:7-11.

1 Dr. Morin's DCF analyses implicitly assume that investors rely exclusively  
2 on EPS projections in making investment decisions. This is a very dubious  
3 assumption and Dr. Morin has offered no evidence that it is correct. I note, for  
4 example, that Value Line – one of the sources of his growth rate estimates – contains  
5 many statistics, both of a historic and projected nature, for the benefit of investors  
6 who subscribe to this publication and presumably make investment decisions based  
7 at least in part from the information contained in Value Line. Yet, Dr. Morin would  
8 have us believe that Value Line subscribers and investors focus exclusively on one  
9 single number from this publication.

10 I note in this regard that the DCF model is a “cash flow” model. The cash  
11 flow to investors in a DCF framework is dividends. Dr. Morin's DCF model, in  
12 contrast, does not even consider dividend growth rates.<sup>27</sup>

13  
14 **Q. What is your understanding of Dr. Morin's CAPM analyses?**

15 A. Dr. Morin performs CAPM analyses for his proxy group of electric utilities (0.62  
16 average beta).<sup>28</sup> He combines this 0.62 beta with a 4.2 percent “forecast” cost of  
17 long-term (30-year) U.S. Treasury Bonds and a 7.5 percent risk premium to get the  
18 following CAPM results:<sup>29</sup>

$$K = RF + \beta(RP) = 4.2\% + 0.62(7.5\%) = 8.9\%$$

20  

---

<sup>27</sup> Morin, Exh. RAM-1T at 22:12-18.

<sup>28</sup> Morin, Exh. RAM-1T at 37:21, *but see, Id.* at 31:18 (On this page, the average beta is stated as .60, but this is likely a typographical error.)

<sup>29</sup> *Id.* at 45:10-12.

1 **Q. Do you agree with this CAPM analysis?**

2 A. No, I do not.

3

4 **Q. With which components of his CAPM analysis do you disagree?**

5 A. I disagree with the use of forecasted interest rates and the risk premium component.

6

7 **Q. Why is it not proper to use projected interest rates as the risk-free rate?**

8 A. By definition, projected interest rates are not risk-free because they are not currently  
9 available as an alternative investment. It is improper to use projected interest rates,  
10 because they are not measurable and not achievable. For example, if the current yield  
11 on 20-year U.S. Treasury Bonds is about 2.0 percent, this reflects the rate that  
12 investors can actually receive on their investment. Investors cannot receive a  
13 projected yield on their investments since such a yield is speculative, not actual.  
14 Instead, It is proper to use the current (i.e., actual) yield as the risk-free rate in a  
15 CAPM context. This is the case since the current yield is known and measurable and  
16 reflects investors' collective assessment of all known capital market conditions.  
17 Projected interest rates, in contrast, are not measurable and not achievable.

18 Use of the current risk-free rate in a CAPM context is similar to using the  
19 current yield in a DCF context. Analysts do not use projected stock prices as the  
20 basis for the dividend yield in a DCF analysis, as use of projected stock prices is  
21 speculative. Use of current stock prices is appropriate, as are used by Dr. Morin.  
22 Likewise, current levels of interest rates reflect all current information (i.e., the  
23 efficient market hypothesis) and should be used as the risk-free rate in the CAPM.

1 In addition, actual yields, not projected yields, are used by Dr. Morin in the  
2 development of his proposed risk premium.

3

4 **Q. Did Dr. Morin use projected interest rates in his ROE analyses in PSE’s last**  
5 **rate proceeding?**

6 A. Yes. Dr. Morin’s CAPM and risk premium analyses in Docket UE-170033/UG-  
7 170034 used a projected yield of 4.4 percent for 30-year U.S. Treasury Bonds.<sup>30</sup>

8

9 **Q. Have long-term utility bond yields risen in recent months as predicted by Dr.**  
10 **Morin?**

11 A. No, they have not. The table below depicts the trends in 30-year U.S. Treasury bond  
12 yields over the 2017-2019 period (i.e., the time frame since the filing of Dr. Morin’s  
13 prior testimony).

14

Year	30-Year U.S. Treasury Bonds		
	High	Low	Average
2017	3.08%	2.77%	2.89%
2018	3.36%	3.01%	3.11%
2019	3.04%	2.12%	2.74%

17

Source: Council of Economic Advisors, “Economic Indicators.”

18

This indicates that 30-year U.S. Treasury bonds have been well-below the 4.4

19

percent level used by Dr. Morin in his 2017 testimony. In addition, rates have

20

declined by more than 90 basis points since the end of 2018. This invalidates Dr.

21

Morin’s use of projected interest rates.

