BEFORE THE

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Cause No. UE-920499, UE-921262 Rate Design Phase

PUGET SOUND POWER AND LIGHT COMPANY

Exhibit of

JIM LAZAR
CONSULTING ECONOMIST

On Behalf of Public Counsel Section Office of the Attorney General

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION UE-920433;-920499;
No. -921262

Ex. 45

PEAK CREDIT METHOD FOR 1993 RATE CASECombined Cycle Plant

	Capital Cost	Fixed O&	Variable O&	Gas	Gas	Total
Year	\$/MWH Yr	\$/MWH	\$/MWH	\$/MMBT	\$/MWH	\$/MWH
1993	\$13.00	\$0.80	\$3.40	\$2.10	\$16.25	\$33.45
1994	\$13.00	\$0.80	\$3. 50	\$2.30	\$17.80	\$35.10
1995	\$13.00	\$0.9 0	\$3.60	\$2.40	\$18.58	\$36.08
1996	\$13.00	\$0.9 0	\$3.70	\$2.50	\$19.35	\$36.95
1997	\$13.00	\$0.9 0	\$3.80	\$2.70	\$20.90	\$38.60
1998	\$13.00	\$1.00	\$4.00	\$2.90	\$22.45	\$40.45
1999	\$13.00	\$1.00	\$4.10	\$3.10	\$24.00	\$42.10
2000	· ·	\$1.00	\$4.30	\$3.30	\$25.54	\$43.84
2001	\$13.00	\$1.10	\$4.40	\$3.60	\$27.87	\$46.37
2002	\$13.00	\$1.10	\$4.60	\$3.80	\$29.41	\$48.11
2003	\$13.00	\$1.20	\$4.80	\$4.10	\$31.74	\$50.74
2004	\$13.00	\$1.20	\$5.00	\$4.40	\$34.06	\$53.26
2005	\$13.00	\$1.30	\$5.20	\$4.70	\$36.38	\$55.88
2006	\$13.00	\$1.30	\$5.40	\$5.10	\$39.48	\$59.18
2007	\$13.00	\$1.40	\$5.70	\$5.40	\$41.80	\$61.90
2008	\$13.00	\$1.40	\$5.90	\$5.80	\$44.89	\$65.19
2009	\$13.00	\$1.50	\$6.20	\$6.20	\$47.99	\$68. 69
2010	\$13.00	\$1.60	\$6.4 0	\$6.60	\$51.09	\$72.09
2011	\$13.00	\$1.68	\$6.72	\$6.93	\$53.64	\$75.04
2012	\$13.00	\$1.76	\$7.06	\$7.28	\$56.35	\$78.17
2013	\$13.00	\$1.85	\$7.4 1	\$7.64	\$59.14	\$81.40
2014	\$13.00	\$1.94	\$7.78	\$8.02	\$62.08	\$84.80
2015	\$13.00	\$2.04	\$8.17	\$8.42	\$65.17	\$88.38
2016	\$13.00	\$2.14	\$8.58	\$8.84	\$68.43	\$92.14
2017	\$13.00	\$2.25	\$9.01	\$9.29	\$71.91	\$96.16
2018	\$13.00	\$2.36	\$9.46	\$9.75	\$75.47	\$100.29
2019	\$13.00	\$2.48	\$9.93	\$10.24	\$79.26	\$104.67
2020	\$13.00	\$2.6 1	\$10.42	\$10.75	\$83.21	\$109.25
2021	\$13.00	\$2.74	\$10.95	\$11.29	\$87.39	\$114.08
2022	\$13.00	\$2.87	\$11.49	\$11.85	\$91.72	\$119.09
						,
	\$142.15	\$13.31	\$54.50	\$46.79	\$362.19	
	\$13.00	\$1.22	\$4.98	\$4.28	\$33.12	
At Co	mpany Discount	Rate:	PV:	,	,	\$472.32
	- ,		LEVELIZED (COST:		50.10
At Ne	t of Tax Discour	it Rate:		·		\$572.15
						\$52.32
						φ <i>52.52</i>

