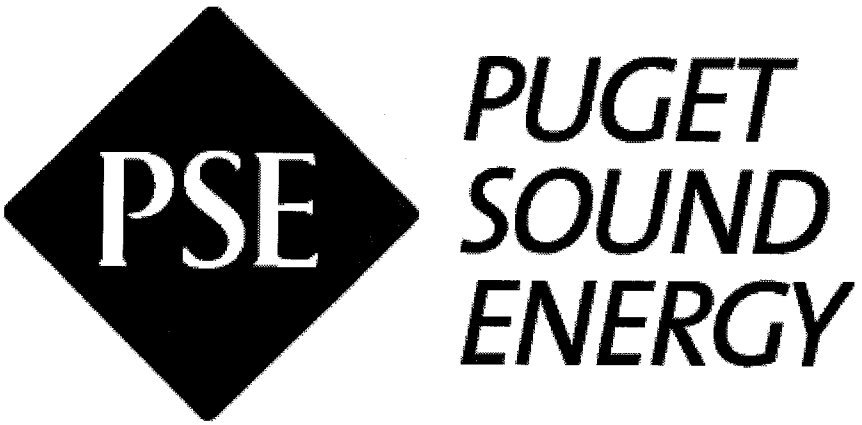
EXHIBIT NO. ___(CES-5)
DOCKET NO. UE-06___/UG-06___
2006 PSE GENERAL RATE CASE
WITNESS: CALVIN E. SHIRLEY

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-06____** **Docket No. UG-06____**

FOURTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF CALVIN E. SHIRLEY ON BEHALF OF PUGET SOUND ENERGY, INC.

FEBRUARY 15, 2006



Appendix C

Program Cost Effectiveness

November 29, 2005

Revised December 21, 2005

Table of Contents

As of December 21, 2005 this document, originally dated November 29, was edited to reflect corrections to the electric energy savings, budgets and cost effectiveness calculations for Residential New Construction and Residential Rebates programs on page 4.

Program Cost Effectiveness

Puget Sound Energy (the Company) has proposed conservation program energy savings targets and budgets for the period January 1, 2006 through December 31, 2007. The company estimates the cost effectiveness of these programs using a Utility Cost Test and a Total Resource Cost Test.

The attached pages provide for each of the proposed Puget Sound Energy (the Company) programs, and compare them to the Company's Conservation Cost Effectiveness Standards (CES) for gas and electric energy savings projected for the period January 1, 2006 through December 31, 2007. This analysis includes cost and energy savings estimates for measures funded under electric and gas schedule numbers 200 though 270. Energy savings and costs for measures funded by the Bonneville Power Administration (BPA) Conservation and Renewables Discount are not subject to Puget Sound Energy's cost effectiveness standard, but are deemed cost effective by BPA at prescribed funding levels.

The Utility Cost (UC) Test insures that the Company's costs are less than the value of the energy savings benefits received. Except for some exploratory pilots, all programs must pass the Utility Cost Test with the ratio CES/UC>1.0. Also with the exception of some exploratory pilots, all programs pass the TRC using one of the three methods described below in the definition of terms and calculation. Pilot programs, particularly those that are seeking to explore potential but yet undeveloped markets, are not expected to be cost effective in the short term.

Definitions of Terms and Calculations

Total Resource Cost Test (TRC Test) measures the net value of energy efficiency programs to society as a whole. The TRC Test is a cost-effectiveness calculation which demonstrates if the total benefits, including electricity (defined by the Cost Effectiveness Standard, see below) and other savings benefits, exceed total costs including those incurred by PSE, the customer, and any other contributing party. The benefits and costs not directly associated with electrical energy efficiency (Non-Energy Benefits) in this calculation may be difficult to quantify.

Utility Cost Test (UC Test) measures the net value of energy efficiency programs to the sponsoring utility. The UC Test is a cost-effectiveness calculation which demonstrates that the utility electricity savings benefits (defined by the Cost Effectiveness Standard), exceed the costs incurred by the utility.

kWh and therm savings are expressed as first year savings values based on projected program activity for the two-year period, January 1 2006 through December 31, 2007.