---

<sup>30</sup> *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy*, Dockets UE-170033 & UG-170034, Morin, Exh. RAM-1T at 33:4-5 (January 13, 2017).

1 **Q. What is your disagreement with Dr. Morin’s market risk premium component?**

2 A. Dr. Morin’s 7.5 percent risk premium is partially derived from the 1926-2018 Duff  
3 & Phelps (formerly Morningstar/Ibbotson) study (cited previously) showing a 6.9  
4 percent differential between common stocks and the “income component” of U.S.  
5 Treasury Bonds.<sup>31</sup>

6 I disagree with this study since Dr. Morin improperly used “income returns”  
7 from the Duff & Phelps study rather than “total returns.” What Dr. Morin did was  
8 compare the differential between total returns for common stocks (i.e., dividends and  
9 capital gains) and only income returns for Treasury bonds.<sup>32</sup> As such, he has  
10 ignored the capital gains component of the Treasury bonds return. As I indicated  
11 earlier in my testimony, the differential between total returns of common stocks and  
12 Treasury bonds is 6.0 percent (a figure Dr. Morin acknowledges on page 38).<sup>33</sup> In  
13 addition, Dr. Morin’s use of the Duff & Phelps study only used half of the reported  
14 data (arithmetic means) and ignored the other half of the reported data (geometric  
15 means).<sup>34</sup> I discussed this issue earlier in my testimony.

16  
17 **Q. Please describe Dr. Morin’s “empirical” CAPM analysis. Why is it improper to**  
18 **use an ECAPM for public utilities?**

19 A. Dr. Morin also employs what he describes as an “empirical” CAPM analysis. The  
20 ECAPM is improper to use for PSE because it “adjusts” each proxy company’s

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<sup>31</sup> Morin, Exh. RAM-1T at 38:4-17.

<sup>32</sup> *Id.* at 31:16-17; 44:7-20.

<sup>33</sup> *Id.* at 38:15.

<sup>34</sup> Morin, Exh. RAM-1T at 41:5-9; 42:3-14.



1 actual beta by assigning only 75 percent weight to the actual beta and “assumes” a  
2 beta of 1.0 with the remaining 25 percent weight. As a result, the ECAPM does not  
3 use the actual betas of the proxy companies, but rather calculates hypothetical betas  
4 that are upward biased due to the fact that electric utility betas are below 1.0. In  
5 contrast, the traditional CAPM directly recognizes and quantifies the risk of  
6 individual companies through the use of the beta coefficient. As such, each proxy  
7 company’s risk and beta are identified and used in the calculation of its CAPM ROE.  
8

9 **Q. Please describe your understanding of Dr. Morin’s risk premium analyses.**

10 A. Dr. Morin performs two sets of risk premium analyses which involve the estimation  
11 of an equity risk premium over the forecasted (as of early 2019) 4.2 percent long-  
12 term government bond yield developed in his CAPM analyses.  
13

14 **Q. Please describe Dr. Morin’s historic risk premium for the electric utility  
15 industry.**

16 A. Dr. Morin’s historic risk premium for the electric utility industry involves an  
17 examination of the total returns of long-term government bonds (capital gains/loss  
18 plus interest) and the S&P Electric Utilities Index (capital gains/losses plus dividend  
19 yield) over the period 1930-2018.<sup>35</sup> The average historical difference between the  
20 electric utility returns and the utility bond income returns was 6.1 percent. His  
21 historic risk premium for the electric utility industry simply added the 4.2 percent

---

<sup>35</sup> Note that Dr. Morin’s direct testimony cites a 1930-2015 time frame (Morin, Exh. RAM-1T at 50:4-7); however, in response to discovery requests he has noted that the 2015 date is a typographical error.

1 forecast long-term government bond yield to the 6.1 percent historic risk premium to  
2 get a 10.3 percent result.<sup>36</sup>

3

4 **Q. Do you agree with this methodology for estimating the cost of equity for PSE?**

5 A. No, I do not. Dr. Morin's historic risk premium of 6.1 percent is simply an  
6 examination of historical events going back to 1930. He has made no demonstration  
7 that economic and financial conditions in 2019 are similar to those over the past  
8 eighty plus years. The use of such a methodology implicitly assumes that the events  
9 of each of these years can have the same influence on investor decisions at the  
10 current time. It is unlikely that investors give the financial and economic conditions  
11 of the distant past the same weight as the financial and economic conditions of the  
12 recent past.

13 In addition, the risk premium developed by Dr. Morin are generally  
14 dominated by the influence of capital gains in many years. I do not believe it is  
15 proper to assign PSE's cost of equity based directly upon a methodology which is  
16 dominated by stock market changes and bond market changes.

