

**EXHIBIT NO. ___(JAH-18)
DOCKET NO. UG-040640, et al. (consolidated)
2004 PSE GENERAL RATE CASE
WITNESS: JAMES A. HEIDELL**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY, INC.,

Respondent.

**Docket No. UG-040640
Docket No. UE-040641
(consolidated)**

In the Matter of the Petition of

PUGET SOUND ENERGY, INC.

**For an Order Regarding the Accounting
Treatment for Certain Costs of the Company's
Power Cost Only Rate Filing.**

Docket No. UE-031471 (consolidated)

In the Matter of the Petition of

PUGET SOUND ENERGY, INC.

**For an Accounting Order Authorizing
Deferral and Recovery of the Investment
and Costs Related to the White River
Hydroelectric Project.**

Docket No. UE-032043 (consolidated)

**FOURTH EXHIBIT TO THE
PREFILED REBUTTAL TESTIMONY OF
JAMES A. HEIDELL (NONCONFIDENTIAL)
ON BEHALF OF PUGET SOUND ENERGY, INC.**

NOVEMBER 3, 2004

A Look at Residential Energy Consumption in 1997

November 1999

Energy Information Administration
Office of Energy Markets and End Use
U.S. Department of Energy
Washington, DC 20585

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Table CE1-2c. Total Energy Consumption in U.S. Households by Year of Construction, 1997 (Continued)

	Total	Year of Construction						RSE Row Factors
		1990 to 1997 ¹	1980 to 1989	1970 to 1979	1960 to 1969	1950 to 1959	1949 or Before	
RSE Column Factor:	0.5	1.8	1.3	1.0	1.1	1.1	0.8	
Physical Units per Household³								
Physical Units of Total Consumption per Household, Fuels Used:								
Electricity (kWh)	10,219	12,512	12,449	11,976	9,459	9,033	7,735	2.7
Natural Gas (thousand cf)	83	80	72	76	74	81	96	3.6
Fuel Oil (gallons)	730	707	744	637	647	720	779	7.1
Kerosene (gallons)	126	146	105	110	115	106	146	26.5
LPG (gallons)	488	529	478	422	447	339	584	10.2
Wood (cords)	1.4	0.9	1.1	1.2	1.3	1.2	2.7	12.4
Million Households								
Number of Households, Where the End Use Is:								
Space Heating ⁴	99.7	9.6	17.1	19.2	14.1	12.4	27.3	4.2
Electric Air-Conditioning ⁵	72.6	8.3	14.6	14.7	10.0	8.9	16.1	4.7
Water Heating ⁶	100.8	9.7	17.2	19.4	14.3	12.5	27.7	4.2
Refrigerators	101.3	9.7	17.3	19.5	14.4	12.5	27.8	4.2
Appliances	101.5	9.7	17.3	19.6	14.4	12.5	27.9	4.2
Quadrillion Btu								
Total Btu Consumption, Where the End Use Is:								
Space Heating	5.18	0.38	0.53	0.75	0.69	0.70	2.14	5.6
Electric Air-Conditioning	0.42	0.06	0.11	0.10	0.05	0.04	0.05	7.1
Water Heating	1.92	0.18	0.29	0.33	0.28	0.25	0.58	4.7
Refrigerators	0.46	0.04	0.08	0.09	0.07	0.06	0.11	4.4
Other Appliances and Lighting	2.27	0.25	0.40	0.44	0.30	0.28	0.59	4.4
Million Btu per Household³								
Total Btu Consumption per Household, Where the End Use Is:								
Space Heating	52.0	39.3	30.8	39.1	48.7	56.2	78.4	3.9
Electric Air-Conditioning	5.7	7.4	7.4	6.5	5.4	4.8	3.3	5.3
Water Heating	19.0	19.0	17.1	17.2	19.2	20.2	21.0	2.7
Refrigerators	4.5	4.5	4.9	4.7	4.6	4.7	4.0	2.4
Other Appliances and Lighting	22.4	26.1	23.1	22.5	21.0	22.4	21.3	2.4