Type of Savings determines the appropriate Cost Effectiveness Standard for the analyses, based on load shape of the end-use as shown in the gas and electric Cost Effectiveness Standard tables. A program may have more than one type of savings. In such cases, a type is selected to be representative. Each Type of Savings has a CES, or a value per kWh per Measure Life, up to 30 years. The values for the CES used to evaluate PSE's 2006 - 2006 programs are shown in exhibits IV and V by type of savings and measure life.

Measure Life of Savings is the number of years to be expected for the measure or measures. Where multiple measures or measure types are involved, a weighted average measure life value is used for the program.

Utility Cost (UC) is Puget Sound Energy's cost of administering programs, including funding specific to the conservation measures, program implementation, research and evaluation.

Customer Cost is the Company's best estimate of the installed measure cost paid by the customer (beyond any utility incentive contribution). Estimates are based on historical program data, and trade ally information.

Quantified Non-Energy Benefits are based on information where available and able to be generalized. Though Quantified Non-Energy Benefits can be used in calculating the benefit/cost ratio for the Total Resource Cost test, they are not included in this analysis of 2006-2007 programs.

Total Resource Cost (TRC) is the summation of Utility Cost, Customer Cost, and Non-Energy Benefits if quantified.

Cost Effectiveness Standard (CES) shows the full value to the Company of the energy saved, per kWh or therm, for the type of savings (by load shape and customer class) and life of the savings. To levelize the value of future savings, the Company uses an after tax discount rate equal to 7.01%. The CES is calculated as follows for Electricity and Natural Gas.

Electricity: The Company has agreed to use Aurora forecast power costs at Mid-Columbia, and to add 10% for conservation credits, 6.8% for avoided transmission and distribution losses, and $35.32/kW-year distribution benefit. Load factors from a power cost model used by the Regional Technical Forum are used for end-use load shapes/applications.

Natural Gas: Forecast gas commodity market prices, consistent with those used in the Aurora electric model were used. A 10% conservation credit, $0.405/Dth for avoided pipeline capacity demand charges, $0.04/Dth for avoided variable pipeline charges, avoided pipeline fuel and loss of 2.8% of sales volume, and a distribution capacity benefit of $0.1648/Dth are applied to distinct natural gas load shapes.

Benefit/Cost ratio: CES/TRC
For a program to pass the TRC Test, the value of the energy savings plus any non-energy savings benefits realized must be greater than the total costs incurred. Because the utility cannot always reliably determine or quantify the customers' non-energy savings benefits, the Company continues to use its "proxy" total resource cost test as developed and described in workpapers which accompanied Puget Power's 1993 Schedule 83 filing. Three methods are used to apply the TRC test:

1) Energy Savings Benefits/Total Costs > 1.0: If the value of energy savings alone is greater than the total program costs, the program is considered cost-effective. This is sufficient, and the most straightforward application.

2) Energy Savings + Quantified non-energy savings Benefits/Total Costs > 1.0: If the sum of the energy savings benefits and the quantifiable dollar value of non-energy savings benefits are

greater than the total program costs, the program passes the test. Some non-energy savings benefits, such as water savings or reduced maintenance costs may be reasonably straightforward to quantify. Others, such as comfort or perceived increase in property value, are only realized in the customer's decision to participate.

When either condition 1) or 2) are not met, method 3) may be used.

3) Reliance on Non-quantifiable Benefits, within limits: Programs for which there are significant, but non-quantified, non-energy savings benefits use a proxy. First, the Utility Cost test must be satisfied. Second, non-quantifiable benefits must be documented. In some cases there are desirable benefits to society and the utility which may include legislative or regulatory mandates, support for regional market transformation programs and certain low income energy efficiency, or experimental and pilot program benefits. In recognition that these non-quantified benefits exist and are significant, PSE reviews Total Costs not to exceed 150% of the conservation cost-effectiveness standard (CES/TRC > .667). Utility incentives for measures with 1 >CES/TRC > .667 fall off steeply to insure utility ratepayers both, a) do not pay for non-cost-effective measures, and b) nonetheless obtain energy savings inexpensively.