17 Finally, Dr. Morin uses forecasted interest rates. As I indicated previously,  
18 this is improper.

19

20 **Q. Please describe Dr. Morin's analysis of allowed risk premiums for the electric**  
21 **utility industry.**

---

<sup>36</sup> Morin, Exh. RAM-1T at 50:15-21.

1 A. In this phase of his risk premium testimony, Dr. Morin compares the differential  
2 between allowed returns on equity for electric utilities and long-term Treasury bonds  
3 over the 1986-2018 period. The average spread over this period was 5.58 percent<sup>37</sup>,  
4 but Dr. Morin does not utilize this differential as his risk premium. Instead, he  
5 performs regression analyses to track the risk premium in terms of rising and falling  
6 interest rates. He then concludes that a 6.2 percent risk premium is appropriate in  
7 conjunction with a 4.2 percent Treasury bond yield.<sup>38</sup> This adjustment is not  
8 consistent with Dr. Morin’s historic risk premium analyses where he simply took the  
9 average risk premium over the entire 1931-2015 period and applied it to the  
10 projected level of Treasury bond yields.<sup>39</sup>

11 I also note that there has been a downward trend in allowed returns on equity  
12 for electric and natural gas utilities in recent years. According to the source of Dr.  
13 Morin’s allowed risk premium analysis, (Regulatory Focus, published by Regulatory  
14 Research Associates, as cited earlier in my testimony), the annual average return on  
15 equity awards<sup>40</sup> have been:

<u>Year</u>	<u>Electric</u>	<u>Natural Gas</u>
2006	10.34%	10.40%
2007	10.32%	10.22%
2008	10.37%	10.39%
2009	10.52%	10.22%
2010	10.29%	10.15%
2011	10.19%	9.91%
2012	10.02%	9.93%
2013	9.82%	9.68%
2014	9.76%	9.78%

<sup>37</sup> Morin, Exh. RAM-1T at 52:13-14.

<sup>38</sup> *Id.* at 53:5-8.

<sup>39</sup> *Id.* at 50:7-10.

<sup>40</sup> S&P, RRA, “Regulatory Focus,” January 31, 2019, General Rate Cases.

1	2015	9.60%	9.60%
	2016	9.60%	9.53%
2	2017	9.68%	9.73%
	2018	9.55%	9.60%

3

4 It is noteworthy that the average authorized return on equity has not been as large as  
5 Dr. Morin's 9.8 percent return on equity recommendation since 2013.

6

7 **Q. Does this conclude your testimony?**

8 A. Yes, it does.

9

**Exh. DCP-3**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**EXHIBIT TO TESTIMONY OF**

**David C. Parcell**

**ON BEHALF OF STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

***Puget Sound Energy Total Cost of Capital***

**November 22, 2019**

Exh. DCP-3  
Dockets UE-190529/UG-190530 and  
UE-190274/UG-190275 (consolidated)  
Page 1 of 1

**PUGET SOUND ENERGY  
TOTAL COST OF CAPITAL**

Item	Percent 1/	Cost	Weighted Cost
Short-term Debt	2.3%	5.65% 2/	0.13%
Long-term Debt	49.2%	5.57% 2/	2.74%
Common Equity	48.5%	8.90% 9.20% 9.50%	4.32% 4.46% 4.61%
Total	100.0%		7.19% 7.48% 7.33%

1/ Capital structure proposed by Company, reflecting a 48.5% common equity ratio approved by Commission in last case.

2/ Costs of debt contained in Company filing, as shown on Exh. MDM-1T, page 15, for the 12 months ended March 31, 2021, reflecting the inclusion of Commitment Fees and Amortization of Short-Term Debt Issue Cost in Short-Term Debt cost and inclusion of Amortization of Reacquired Debt in Long-Term Debt cost.

Cost of Short-Term Debt:	Ratio	Cost	Wgt. Cost
Marginal Short-Term Debt Rate	2.3%	4.18%	0.10%
Commitment Fees			0.02%
Amortization of Short-Term Debt Issue Cost			0.01%
		5.65%	0.13%
Cost of Long-Term Debt			
Marginal Long-Term Debt Rate	49.2%	5.51%	2.71%
Amortization of Reacquired Debt			0.03%
		5.57%	2.74%

