

BEFORE THE
WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

UG-__
GENERAL RATE APPLICATION
OF
NORTHWEST NATURAL GAS COMPANY

December 31, 2018

Direct Exhibit of Brody J. Wilson

COST OF CAPITAL

Exh. BJW-4

Exh. BJW-4

NORTHWEST NATURAL GAS COMPANY
EMBEDDED COST OF LONG-TERM DEBT CAPITAL AT
September 30, 2018

#	Coupon Rate	Description of Issue	Date Issued	Maturity Date	9/30/2018 Years to Maturity	Premium or Discount		Underwriter's Commission		Expense of Issue		Net Proceeds		Original Term to Maturity Yrs.	Cost of Money (Bond Table)	Annual Cost Outstanding Debt		
						Outstanding	Offered	Per \$ 100 Principal Amount	Amount	Per \$ 100 Principal Amount	Amount	Per \$ 100 Principal Amount	Amount					
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Medium-Term Notes																		
First Mortgage Bonds:																		
1	1.545%	1.545% Series	12/5/2016	12/5/2018	0.2	75,000,000	75,000,000	0	0.00	187,500	0.250	445,685	0.59	74,366,815	99.156	2	0.000%	0
2	8.310%	8.310% Series	9/21/1994	9/21/2019	1.0	10,000,000	10,000,000	0	0.00	40,000	0.400	1,071,757	[1] 10.72	8,888,243	88.882	25	9.479%	947,900
3	7.630%	7.630% Series	12/9/1999	12/9/2019	1.2	20,000,000	20,000,000	0	0.00	150,000	0.750	45,421	0.23	19,804,579	99.023	20	7.727%	1,545,400
4	5.370%	5.370% Series	3/25/2009	2/1/2020	1.3	75,000,000	75,000,000	0	0.00	468,750	0.625	10,394,058	[7] 13.86	64,137,192	85.516	11	7.327%	5,495,250
5	9.050%	9.050% Series	8/13/1991	8/13/2021	2.9	10,000,000	10,000,000	0	0.00	75,000	0.750	40,333	0.40	9,884,667	98.847	30	9.163%	916,300
6	3.176%	3.176% Series	9/12/2011	9/15/2021	3.0	50,000,000	50,000,000	0	0.00	312,500	0.625	292,655	0.59	49,394,845	98.790	10	3.319%	1,659,500
7	3.542%	3.542% Series	8/19/2013	8/19/2023	4.9	50,000,000	50,000,000	0	0.00	312,500	0.625	325,679	0.65	49,361,821	98.724	10	3.696%	1,848,000
8	5.620%	5.620% Series	11/21/2003	11/21/2023	5.1	40,000,000	40,000,000	0	0.00	372,588	0.931	2,952,850	[6] 7.38	36,674,562	91.686	20	6.360%	2,544,190
9	7.720%	7.720% Series	9/6/2000	9/1/2025	6.9	20,000,000	20,000,000	0	0.00	150,000	0.750	1,136,261	[4] 5.68	18,713,739	93.569	25	8.336%	1,667,200
10	6.520%	6.520% Series	12/1/1995	12/1/2025	7.2	10,000,000	10,000,000	0	0.00	62,500	0.625	27,646	0.28	9,909,854	99.099	30	6.589%	658,900
11	7.050%	7.050% Series	10/15/1996	10/15/2026	8.0	20,000,000	20,000,000	0	0.00	125,000	0.625	50,940	0.25	19,824,060	99.120	30	7.121%	1,424,200
12	3.211%	3.211% Series	12/5/2016	12/5/2026	8.2	35,000,000	35,000,000	0	0.00	218,750	0.625	288,003	0.82	34,483,247	98.552	10	0.000%	0
13	7.000%	7.000% Series	5/20/1997	5/21/2027	8.6	20,000,000	20,000,000	0	0.00	125,000	0.625	28,906	0.14	19,846,094	99.230	30	7.062%	1,412,400
14	2.822%	2.822% Series	9/13/2017	9/13/2027	9.0	25,000,000	25,000,000	0	0.00	150,000	0.600	159,885	0.64	24,690,115	98.760	10	2.966%	741,500
15	6.650%	6.650% Series	11/10/1997	11/10/2027	9.1	19,700,000	19,700,000	0	0.00	125,000	0.635	37,800	[8] 0.19	19,537,206	99.174	10	6.714%	1,322,658
16	6.650%	6.650% Series	6/1/1998	6/1/2028	9.7	10,000,000	10,000,000	0	0.00	75,000	0.750	23,200	0.23	9,901,700	99.017	30	6.727%	672,700
17	7.740%	7.740% Series	8/29/2000	8/29/2030	11.9	20,000,000	20,000,000	0	0.00	150,000	0.750	1,354,914	[3] 6.77	18,495,086	92.475	30	8.433%	1,686,538
18	7.850%	7.850% Series	9/6/2000	9/1/2030	11.9	10,000,000	10,000,000	0	0.00	75,000	0.750	678,107	[5] 6.78	9,246,893	92.469	30	8.551%	855,100
19	5.820%	5.820% Series	9/24/2002	9/24/2032	14.0	30,000,000	30,000,000	0	0.00	225,000	0.750	165,382	0.55	29,609,618	98.699	29	5.913%	1,773,943
20	5.660%	5.660% Series	2/25/2003	2/25/2033	14.4	40,000,000	40,000,000	0	0.00	300,000	0.750	56,663	0.14	39,643,337	99.108	30	5.723%	2,289,200
21	5.250%	5.250% Series	6/21/2005	6/21/2035	16.7	10,000,000	10,000,000	0	0.00	75,000	0.750	22,974	0.23	9,902,026	99.020	30	5.316%	531,600
22	4.000%	4.000% Series	10/30/2012	10/31/2042	24.1	50,000,000	50,000,000	0	0.00	300,000	0.600	235,479	0.47	49,464,522	98.929	30	4.062%	2,031,000
23	4.136%	4.136% Series	12/5/2016	12/5/2046	28.2	40,000,000	40,000,000	0	0.00	300,000	0.750	307,712	0.77	39,392,288	98.481	30	0.000%	0
24	3.685%	3.685% Series	9/13/2017	9/13/2047	29.0	75,000,000	75,000,000	0	0.00	562,500	0.750	367,946	0.49	74,069,554	98.759	30	3.754%	2,815,500
25	4.110%	4.110% Series	9/10/2018	9/10/2048	30.0	50,000,000	50,000,000	0	0.00	125,000	0.250	214,639	0.43	49,660,361	99.321	30	4.150%	2,075,000
						\$814,700,000	\$814,700,000	\$0		\$5,062,588		\$20,724,994		\$788,912,418			4.531%	\$36,913,979
														Prior Month	4.556%			