Benefit/Cost ratio: CES/UC

For a program to pass a UC Test, this ratio must be >1.0, or reasonably expected to be greater than 1.0 over the projected life of the measure. The energy savings benefits realized must be greater than the utility costs incurred in all cases, for all of the Puget Sound Energy's customers to receive benefits.

Exhibit I. Electric Program Cost Effectiveness Estimate

Electric Conservation Programs, Cost Effectiveness Estimates for 2006-2007

Sch. No.	Program Name	kWh Savings	Meas Life	End-Use Type	Utility Cost	Customer Cost	Quantified Non-Energy Benefits	Levelized Utility Cost per kWh	Levelized Total Resource Cost per kWh	Cost Eff. Standard per kWh	UC B/C	TRC B/C
E200	Residential Energy Efficiency Information	na	na	na	$ 1,330,000	na	na	na	na	na	na	na
E201	Low Income Retrofit	1,817,000	30	SHR	$ 1,820,000	$ -	$ -	$ 0.081	$ 0.081	$ 0.086	1.06	1.06
E202	Energy Education	1,814,000	10	SHR	$ 681,000	$ 52,000	$ -	$ 0.053	$ 0.058	$ 0.072	1.34	1.25
E203	Manufactured Housing Energy Efficiency	2,792,000	30	SHR	$ 1,370,000	$ 238,000	$ -	$ 0.040	$ 0.046	$ 0.086	2.17	1.85
~~E214~~	~~Residential Energy Efficient Rebates~~	~~96,270,000~~	~~10~~	~~LIGHTING~~	~~$ 12,122,000~~	~~$ 296,600~~	~~$ -~~	~~$ 0.018~~	~~$ 0.022~~	~~$ 0.059~~	~~3.30~~	~~2.65~~
E214	Residential Energy Efficient Rebates	102,076,000	6	LIGHTING	$ 14,125,000	$ 7,381,000	$ -	$ 0.029	$ 0.044	$ 0.056	1.94	1.27
~~E215~~	~~Residential New Construction~~	~~11,151,000~~	~~30~~	~~SHR~~	~~$ 3,596,000~~	~~$ 92,500~~	~~$ -~~	~~$ 0.026~~	~~$ 0.027~~	~~$ 0.086~~	~~3.31~~	~~3.22~~
E215	Residential New Construction	5,345,000	30	SHR	$ 2,149,000	$ 618,250	$ -	$ 0.032	$ 0.042	$ 0.086	2.65	2.06
E217	Multi-family Retrofit	4,845,000	14	SHR	$ 1,383,000	$ 933,400	$ -	$ 0.033	$ 0.055	$ 0.074	2.28	1.36
E249	Multi-family Fuel Choice Pilot	230,000	30	SHR	$ 995,000	$ 995,000	$ -	na	na	na	na	na
E249	Heat Pump Maintenance Pilot	1,059,000	10	SHR	$ 306,000	$ 306,000	$ -	$ 0.041	$ 0.082	$ 0.072	1.74	0.87
E250	Commercial / Industrial Retrofit	126,000,000	12	CINONHVAC	$ 21,091,000	$ 17,640,000	$ -	$ 0.021	$ 0.039	$ 0.056	2.67	1.46
E251	Commercial/Industrial New Construction	8,000,000	15	CINONHVAC	$ 1,124,000	$ 1,280,000	$ -	$ 0.015	$ 0.033	$ 0.058	3.78	1.77
E253	Resource Conservation Manager	17,500,000	3	CIHVACR	$ 1,108,000	$ 1,108,000	$ -	$ 0.024	$ 0.048	$ 0.058	2.40	1.20
E254	NW Energy Efficiency Alliance	29,000,000	8	LIGHTING	$ 3,305,000	$ 3,305,000	$ -	$ 0.019	$ 0.038	$ 0.057	3.00	1.50
E255	Small Business Lighting Rebate	17,500,000	12	CINONHVAC	$ 4,048,000	$ 1,750,000	$ -	$ 0.029	$ 0.042	$ 0.056	1.94	1.35
E257	LED Traffic Signals	2,000,000	7	FLAT	$ 150,000	$ -	$ -	$ 0.014	$ 0.014	$ 0.049	3.52	3.52
E258	Large Power User - Self Directed Program	5,000,000	12	CINONHVAC	$ 731,000	$ 500,000	$ -	$ 0.018	$ 0.031	$ 0.056	3.06	1.82
E260	Commercial Energy Efficiency Information	na	na	na	$ 268,000	na	na	na	na	na	na	na
E261	C&I EE Technology Evaluation	na	na	na	$ 220,000	na	na	na	na	na	na	na
E262	Commercial Rebates	14,000,000	10	CINONHVAC	$ 1,175,000	$ 1,540,000	$ -	$ 0.012	$ 0.028	$ 0.055	4.63	2.01
E270	Local Infrastructure & Mkt Transformation	na	na	na	$ 150,000	na	na	na	na	na	na	na
na	Evaluation & Research	na	na		$ 1,370,000	na	na	na	na	na	na	na
	TOTAL	**338,978,000**	**10**	**LIGHTING**	**$ 58,899,000**	**$ 37,646,650**	**$ -**	**$ 0.025**	**$ 0.041**	**$ 0.059**	**2.39**	**1.46**