Combu	stion Turbine		Hours oil:		200		
			Hours Gas:		0		
	÷		Total Hours:		200		
							Peak
		Fixed O&	Variable O&	Fuel Oil	Fuel	Total	Credit
Year	\$/KW Yr	\$/KW Yr	\$/KW Yr	\$/Gallon	\$/KW Y	\$/KW Yr	\$/KW Yr
1993	\$53.71	\$6.7 0	\$0.80	\$0.82	\$13.94	\$75.15	\$44.95
1994	\$53.71	\$6.80	\$0.80	\$0.86	\$14.62	\$75.93	\$45.68
1995	\$53.71	\$7.00	\$0.80	\$0.90	\$15.30	\$76.81	\$46.46
1996	\$53.7 1	\$7.30	\$0.90	\$0.95	\$16.15	\$78.06	\$47.56
1997	\$53.71	\$7.50	\$0.90	\$1.00	\$17.00	\$79.11	\$48.51
1998	\$53.71	\$7.80	\$0.90	\$1.06	\$18.02	\$80.43	\$49.68
1999	\$53.71	\$8.10	\$1.00	\$1.13	\$19.21	\$82.02	\$51.12
2000	\$53.71	\$8.40	\$1.00	\$1.21	\$20.57	\$83.68	\$52.63
2001	\$53.71	\$8.70	\$1.00	\$1.30	\$22.10	\$85.51	\$54.31
2002	\$53.71	\$9.10	\$1.10	\$1.39	\$23.63	\$87.54	\$56.14
2003	\$53.71	\$9.50	\$1.10	\$1.49	\$25.33	\$89.64	\$58.04
2004	\$53.71	\$9. 90	\$1.20	\$1.59	\$27.03	\$91.84	\$60.04
2005	\$53.71	\$10.30	\$1.20	\$1.68	\$28.56	\$93.77	\$61.77
2006	\$53.71	\$10.70	\$1.30	\$1.79	\$30.43	\$96.14	\$63.94
2007	\$53.71	\$11.10	\$1.30	\$1.89	\$32.13	\$98.24	\$65.84
2008	\$53.71	\$11.60	\$1.40	\$2.01	\$34.17	\$100.88	\$68.23
2009	\$53.71	\$12.10	\$1.40	\$2.12	\$36.04	\$103.25	\$70.35
2010	\$53.71	\$12.70	\$1.50	\$2.24	\$38.08	\$105.99	\$72.79
2011	\$53.71	\$13.34	\$1.58	\$2.35	\$39.95	\$108.58	\$75.06
2012	\$53.7 1	\$14.00	\$1.65	\$2.47	\$41.99	\$111.35	\$77.50
2013	\$53.7 1	\$14.70	\$1.74	\$2.59	\$44.03	\$114.18	\$79.98
2014	\$53.71	\$15.44	\$1.82	\$2.72	\$46.24	\$117.21	\$82.64
2015	\$53.71	\$16.21	\$1.91	\$2.86	\$48.62	\$120.45	\$85.49
2016	\$53.71	\$17.02	\$2.01	\$3.00	\$51.00	\$123.74	\$88.38
2017	\$53.71	\$17.87	\$2.11	\$3.15	\$53.55	\$127.24	\$91.45
2018	\$53.71	\$18.76	\$2.22	\$3.31	\$56.27	\$130.96	\$94.73
2019	\$53.71	\$19.70	\$2.33	\$3.47	\$58.99	\$134.73	\$98.03
2020	\$53.71	\$20.69	\$2.44	\$3.65	\$62.05	\$138.89	\$101.69
2021	\$53.71	\$21.72	\$2.57	\$3.83	\$65.11	\$143.11	\$105.40
2022	\$53.71	\$22.81	\$2.69	\$4.02	\$68.34	\$147.55	\$109.29
@ Com	nany Diagona	Data					

@ Company	Discount	Rate:
-----------	----------	-------

@ Net of Tax Discount Rate:

\$836.15	\$538.51
\$88.70	\$57.12
\$990.08	\$642.72
\$90.55	\$58.78

At Company Discount Rate

50.10	
51.12 1	6%

At Net of Tax Discount Rate

	Combustion Turbine	Peak CT	CC CT	Peak Credit
Levelized Cost \$/mwh:			\$52.32	
Levelized Cost \$/kw/yr	\$90.55	\$58.78	\$366.69	16%

