

Exhibit _____ (DRS-5)
Docket Nos. UE-920433, UE-920499 and UE-921262
Witness: Diane R. Sorrells

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Petition of PUGET SOUND POWER &
LIGHT COMPANY for an Order
Regarding the Accounting Treatment
of Residential Exchange Benefits

DOCKET NO. UE-920433

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

DOCKET NO. UE-920499

v.

PUGET SOUND POWER & LIGHT COMPANY,

Respondent.

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

DOCKET NO. UE-921262

v.

PUGET SOUND POWER & LIGHT COMPANY,

Respondent.

EXHIBIT OF

DIANE R. SORRELLS

For Commission Staff

RECEIVED
RECORDS MANAGEMENT
93 FEB 24 PM 4:48
STATE OF WASH.
UTIL. AND TRANSP.
COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
UE-920433; -920499;
No. -921262 Ex. 38 ✓

Exhibit No. _____ (DWH-8)

CALCULATION OF WATER HEAT INTERRUPTION CREDIT

1992 Rate Design Case INTERH20.xls 4/25/92

Residential Interruptible Water Heating Credit

Line	Item	Equation	Cost
Substation Costs			
1	Property		500,000
2	230/115 - 12.5 kv Transformers		1,000,000
3	Switching / Disconnects etc.		100,000
4	3 Getaways		100,000
5	Total	(1+2+3+4)	1,700,000
6	Lifetime - years		30
7	Fixed Charge Rate		0.1316
8	Annual Cost	(5*7)	223,720
9	kW Capacity - 25 mva Bank		22,000
10	Substation Cost (\$/kW-Year)	(8/9)	\$10.17

Peak Capacity Costs

11	Peak CT (\$/kW-Year)		\$53.06
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Water Heater Interrupters

12	Mature Cost / Control Point		300
13	Lifetime - Years		10
14	Fixed Charge Rate		0.2
15	Annualized Capital Cost	(12*14)	60
16	Annual O&M		3
17	Annual Program Costs		N.A.
18	Total Annual Costs (\$/Year)	(15+16)	63

Water Heater Characteristics

19	Water Heater Load (kW)		3.8
20	System Peak Coincidence		0.52
21	Expected Peak Interruption (k)	(19*20)	2



Program Economics

22	Peak Capacity Credit	(11*21)	\$106.12
23	Summer Peaking Credit	(10*21)	\$20.34
24	Total Credits / Customer	(22+23)	\$126.46
25	Total Cost / Customer	18	63
26	Net Utility Benefits	(24-25)	\$63.46
27	Monthly Customer Credit		\$5.29

1992 General Rate Case

INTERH20.xls

23-Oct-92

Residential Interruptible Water Heating Credit

Line	Item	Equation	Cost
Substation Costs			
1	Property		500,000
2	230/115 - 12.5 kV Transformers		1,000,000
3	Switching / Disconnects etc.		100,000
4	5 Getaways		150,000
5	Transmission Line Integration		1,000,000
6	Total	(L1+L2+L3+L4+L5)	2,750,000
7	Lifetime - years		30
8	Fixed Charge Rate		12.89%
9	Annual Cost	(L6*L8)	354,475
10	kW Capacity - 25 mVa Bank		22,000
11	Substation Cost (\$/kW-Year)	(L9/L10)	\$16.11
12	Distribution losses		8%
Peak Capacity Costs			
13	Peak CT (\$/kW-Year)		\$57.09
14	Levelized 200 hours gas & variable O&M		\$7.35
15	Production Demand Losses		12%
Water Heater Interrupters			
16	Mature Cost / Control Point		300
17	Lifetime - Years		10
18	Fixed Charge Rate		20.35%
19	Annualized Capital Cost	(L16*L18)	61.05
20	Annual O&M		3
21	Annual Program Administration Costs		Not Available
22	Total Annual Costs (\$/Year)	(L19+L20)	64.05
Water Heater Characteristics			
23	Water Heater Load (kW)		4
24	System Peak Coincidence		0.4
25	Diversified Interruption		0.5
26	Substation Peak Interruption Credit (kW)	(L24*L25)	1.6
27	Capacity Peak Interruption Credit (kW)	(L23*L24*L25)	0.8
Program Economics			
28	Peak Capacity Credit	(L13-L14)*L27*(1+L15)	\$44.57
29	T&D Capacity Credit	(L11*L26)*(1+L12)	\$27.84
30	Total Credits / Customer	(L28+L29)	\$72.41
31	Total Cost / Customer	L22	64.05
32	Net Utility Benefits	(L30-L31)	\$8.36
33	Monthly Customer Credit	(L32/12)	50.70