CE Standard based on March 2005 optimization analysis, start year 2006

Exhibit II. Gas Program Cost Effectiveness Estimate

Gas Conservation Programs, Cost Effectiveness Estimates for 2006-2007

Sch. No.	Program Name	Therm Savings	Meas Life	Utility Cost	Customer Cost	Quantified Non-Energy Benefits	Levelized Utility Cost per Therm	Levelized Total Resource Cost per Therm	Cost Eff. Standard per Therm	UC B/C	TRC B/C
G203	Low-Income Retrofit	23,500	30	$ 584,000	$ -	$ -	$ 2.005	$ 2.005	$ 1.061	0.53	0.53
G205	Commercial / Industrial Retrofit	800,000	14	$ 1,894,000	$ 1,448,000	$ -	$ 0.271	$ 0.478	$ 0.713	2.63	1.49
G206	Residential Energy Efficiency Information	na	na	$ 570,000	na	na	na	na	na	na	na
G207	Energy Education	121,000	10	$ 367,000	$ 28,000	$ -	$ 0.432	$ 0.465	$ 0.877	2.03	1.89
G208	Resource Conservation Manager	800,000	3	$ 521,000	$ 120,000	$ -	$ 0.248	$ 0.305	$ 0.717	2.89	2.35
G214	Residential Energy Efficiency Rebates	671,300	20	$ 2,172,000	$ 2,982,000	$ -	$ 0.306	$ 0.725	$ 0.776	2.54	1.07
G215	Residential New Construction	584,200	30	$ 2,090,000	$ 2,804,000	$ -	$ 0.289	$ 0.676	$ 1.122	3.89	1.66
G216	Gas Single Family Weatherization	400,000	30	$ 2,280,000	$ 2,116,000	$ -	$ 0.460	$ 0.887	$ 1.061	2.31	1.20
G251	Commercial/Industrial New Construction	300,000	15	$ 305,000	$ 579,000	$ -	$ 0.112	$ 0.324	$ 0.724	6.49	2.24
G259	Gas Boiler Tune-Up Pilot	200,000	3	$ 185,000	$ 114,000	$ -	$ 0.353	$ 0.570	$ 0.717	2.03	1.26
G260	Commercial Energy Efficiency Information	na	na	$ 138,000	na	na	na	na	na	na	na
G261	Energy Efficient Technology Evaluation	na	na	$ 100,000	na	na	na	na	na	na	na
G262	Commercial Rebates	300,000	10	$ 230,000	$ 230,000	$ -	$ 0.109	$ 0.218	$ 0.693	6.34	3.17
G270	Local Infrastructure & Mkt Transformation	na	na	$ 50,000	na	na	na	na	na	na	na
na	Evaluation and Research	na	na	$ 716,000	na	na	na	na	na	na	na
	TOTAL	**4,200,000**	**13**	**$ 12,202,000**	**$ 10,421,000**	**$ -**	**$ 0.348**	**$ 0.645**	**$ 0.702**	**2.02**	**1.09**