**Exh. DCP-10**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**EXHIBIT TO TESTIMONY OF**

**David C. Parcell**

**ON BEHALF OF STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

***Proxy Companies DCF Cost Rates***

**November 22, 2019**

**PROXY COMPANIES  
DIVIDEND YIELD**

COMPANY	Qtr DPS	AUGUST - OCTOBER 2019				YIELD
		DPS	HIGH	LOW	AVERAGE	
<b>Parcell Proxy Group</b>						
ALLETE	\$0.588	\$2.35	\$88.60	\$83.38	\$85.99	2.7%
Alliant Energy	\$0.355	\$1.42	\$54.59	\$48.77	\$51.68	2.7%
Avista	\$0.388	\$1.55	\$49.33	\$44.02	\$46.68	3.3%
Black Hills Corp	\$0.505	\$2.02	\$80.61	\$70.15	\$75.38	2.7%
Hawaiian Electric Industries	\$0.320	\$1.28	\$45.96	\$42.72	\$44.34	2.9%
IDACORP	\$0.630	\$2.52	\$114.01	\$101.24	\$107.63	2.3%
MGE Energy	\$0.353	\$1.41	\$80.84	\$71.70	\$76.27	1.8%
Northwestern Corp	\$0.575	\$2.30	\$76.72	\$67.36	\$72.04	3.2%
OGE Energy Corp	\$0.388	\$1.55	\$45.77	\$41.39	\$43.58	3.6%
Otter Tail Corp	\$0.350	\$1.40	\$56.16	\$48.09	\$52.13	2.7%
Pinnacle West Capital Corp	\$0.738	\$2.95	\$98.58	\$90.48	\$94.53	3.1%
Portland General Electric	\$0.385	\$1.54	\$58.43	\$53.47	\$55.95	2.8%
Average						<b>2.8%</b>
<b>Morin Proxy Group</b>						
Alliant Energy	\$0.355	\$1.42	\$54.59	\$48.77	\$51.68	2.7%
Ameren Corp	\$0.475	\$1.90	\$80.85	\$73.31	\$77.08	2.5%
Avista Corp	\$0.388	\$1.55	\$49.33	\$44.02	\$46.68	3.3%
Black Hills Corp	\$0.505	\$2.02	\$80.61	\$70.15	\$75.38	2.7%
CenterPoint Energy	\$0.288	\$1.15	\$30.71	\$27.16	\$28.94	4.0%
Chesapeake Utilities	\$0.405	\$1.62	\$97.00	\$89.44	\$93.22	1.7%
CMS Energy	\$0.383	\$1.53	\$65.31	\$57.43	\$61.37	2.5%
Consolidated Edison	\$0.740	\$2.96	\$94.97	\$84.45	\$89.71	3.3%
Dominion Energy	\$0.918	\$3.67	\$83.23	\$73.76	\$78.50	4.7%
DTE Energy	\$0.945	\$3.78	\$134.37	\$124.93	\$129.65	2.9%
Duke Energy	\$0.945	\$3.78	\$97.37	\$86.31	\$91.84	4.1%
Eversource Energy	\$0.535	\$2.14	\$86.55	\$75.48	\$81.02	2.6%
Exelon Corp	\$0.363	\$1.45	\$49.32	\$43.42	\$46.37	3.1%
Fortis	\$0.339	\$1.36	\$42.80	\$39.16	\$40.98	3.3%
MGE Energy	\$0.353	\$1.41	\$80.84	\$71.70	\$76.27	1.8%
NorthWestern Corp	\$0.575	\$2.30	\$76.72	\$67.36	\$72.04	3.2%
Public Service Enterprise	\$0.470	\$1.88	\$63.88	\$55.27	\$59.58	3.2%
Sempra Energy	\$0.968	\$3.87	\$148.90	\$131.32	\$140.11	2.8%
WEC Energy Group	\$0.590	\$2.36	\$98.19	\$82.16	\$90.18	2.6%
Xcel Energy	\$0.405	\$1.62	\$66.05	\$58.74	\$62.40	2.6%
Average						<b>3.0%</b>

Source: Yahoo! Finance.



Exh. DCP-10  
Dockets UE-190529/UG-190530 and  
UE-190274/UG-190275 (consolidated)  
Page 2 of 4