PEAK CREDIT METHOD FOR 1993 RATE CASE Combined Cycle Plant

	Capital Cost	Fixed O&	Variable O&	Gas	Gas	Total
Year	\$/MWH Yr	\$/MWH	\$/MWH	\$/MMBT	\$/MWH	
1993	\$13.00	\$0.80	\$3.40	\$2.10	\$16.25	\$33.45
1994	\$13.00	\$0.80	\$3.50	\$2.30	\$17.80	\$35.10
1995	\$13.00	\$0.90	\$3.60	\$2.40	\$18.58	\$36.08
1996	\$13.00	\$0.90	\$3.70	\$2.50	\$19.35	\$36.95
1997	\$13.00	\$0.90	\$3.80	\$2.70	\$20.90	\$38.60
1998	\$13.00	\$1.00	\$4.00	; \$2.90	\$22.45	\$40.45
1999	\$13.00	\$1.00	\$4.10	\$3.10	\$24.00	\$42.10
2000.	\$13.00	\$1.00	\$4.30	\$3.30	\$25.54	\$43.84
2001	\$13.00	\$1.10	\$4.40	\$3.60	\$27.87	\$46.37
2002	\$13.00	\$1.10	\$4.60	\$3.80	\$29.41	\$48.11
2003	\$13.00	\$1.20	\$4.80	\$4.10	\$31.74	\$50.74
2004	\$13.00	\$1.20	\$5.00	\$4.40	\$34.06	\$53.26
2005	\$13.00	\$1.30	\$5.20	\$4.70	\$36.38	\$55.88
2006	\$13.00	\$1.30	\$5.40	\$5.10	\$39.48	\$59. 18
2007	\$13.00	\$1.40	\$5.70	\$5.40	\$41.80	\$61.90
2008	\$13.00	\$1.40	\$5.90	\$5.80	\$44.89	\$65.19
2009	\$13.00	\$1.50	\$6.20	\$6.20	\$47.99	\$68.69
2010	\$13.00	\$1.60	\$6.40	\$6.60	\$51.09	\$72.09
2011	\$13.00	\$1.68	\$6.72	\$6.93	\$53.64	\$75.04
2012	\$13.00	\$1.76	\$7.06	\$7.28	\$56.35	\$78.17
2013	\$13.00	\$1.85	\$7.41	\$7.64	\$59.14	\$81.40
2014	\$13.00	\$1.94	\$7.78	\$8.02	\$62.08	\$84.80
2015	\$13.00	\$2.04	\$8.17	\$8.42	\$65.17	\$88.38
2016	\$13.00	\$2.14	\$8.58	\$8.84	\$68.43	\$92.14
2017	\$13.00	\$2.25	\$9.01	\$9.29	\$71.91	\$96.16
2018	\$13.00	\$2.36	\$9.46	\$9.75	\$75.47	\$100.29
2019	\$13.00	\$2.48	\$9.93	\$10.24	\$79.26	\$104.67
2020	\$13.00	\$2. 61	\$10.42	\$10.75	\$83.21	\$109.25
2021	\$13.00	\$2.74	\$10.95	\$11.29	\$87.39	\$114.08
2022	\$13.00	\$2.87	\$11.49	\$11.85	\$91.72	\$119.09
					,	4227.07
	\$142.15	\$13.31	\$54.50	\$46.79	\$362.19	
	\$13.00	\$1.22	\$4.98	\$4.28	\$33.12	
At Co	mpany Discoun		PV:	ψ . 20	Ψου.12	\$472.32
_	1 3 22 22	· • • • • • • • • • • • • • • • • •	LEVELIZED	COST		50.10
At Ne	t of Tax Discour	nt Rate		0001,		
						\$572.15
						\$52.32

Combustion Turbine

Hours oil: Hours Gas:

Total Hours:

50 150 200

							Peak
		Fixed O&	Variable O&	Fuel Oil	Fuel	Total	Credit
Year	\$/KW Yr	_\$/KW Yr	\$/KW Yr	\$/Gallon	\$/KW Y	\$/KW Yr	\$/KW Yr
1993	\$53.71	\$6.70	\$0.80	\$0.82	\$7.06	\$68.27	\$38.06
1994	\$53.71	\$6.80	\$0.80	\$0.86	\$7.40	\$68.71	\$38.45
1995	\$53.71	\$7.00	\$0.80	\$0.90	\$7.74	\$69.25	\$38.90
1996	\$53.71	\$7.30	\$0.90	\$0.95	\$8.17	\$70.08	\$39.58
1997	\$53.71	\$7.50	\$0.9 0	\$1.00	\$8.60	\$70.7 1	\$40.11
1998	\$53.71	\$7.80	\$0.90	\$1.06	\$9.12	\$71.53	\$40.77
1999	\$53.71	\$8.10	\$1.00	\$1.13	\$9.72	\$72.53	\$41.63
2000	\$53.71	\$8.40	\$1.00	\$1.21	\$10.41	\$73.52	\$42.47
2001	\$53.71	\$8.70	\$1.00	\$1.30	\$11.18	\$74.59	\$43.39
2002	\$53.71	\$9.10	\$1.10	\$1.39	\$11.96	\$75.87	\$44.46
2003	\$53.71	\$9.5 0	\$1.10	\$1.49	\$12.82	\$77.13	\$45.52
2004	\$53.71	\$9. 90	\$1.20	\$1.59	\$13.68	\$78.49	\$46.68
2005	\$53.71	\$10.30	\$1.20	\$1.68	\$14.45	\$79.66	\$47.66
2006	\$53.71	\$10.70	\$1.30	\$1.79	\$15.40	\$81.11	\$48.91
2007	\$53.71	\$11.10	\$1.30	\$1.89	\$16.26	\$82.37	\$49.97
2008	\$53.71	\$11.60	\$1.40	\$2.01	\$17.29	\$84.00	\$51.35
2009	\$53.71	\$12.10	\$1.40	\$2.12	\$18.24	\$85.45	\$52.54
2010	\$53.71	\$12.70	\$1.50	\$2.24	\$19.27	\$87.18	\$53.98
2011	\$53.71	\$13.34	\$1.58	\$2.35	\$20.22	\$88.85	\$55.32
2012	\$53.7 1	\$14.00	\$1.65	\$2.47	\$21.25	\$90.61	\$56.76
2013	\$53.71	\$14.70	\$1.74	\$2.59	\$22.28	\$92.43	\$58.23
2014	\$53.71	\$15.44	\$1.82	\$2.72	\$23.40	\$94.37	\$59.80
2015	\$53.71	\$16.21	\$1.91	\$2.86	\$24.61	\$96.44	\$61.48
2016	\$53.71	\$17.02	\$2.01	\$3.00	\$25.81	\$98.55	\$63.19
2017	\$53.71	\$17.87	\$2.11	\$3.15	\$27.10	\$100.79	\$65.00
2018	\$53.71	\$18.76	\$2.22	\$3.31	\$28.48	\$103.17	\$66.93
2019	\$53.7 1	\$19.70	\$2.33	\$3.47	\$29.85	\$105.59	\$68.89
2020	\$53.71	\$20.69	\$2.44	\$3.65	\$31.40	\$108.24	\$71.04
2021	\$53.71	\$21.72	\$2.57	\$3.83	\$32.95	\$110.95	\$73.24
2022	\$53.71	\$22.81	\$2.69	\$4.02	\$34.59	\$113.80	\$75.54
@ Com	pany Discount	t Rate:				\$722.39	\$424.75
	, <u> </u>	-				\$76.63	\$45.06
@ Net o	of Tax Discour	nt Rate:				\$850.49	
<u> </u>							\$503.13
						\$77.78	\$46.01

At Company Discount Rate

,	Combustion Turbine	Peak CT	CC CT	Peak Credit
Levelized Cost \$/mwh:			\$50.10	
Levelized Cost \$/kw/yr	\$76.63	\$45.06	\$351.12	13%
	4 / 3 /32		,	

At Net of Tax Discount Rate

·	Combustion	Peak	CC	Peak
	Turbine	CT	CT	Credit
Levelized Cost \$/mwh: Levelized Cost \$/kw/yr	\$77.78	\$46.01	\$52.32 \$366.69	13%