CE Standard based on March 2005 optimization analysis, start year 2006

Exhibit III. Levelized Fixed Charge Rate

LEVELIZED FIXED CHARGE RATE FOR CONSERVATION COST EFFECTIVENESS STANDARD, 2006-2007

After Tax Discount Rate: 7.01%

Number of Years	Levelized Fixed Charge Rate (%)
1	107.010
2	55.317
3	38.112
4	29.529
5	24.396
6	20.986
7	18.562
8	16.753
9	15.355
10	14.244
11	13.342
12	12.597
13	11.972
14	11.441
15	10.986
16	10.593
17	10.250
18	9.948
19	9.683
20	9.447
21	9.236
22	9.048
23	8.879
24	8.727
25	8.589
26	8.464
27	8.350
28	8.247
29	8.153
30	8.067

Exhibit IV. Electric Cost Effectiveness Standard

Electric Conservation Cost Effectiveness Standard, 2006-2007
Based on 2005 LCP Optimization Analysis, start year 2006
(Levelized $/kWh)

Measure Life	Residential Space Heat Existing	Residential Space Heat New	Residential Water Heat	Residential Lighting	Residential Appliances	Commercial Existing HVAC/Shell	Commercial New HVAC/Shell	Commercial Lighting	Flat
	SHR	SHN	WH	LIGHTING	APP	CIHVACR	CIHVACN	CINONHVAC	FLAT
1	$ 0.074	$ 0.078	$ 0.065	$ 0.061	$ 0.059	$ 0.059	$ 0.058	$ 0.057	$ 0.053
2	$ 0.074	$ 0.077	$ 0.065	$ 0.061	$ 0.059	$ 0.059	$ 0.059	$ 0.057	$ 0.054
3	$ 0.072	$ 0.076	$ 0.064	$ 0.060	$ 0.058	$ 0.058	$ 0.057	$ 0.056	$ 0.053
4	$ 0.070	$ 0.074	$ 0.062	$ 0.058	$ 0.056	$ 0.056	$ 0.056	$ 0.054	$ 0.051
5	$ 0.069	$ 0.073	$ 0.061	$ 0.057	$ 0.055	$ 0.055	$ 0.054	$ 0.053	$ 0.049
6	$ 0.068	$ 0.072	$ 0.060	$ 0.056	$ 0.055	$ 0.054	$ 0.054	$ 0.053	$ 0.049
7	$ 0.069	$ 0.073	$ 0.061	$ 0.057	$ 0.055	$ 0.055	$ 0.054	$ 0.053	$ 0.049
8	$ 0.070	$ 0.074	$ 0.062	$ 0.057	$ 0.056	$ 0.055	$ 0.055	$ 0.054	$ 0.050
9	$ 0.071	$ 0.075	$ 0.063	$ 0.058	$ 0.057	$ 0.056	$ 0.056	$ 0.054	$ 0.051
10	$ 0.072	$ 0.076	$ 0.064	$ 0.059	$ 0.058	$ 0.057	$ 0.056	$ 0.055	$ 0.051
11	$ 0.072	$ 0.076	$ 0.064	$ 0.060	$ 0.058	$ 0.058	$ 0.057	$ 0.056	$ 0.052
12	$ 0.073	$ 0.077	$ 0.065	$ 0.060	$ 0.059	$ 0.058	$ 0.057	$ 0.056	$ 0.052
13	$ 0.074	$ 0.078	$ 0.065	$ 0.061	$ 0.059	$ 0.059	$ 0.058	$ 0.057	$ 0.053
14	$ 0.074	$ 0.079	$ 0.066	$ 0.062	$ 0.060	$ 0.059	$ 0.059	$ 0.058	$ 0.054
15	$ 0.075	$ 0.079	$ 0.067	$ 0.062	$ 0.060	$ 0.060	$ 0.059	$ 0.058	$ 0.054
16	$ 0.076	$ 0.080	$ 0.067	$ 0.063	$ 0.061	$ 0.061	$ 0.060	$ 0.059	$ 0.055
17	$ 0.077	$ 0.081	$ 0.068	$ 0.063	$ 0.062	$ 0.061	$ 0.061	$ 0.059	$ 0.055
18	$ 0.077	$ 0.082	$ 0.069	$ 0.064	$ 0.062	$ 0.062	$ 0.061	$ 0.060	$ 0.056
19	$ 0.078	$ 0.083	$ 0.070	$ 0.065	$ 0.063	$ 0.063	$ 0.062	$ 0.061	$ 0.056
20	$ 0.079	$ 0.084	$ 0.070	$ 0.066	$ 0.064	$ 0.063	$ 0.063	$ 0.062	$ 0.057
21	$ 0.080	$ 0.084	$ 0.071	$ 0.066	$ 0.065	$ 0.064	$ 0.063	$ 0.062	$ 0.058
22	$ 0.081	$ 0.085	$ 0.072	$ 0.067	$ 0.065	$ 0.065	$ 0.064	$ 0.063	$ 0.058
23	$ 0.081	$ 0.086	$ 0.073	$ 0.068	$ 0.066	$ 0.065	$ 0.065	$ 0.064	$ 0.059
24	$ 0.082	$ 0.087	$ 0.073	$ 0.068	$ 0.066	$ 0.066	$ 0.065	$ 0.064	$ 0.060
25	$ 0.083	$ 0.087	$ 0.074	$ 0.069	$ 0.067	$ 0.066	$ 0.066	$ 0.065	$ 0.060
26	$ 0.083	$ 0.088	$ 0.075	$ 0.069	$ 0.068	$ 0.067	$ 0.066	$ 0.065	$ 0.061
27	$ 0.084	$ 0.089	$ 0.075	$ 0.070	$ 0.068	$ 0.068	$ 0.067	$ 0.066	$ 0.061
28	$ 0.085	$ 0.089	$ 0.076	$ 0.071	$ 0.069	$ 0.068	$ 0.067	$ 0.066	$ 0.062
29	$ 0.085	$ 0.090	$ 0.076	$ 0.071	$ 0.069	$ 0.069	$ 0.068	$ 0.067	$ 0.062
30	$ 0.086	$ 0.091	$ 0.077	$ 0.072	$ 0.070	$ 0.069	$ 0.068	$ 0.067	$ 0.063
Load Factor	21%	18%	29%	40%	45%	48%	51%	54%	100%