**PROXY COMPANIES  
RETENTION GROWTH RATES**

COMPANY	2014	2015	2016	2017	2018	Average	2019	2000	2022-'24	Average
<b>Parcell Proxy Group</b>										
ALLETE	2.5%	3.6%	2.8%	2.4%	2.7%	2.8%	2.5%	3.0%	3.5%	3.0%
Alliant Energy	4.3%	3.6%	2.8%	4.0%	4.3%	3.8%	3.5%	4.0%	4.0%	3.8%
Avista	2.4%	2.3%	3.0%	1.9%	2.2%	2.4%	5.0%	2.0%	2.5%	3.2%
Black Hills Corp	4.3%	3.8%	3.3%	5.3%	3.9%	4.1%	3.5%	3.5%	4.0%	3.7%
Hawaiian Electric Industries	2.3%	1.5%	6.3%	2.1%	3.1%	3.1%	3.5%	3.5%	3.0%	3.3%
IDACORP	5.4%	4.8%	4.3%	4.4%	4.4%	4.7%	4.0%	3.5%	3.5%	3.7%
MGE Energy	6.4%	4.5%	4.7%	4.2%	4.7%	4.9%	5.0%	5.0%	5.0%	5.0%
Northwestern Corp	3.8%	3.0%	4.1%	3.4%	3.2%	3.5%	3.5%	3.0%	3.0%	3.2%
OGE Energy Corp	6.5%	4.0%	3.3%	3.5%	3.8%	4.2%	3.0%	3.0%	3.5%	3.2%
Otter Tail Corp	2.2%	2.0%	2.1%	3.3%	4.0%	2.7%	4.0%	3.5%	3.5%	3.7%
Pinnacle West Capital Corp	3.5%	3.9%	3.5%	4.2%	3.9%	3.8%	3.5%	4.0%	4.0%	3.8%
Portland General Electric	4.6%	3.3%	3.5%	3.6%	3.5%	3.7%	3.0%	3.0%	3.0%	3.0%
Average						<b>3.6%</b>				<b>3.5%</b>
<b>Morin Proxy Group</b>										
Alliant Energy	4.3%	3.6%	2.8%	4.0%	4.3%	3.8%	3.5%	4.0%	4.0%	3.8%
Ameren Corp	2.9%	2.5%	3.3%	3.4%	4.8%	3.4%	4.0%	4.5%	4.0%	4.2%
Avista Corp	2.4%	2.3%	3.0%	1.9%	2.2%	2.4%	5.0%	2.0%	2.5%	3.2%
Black Hills Corp	4.3%	3.8%	3.3%	5.3%	3.9%	4.1%	3.5%	3.5%	4.0%	3.7%
CenterPoint Energy	4.5%	1.1%	0.0%	4.7%	0.0%	2.1%	2.0%	3.0%	4.0%	3.0%
Chesapeake Utilities	7.4%	6.8%	6.1%	4.9%	6.7%	6.4%	5.5%	5.5%	6.0%	5.7%
CMS Energy	5.0%	5.2%	4.8%	5.2%	5.3%	5.1%	5.5%	5.5%	6.0%	5.7%
Consolidated Edison	2.6%	3.5%	3.0%	3.0%	3.5%	3.1%	2.0%	2.5%	2.5%	2.3%
Dominion Energy	3.3%	2.9%	2.7%	1.8%	0.0%	2.1%	0.0%	2.0%	2.5%	1.5%
DTE Energy	5.2%	3.4%	3.7%	4.6%	4.9%	4.4%	3.5%	3.5%	4.0%	3.7%
Duke Energy	1.7%	1.5%	0.6%	1.2%	1.0%	1.2%	2.0%	2.0%	2.5%	2.2%
Eversource Energy	3.5%	3.4%	3.5%	3.5%	3.4%	3.5%	3.5%	3.5%	3.5%	3.5%
Exelon Corp	3.3%	4.5%	1.9%	4.7%	2.2%	3.3%	4.5%	4.5%	4.5%	4.5%
Fortis	1.7%	4.5%	2.1%	5.2%	4.1%	3.5%	4.0%	4.0%	3.5%	3.8%
MGE Energy	6.4%	4.5%	4.7%	4.2%	4.7%	4.9%	5.0%	5.0%	5.0%	5.0%
NorthWestern Corp	3.8%	3.0%	4.1%	3.4%	3.2%	3.5%	3.5%	3.0%	3.0%	3.2%
Public Service Enterprise	6.3%	6.8%	4.6%	4.1%	3.4%	5.0%	6.5%	4.5%	4.5%	5.2%
Sempra Energy	5.0%	5.8%	2.9%	3.3%	4.1%	4.2%	3.0%	4.0%	5.0%	4.0%
WEC Energy Group	5.3%	2.1%	3.5%	3.6%	3.7%	3.6%	3.5%	3.5%	4.0%	3.7%
Xcel Energy	4.5%	4.3%	4.0%	3.9%	4.3%	4.2%	4.0%	4.0%	4.0%	4.0%
Average						<b>3.7%</b>				<b>3.8%</b>

Source: Value Line Investment Survey.