¹ New construction for 1997 includes only those housing units built and occupied between January and the April-August period when the household interviews were conducted.
² The RECS cannot be used to accurately estimate the number of households that do not use electricity.
³ The averages for total and for appliances are over the set of all households; otherwise the averages are over the set of households using a given fuel or over the set using a given end use.
⁴ Households where the main or secondary space-heating fuel is electricity, natural gas, fuel oil, kerosene, or LPG.
⁵ The number of households, where the end use is electric air-conditioning, does not include households that did not use their equipment (0.9 million). It does include the small number of households where the fuel for central air-conditioning equipment was something other than electricity; those households were treated as if the fuel was electricity.
⁶ Households where the main or secondary water-heating fuel is electricity, natural gas, fuel oil, kerosene, or LPG.
 (*) = Value rounds to zero in the units displayed.
 Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding column and row factors. • Because of rounding, data may not sum to totals.
 • See "Glossary" for definition of terms used in this report.
 Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 1997 Residential Energy Consumption Survey.

Table CE1-3c. Total Energy Consumption in U.S. Households by Household Income, 1997 (Continued)

	1997 Household Income					Below Poverty Line	Eligible for Federal Assistance ¹	RSE Row Factors
	Total	Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$49,999	\$50,000 or More			
RSE Column Factor:	0.6	1.6	1.0	0.8	1.0	1.4	1.0	
Physical Units per Household³								
Physical Units of Total Consumption per Household, Fuels Used:								
Electricity (kWh)	10,219	7,372	8,926	10,173	12,974	8,229	8,482	2.5
Natural Gas (thousand cf)	83	65	75	85	98	68	73	3.1
Fuel Oil (gallons)	730	587	634	717	888	583	624	4.9
Kerosene (gallons)	126	166	130	130	85	157	140	19.7
LPG (gallons)	488	398	483	533	480	418	462	9.9
Wood (cords)	1.4	2.5	1.7	1.5	1.1	1.9	2.0	12.4
Million Households								
Number of Households, Where the End Use Is:								
Space Heating ⁴	99.7	12.8	28.5	30.7	27.6	14.0	33.0	2.8
Electric Air-Conditioning ⁵	72.6	8.1	19.3	23.1	22.2	8.3	20.9	3.6
Water Heating ⁶	100.8	13.0	29.0	31.0	27.7	14.4	33.7	2.8
Refrigerators	101.3	13.2	29.1	31.1	27.9	14.6	34.0	2.7
Appliances	101.5	13.3	29.1	31.1	27.9	14.6	34.1	2.7
Quadrillion Btu								
Total Btu Consumption, Where the End Use Is:								
Space Heating	5.18	0.52	1.31	1.64	1.71	0.58	1.48	4.1
Electric Air-Conditioning	0.42	0.04	0.10	0.12	0.16	0.04	0.10	6.0
Water Heating	1.92	0.21	0.48	0.59	0.64	0.27	0.61	3.3
Refrigerators	0.46	0.05	0.12	0.14	0.15	0.06	0.13	3.2
Other Appliances and Lighting	2.27	0.21	0.53	0.71	0.83	0.27	0.63	3.2
Million Btu per Household³								
Total Btu Consumption per Household, Where the End Use Is:								
Space Heating	52.0	40.4	45.9	53.4	62.0	41.3	44.9	3.5
Electric Air-Conditioning	5.7	4.6	5.0	5.1	7.3	4.9	4.8	4.8
Water Heating	19.0	15.8	16.6	19.1	23.1	18.8	18.1	2.3
Refrigerators	4.5	3.8	4.1	4.4	5.5	3.8	3.9	1.9
Other Appliances and Lighting	22.4	15.4	18.4	22.7	29.6	18.5	18.6	2.0

¹ Below 150 percent of poverty line or 60 percent of median State income.
² The RECS cannot be used to accurately estimate the number of households that do not use electricity.
³ The averages for total and for appliances are over the set of all households; otherwise the averages are over the set of households using a given fuel or over the set using a given end use.
⁴ Households where the main or secondary space-heating fuel is electricity, natural gas, fuel oil, kerosene, or LPG.
⁵ The number of households, where the end use is electric air-conditioning, does not include households that did not use their equipment (0.9 million). It does include the small number of households where the fuel for central air-conditioning equipment was something other than electricity; those households were treated as if the fuel was electricity.
⁶ Households where the main or secondary water-heating fuel is electricity, natural gas, fuel oil, kerosene, or LPG.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding column and row factors. • Because of rounding, data may not sum to totals.
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Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 1997 Residential Energy Consumption Survey.