1. 2006 Start Year
2. Discount rate used is PSE after tax weighted cost of capital, 7.01%

Exhibit V. Gas Cost Effectiveness Standard

Gas Conservation Cost Effectiveness Standard, 2006-2007

Based on 2005 LCP Optimization Analysis, start year 2006

(Levelized $/Therm)

Year	Space Heat Existing	Space Heat New	Water Heat	Process Heat
	SH	SHN	WH	PROCESS
1	0.948	0.995	0.856	0.766
2	0.923	0.970	0.836	0.746
3	0.894	0.942	0.807	0.717
4	0.873	0.922	0.787	0.696
5	0.853	0.903	0.765	0.673
6	0.847	0.897	0.760	0.667
7	0.848	0.899	0.760	0.666
8	0.856	0.907	0.768	0.673
9	0.867	0.918	0.779	0.684
10	0.877	0.928	0.789	0.693
11	0.879	0.931	0.790	0.693
12	0.882	0.935	0.793	0.695
13	0.891	0.944	0.801	0.702
14	0.903	0.956	0.812	0.713
15	0.916	0.970	0.825	0.724
16	0.929	0.983	0.837	0.736
17	0.941	0.996	0.849	0.747
18	0.953	1.009	0.860	0.757
19	0.965	1.021	0.871	0.767
20	0.975	1.031	0.946	0.776
21	0.985	1.042	0.967	0.785
22	0.979	1.036	0.987	0.779
23	0.991	1.048	1.007	0.789
24	1.002	1.060	1.026	0.799
25	1.013	1.071	1.046	0.808
26	1.023	1.082	1.065	0.817
27	1.033	1.093	1.085	0.825
28	1.043	1.103	1.105	0.834
29	1.052	1.113	1.124	0.841
30	1.061	1.122	1.144	0.849

Load Factor 21% 18% 29% 51%

1. 2006 Start Year
2. Discount rate used is PSE after tax weighted cost of capital, 7.01%