**PROXY COMPANIES  
PER SHARE GROWTH RATES**

COMPANY	5-Year Historic Growth Rates				Est'd '16-'18 to '22-'24 Growth Rates			
	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
<b>Parcell Proxy Group</b>								
ALLETE	4.0%	3.0%	5.5%	4.2%	6.0%	5.0%	3.5%	4.8%
Alliant Energy	4.5%	7.0%	4.5%	5.3%	6.5%	5.5%	7.5%	6.5%
Avista	5.0%	4.5%	4.5%	4.7%	3.5%	4.0%	3.5%	3.7%
Black Hills Corp	11.0%	4.0%	3.0%	6.0%	5.0%	6.5%	5.5%	5.7%
Hawaiian Electric Industries	4.0%	0.0%	3.5%	2.5%	2.5%	3.0%	4.0%	3.2%
IDACORP	4.0%	10.0%	5.0%	6.3%	3.5%	7.0%	4.0%	4.8%
MGE Energy	3.5%	4.0%	6.0%	4.5%	6.0%	5.0%	5.5%	5.5%
Northwestern Corp	7.0%	7.0%	8.0%	7.3%	3.0%	4.5%	3.5%	3.7%
OGE Energy Corp	1.0%	9.5%	6.0%	5.5%	6.5%	7.0%	3.5%	5.7%
Otter Tail Corp	14.0%	1.5%	3.5%	6.3%	5.0%	4.0%	4.5%	4.5%
Pinnacle West Capital Corp	5.0%	3.0%	4.5%	4.2%	5.0%	6.0%	3.5%	4.8%
Portland General Electric	4.0%	4.5%	3.5%	4.0%	4.5%	6.5%	3.0%	4.7%
Average				<b>5.1%</b>				<b>4.8%</b>
<b>Morin Proxy Group</b>								
Alliant Energy	4.5%	7.0%	4.5%	5.3%	6.5%	5.5%	7.5%	6.5%
Ameren Corp	4.5%	2.5%	0.5%	2.5%	6.5%	6.0%	5.0%	5.8%
Avista Corp	5.0%	4.5%	4.5%	4.7%	3.5%	4.0%	3.5%	3.7%
Black Hills Corp	11.0%	4.0%	3.0%	6.0%	5.0%	6.5%	5.5%	5.7%
CenterPoint Energy	-3.0%	7.5%	1.0%	1.8%	12.5%	2.5%	13.5%	9.5%
Chesapeake Utilities	8.0%	6.0%	10.5%	8.2%	9.0%	9.0%	9.0%	9.0%
CMS Energy	7.0%	7.0%	5.5%	6.5%	7.0%	7.0%	7.5%	7.2%
Consolidated Edison	2.0%	2.5%	4.0%	2.8%	3.0%	3.5%	3.0%	3.2%
Dominion Energy	3.5%	7.5%	6.5%	5.8%	6.5%	5.0%	7.0%	6.2%
DTE Energy	8.0%	6.5%	4.5%	6.3%	5.5%	6.0%	5.5%	5.7%
Duke Energy	0.5%	3.0%	1.5%	1.7%	6.0%	2.5%	2.5%	3.7%
Eversource Energy	7.0%	8.0%	5.0%	6.7%	5.5%	5.5%	4.5%	5.2%
Exelon Corp	-3.5%	-7.0%	4.5%	neg	9.0%	5.5%	5.0%	6.5%
Fortis	7.0%	6.5%	9.0%	7.5%	4.0%	6.0%	5.0%	5.0%
MGE Energy	3.5%	4.0%	6.0%	4.5%	6.0%	5.0%	5.5%	5.5%
NorthWestern Corp	7.0%	7.0%	8.0%	7.3%	3.0%	4.5%	3.5%	3.7%
Public Service Enterprise	1.0%	4.0%	5.0%	3.3%	6.0%	5.0%	4.5%	5.2%
Sempra Energy	2.0%	7.5%	4.0%	4.5%	11.0%	8.0%	6.5%	8.5%
WEC Energy Group	6.0%	11.0%	10.5%	9.2%	6.0%	6.0%	3.5%	5.2%
Xcel Energy	5.0%	6.0%	4.5%	5.2%	5.5%	6.0%	5.0%	5.5%
Average				<b>5.3%</b>				<b>5.8%</b>

Source: Value Line Investment Survey.