WEIGHTED EMBEDDED COST: $\frac{\$36,913,979}{\$814,700,000} \text{ EQUALS } = 4.531\%$

[1] INCLUDES PREMIUM AND UNAMORTIZED COST ON EARLY REDEMPTION OF 9.8% SERIES BONDS (\$1,044,111 ALLOCATED TO THE 8.31% SERIES, AND \$835,723 ALLOCATED TO THE 8.26% SERIES).

[2] INCLUDES \$910,800 PREMIUM AND \$222,664 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 9.125% SERIES BONDS ALLOCATED TO THE 6.60% SERIES.

[3] INCLUDES \$992,143 PREMIUM, \$178,966 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 9.75% SERIES BONDS, AND \$148,605 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 15.375% SERIES BONDS ALLOCATED TO THE 7.74% SERIES.

[4] INCLUDES \$326,786 PREMIUM, \$148,139 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 9.75% SERIES BONDS, AND \$123,837 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 15.375% SERIES BONDS ALLOCATED TO THE 7.72% SERIES.

[5] INCLUDES \$496,071 PREMIUM, \$89,483 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 9.75% SERIES BONDS, AND \$74,302 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 15.375% SERIES BONDS ALLOCATED TO THE 7.85% SERIES.

[6] INCLUDES \$150,000 PREMIUM AND \$405,971 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 7.50% SERIES BONDS, \$413,600 PREMIUM AND \$1,116,479 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 7.52% SERIES BONDS AND \$730,000 PREMIUM AND \$136,800 UNAMORTIZED COSTS ON EARLY REDEMPTION OF 7.25% SERIES BONDS ALLOCATED TO 5.62% SERIES.

[7] INCLUDES \$10,096,000 COSTS PAID ON INTEREST RATE HEDGE LOSS AND \$298,058 UNAMORTIZED COSTS ON SHELF REGISTRATION, ALLOCATED TO 5.37% SERIES.

[8] IN November 2009 one investor exercised its right under a one-time put option to redeem \$0.3 million of the \$20 million outstanding. This one-time put option has now expired, and the remaining \$19.7 million remaining principal outstanding is expected to be redeemed at maturity in November 2027.