**PROXY COMPANIES  
DCF COST RATES**

COMPANY	ADJUSTED YIELD	HISTORIC RETENTION GROWTH	PROSPECTIVE RETENTION GROWTH	HISTORIC PER SHARE GROWTH	PROSPECTIVE PER SHARE GROWTH	FIRST CALL EPS GROWTH	AVERAGE GROWTH	DCF RATES
<b>Parcell Proxy Group</b>								
ALLETE	2.8%	2.8%	3.0%	4.2%	4.8%	7.0%	4.4%	7.2%
Alliant Energy	2.8%	3.8%	3.8%	5.3%	6.5%	5.2%	4.9%	7.7%
Avista	3.4%	2.4%	3.2%	4.7%	3.7%	3.3%	3.4%	6.8%
Black Hills Corp	2.7%	4.1%	3.7%	6.0%	5.7%	3.0%	4.5%	7.2%
Hawaiian Electric Industries	2.9%	3.1%	3.3%	2.5%	3.2%	3.4%	3.1%	6.0%
IDACORP	2.4%	4.7%	3.7%	6.3%	4.8%	2.5%	4.4%	6.8%
MGE Energy	1.9%	4.9%	5.0%	4.5%	5.5%	4.0%	4.8%	6.7%
Northwestern Corp	3.3%	3.5%	3.2%	7.3%	3.7%	3.1%	4.2%	7.4%
OGE Energy Corp	3.6%	4.2%	3.2%	5.5%	5.7%	3.4%	4.4%	8.0%
Otter Tail Corp	2.8%	2.7%	3.7%	6.3%	4.5%	9.0%	5.2%	8.0%
Pinnacle West Capital Corp	3.2%	3.8%	3.8%	4.2%	4.8%	5.1%	4.3%	7.5%
Portland General Electric	2.8%	3.7%	3.0%	4.0%	4.7%	4.4%	4.0%	6.8%
Mean	2.9%	3.6%	3.5%	5.1%	4.8%	4.4%	4.3%	<b>7.2%</b>
Median	2.8%	3.8%	3.5%	5.0%	4.8%	3.7%	4.4%	<b>7.2%</b>
Composite - Mean		6.5%	<b>6.4%</b>	<b>8.0%</b>	7.7%	7.3%	7.2%	
Composite - Median		6.6%	<b>6.3%</b>	<b>7.8%</b>	7.6%	6.5%	7.2%	
<b>Morin Proxy Group</b>								
Alliant Energy	2.8%	3.8%	3.8%	5.3%	6.5%	5.2%	4.9%	7.7%
Ameren Corp	2.5%	3.4%	4.2%	2.5%	5.8%	4.7%	4.1%	6.6%
Avista Corp	3.4%	2.4%	3.2%	4.7%	3.7%	3.3%	3.4%	6.8%
Black Hills Corp	2.7%	4.1%	3.7%	6.0%	5.7%	3.0%	4.5%	7.2%
CenterPoint Energy	4.1%	2.1%	3.0%	1.8%	9.5%	4.9%	4.3%	8.3%
Chesapeake Utilities	1.8%	6.4%	5.7%	8.2%	9.0%	6.0%	7.0%	8.8%
CMS Energy	2.6%	5.1%	5.7%	6.5%	7.2%	7.4%	6.4%	8.9%
Consolidated Edison	3.3%	3.1%	2.3%	2.8%	3.2%	3.3%	3.0%	6.3%
Dominion Energy	4.8%	2.1%	1.5%	5.8%	6.2%	4.6%	4.0%	8.8%
DTE Energy	3.0%	4.4%	3.7%	6.3%	5.7%	3.7%	4.7%	7.7%
Duke Energy	4.2%	1.2%	2.2%	1.7%	3.7%	4.1%	2.6%	6.7%
Eversource Energy	2.7%	3.5%	3.5%	6.7%	5.2%	5.6%	4.9%	7.6%
Exelon Corp	3.2%	3.3%	4.5%	neg	6.5%	neg	4.8%	8.0%
Fortis	3.4%	3.5%	3.8%	7.5%	5.0%	N/A	5.0%	8.4%
MGE Energy	1.9%	4.9%	5.0%	4.5%	5.5%	4.0%	4.8%	6.7%
NorthWestern Corp	3.3%	3.5%	3.2%	7.3%	3.7%	3.1%	4.2%	7.4%
Public Service Enterprise	3.2%	5.0%	5.2%	3.3%	5.2%	4.0%	4.5%	7.8%
Sempra Energy	2.8%	4.2%	4.0%	4.5%	8.5%	9.8%	6.2%	9.0%
WEC Energy Group	2.7%	3.6%	3.7%	9.2%	5.2%	6.1%	5.6%	8.2%
Xcel Energy	2.7%	4.2%	4.0%	5.2%	5.5%	5.2%	4.8%	7.5%
Mean	3.1%	3.7%	3.8%	5.3%	5.8%	4.9%	4.7%	<b>7.7%</b>
Median	2.9%	3.6%	3.8%	5.3%	5.6%	4.7%	4.8%	<b>7.7%</b>
Composite - Mean		<b>6.7%</b>	6.8%	8.3%	<b>8.9%</b>	7.9%	7.7%	
Composite - Median		<b>6.5%</b>	6.7%	8.2%	<b>8.5%</b>	7.6%	7.7%	

Note: negative values not used in calculations.

Sources: Prior pages of this exhibit.

**Exh. DCP-12**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**EXHIBIT TO TESTIMONY OF**

**David C. Parcell**

**ON BEHALF OF STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

*Proxy Companies CAPM Cost Rates*

**November 22, 2019**

**PROXY COMPANIES  
CAPM COST RATES**

COMPANY	RISK-FREE RATE	BETA	RISK PREMIUM	CAPM RATES
<b>Parcell Proxy Group</b>				
ALLETE	1.96%	0.65	5.9%	5.8%
Alliant Energy	1.96%	0.60	5.9%	5.5%
Avista	1.96%	0.60	5.9%	5.5%
Black Hills Corp	1.96%	0.70	5.9%	6.1%
Hawaiian Electric Industries	1.96%	0.55	5.9%	5.2%
IDACORP	1.96%	0.55	5.9%	5.2%
MGE Energy	1.96%	0.55	5.9%	5.2%
Northwestern Corp	1.96%	0.60	5.9%	5.5%
OGE Energy Corp	1.96%	0.80	5.9%	6.7%
Otter Tail Corp	1.96%	0.65	5.9%	5.8%
Pinnacle West Capital Corp	1.96%	0.55	5.9%	5.2%
Portland General Electric	1.96%	0.60	5.9%	5.5%
Mean				<b>5.6%</b>
Median				<b>5.5%</b>
<b>Morin Proxy Group</b>				
Alliant Energy	1.96%	0.60	5.9%	5.5%
Ameren Corp	1.96%	0.55	5.9%	5.2%
Avista Corp	1.96%	0.60	5.9%	5.5%
Black Hills Corp	1.96%	0.70	5.9%	6.1%
CenterPoint Energy	1.96%	0.80	5.9%	6.7%
Chesapeake Utilities	1.96%	0.65	5.9%	5.8%
CMS Energy	1.96%	0.55	5.9%	5.2%
Consolidated Edison	1.96%	0.45	5.9%	4.6%
Dominion Energy	1.96%	0.55	5.9%	5.2%
DTE Energy	1.96%	0.55	5.9%	5.2%
Duke Energy	1.96%	0.50	5.9%	4.9%
Eversource Energy	1.96%	0.60	5.9%	5.5%
Exelon Corp	1.96%	0.70	5.9%	6.1%
Fortis	1.96%	0.65	5.9%	5.8%
MGE Energy	1.96%	0.55	5.9%	5.2%
NorthWestern Corp	1.96%	0.60	5.9%	5.5%
Public Service Enterprise	1.96%	0.65	5.9%	5.8%
Sempra Energy	1.96%	0.75	5.9%	6.4%
WEC Energy Group	1.96%	0.50	5.9%	4.9%
Xcel Energy	1.96%	0.50	5.9%	4.9%
Mean				<b>5.5%</b>
Median				<b>5.5%</b>

Sources: Value Line Investment Survey, Standard & Poor's Analysts' Handbook, Federal Reserve.

<u>20-year Treasury Bonds</u>	
Month	Rate
Aug-19	1.91%
Sep-19	1.97%
Oct-19	2.00%
Average	1.96%

**Exh. DCP-14**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**EXHIBIT TO TESTIMONY OF**

**David C. Parcell**

**ON BEHALF OF STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

***Standard & Poor's 500 ROE and M/B***

**November 22, 2019**

**STANDARD & POOR'S 500 COMPOSITE  
RETURNS AND MARKET-TO-BOOK RATIOS  
2002 - 2018**

<b>YEAR</b>	<b>RETURN ON AVERAGE EQUITY</b>	<b>MARKET-TO BOOK RATIO</b>
2002	8.4%	295%
2003	14.2%	278%
2004	15.0%	291%
2005	16.1%	278%
2006	17.0%	277%
2007	12.8%	284%
2008	3.0%	224%
2009	10.6%	187%
2010	14.2%	208%
2011	14.6%	207%
2012	13.5%	214%
2013	14.5%	237%
2014	14.2%	268%
2015	12.1%	273%
2016	12.7%	271%
2017	13.9%	310%
2018	16.1%	316%
Averages:		
2002-2008	12.4%	275%
2009-2018	13.6%	249%

Source: Standard & Poor's.