Exhibit No. ___ (YKGM-3)
Docket No. UG-060265
Witness: Yohannes K.G. Mariam

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **CASCADE NATURAL GAS CORPORATION,** **Respondent.**	**DOCKET NO. UG-060265**

EXHIBIT TO TESTIMONY OF

YOHANNES K.G. MARIAM, PH.D.

(REVISED PAGINATION)

STAFF OF
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Statistical Analysis of Temperature Data

August 22, 2006

Table 1. Results of Descriptive Statistics

Date: 08/07/06 Time: 08:50

Sample: 1955:01 2005:12

	BELLINGHAM	BREMERTON	WALLA WALLA	YAKIMA
Mean	466.1958	421.4088	418.4079	500.3864
Median	486	427.25	367.5	479.25
Maximum	1146.5	1033	1415.5	1556.5
Minimum	11	11	0	0
Std. Dev.	266.2383	263.3752	353.8442	389.3939
Skewness	0.074378	0.054582	0.45863	0.340789
Kurtosis	1.926873	1.734839	2.146596	1.970375
Jarque-Bera	28.36516	39.23871	33.29	38.87925
Probability	0.000001	0.000000	0.000000	0.000000
Sum	270393.6	246102.7	212969.6	306236.5
Sum Sq. Dev.	41041170	40440669	63604498	92644481
Observations	580	584	509	612

Table 2a: Results of Unit Root Test (Bellingham and Bremerton)

ADF Test Statistic	-25.65753	1% Critical Value*	-3.9791	
		5% Critical Value	-3.42	
		10% Critical Value	-3.1323	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(BELLINGHAM,3)				
Method: Least Squares				
Date: 08/07/06 Time: 08:48				
Sample(adjusted): 1955:01 2005:08				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Bellingham(-1),2)	-20.15016	0.785351	-25.65753	0
D(Bellingham(-1),3)	17.71559	0.754768	23.47157	0
D(Bellingham(-2),3)	16.09313	0.696438	23.10777	0
D(Bellingham(-3),3)	14.4615	0.627716	23.0383	0
D(Bellingham(-4),3)	12.77486	0.559099	22.84903	0
D(Bellingham(-5),3)	11.07811	0.49307	22.46761	0
D(Bellingham(-6),3)	9.398091	0.428832	21.91558	0
D(Bellingham(-7),3)	7.725733	0.363663	21.2442	0
D(Bellingham(-8),3)	5.991143	0.29901	20.03657	0
D(Bellingham(-9),3)	4.244076	0.233634	18.16546	0
D(Bellingham(-10),3)	2.601348	0.166778	15.59767	0
D(Bellingham(-11),3)	1.19614	0.099431	12.02985	0
D(Bellingham(-12),3)	0.350506	0.039956	8.772189	0
C	0.025167	7.407899	0.003397	0.9973
Trend	0.001063	0.021951	0.04843	0.9614
R-squared	0.915798	Mean dependent var	0.01546	
Adjusted R-squared	0.913595	S.D. dependent var	304.236	
S.E. of regression	89.4296	Akaike info criterion	11.8517	
Sum squared resid	4278744	Schwarz criterion	11.9692	
Log likelihood	-3244.21	F-statistic	415.627	
Durbin-Watson stat	2.15578	Prob(F-statistic)	0	

ADF Test Statistic	-21.59198	1% Critical Value*	-3.9863	
		5% Critical Value	-3.4234	
		10% Critical Value	-3.1344	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(BREMERTON,3)				
Method: Least Squares				
Date: 08/07/06 Time: 08:49				
Sample: 1955:01 2005:12				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Bremerton(-1),2)	-20.3329	0.941688	-21.59198	0
D(Bremerton(-1),3)	17.88345	0.904162	19.77905	0
D(Bremerton(-2),3)	16.26133	0.832133	19.54175	0
D(Bremerton(-3),3)	14.59892	0.750471	19.45301	0
D(Bremerton(-4),3)	12.89914	0.668862	19.2852	0
D(Bremerton(-5),3)	11.20445	0.590762	18.96607	0
D(Bremerton(-6),3)	9.495726	0.514113	18.47012	0
D(Bremerton(-7),3)	7.797167	0.435073	17.92154	0
D(Bremerton(-8),3)	6.081321	0.357667	17.00274	0
D(Bremerton(-9),3)	4.336105	0.279734	15.5008	0
D(Bremerton(-10),3)	2.654205	0.199645	13.29461	0
D(Bremerton(-11),3)	1.194286	0.119844	9.965352	0
D(Bremerton(-12),3)	0.350681	0.048126	7.286711	0
C	1.92783	6.751533	0.28554	0.7754
Trend	-0.001746	0.022399	-0.07793	0.9379
R-squared	0.92343	Mean dependent var	-1.771	
Adjusted R-squared	0.920468	S.D. dependent var	268.807	
S.E. of regression	75.80715	Akaike info criterion	11.5332	
Sum squared resid	2080314	Schwarz criterion	11.6897	
Log likelihood	-2159.015	F-statistic	311.835	
Durbin-Watson stat	2.154565	Prob(F-statistic)	0	

Table 2b: Results of Unit Root Test (Walla Walla and Yakima)

ADF Test Statistic	-23.55323	1% Critical Value*	-3.9813	
		5% Critical Value	-3.4211	
		10% Critical Value	-3.1329	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(WALLA WALLA,3)				
Method: Least Squares				
Date: 08/07/06 Time: 08:49				
Sample(adjusted): 1955:01 1995:02				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Walla Walla(-1),2)	-19.62792	0.833343	-23.55323	0
D(Walla Walla(-1),3)	17.25511	0.800344	21.55962	0
D(Walla Walla(-2),3)	15.69795	0.738491	21.25679	0
D(Walla Walla(-3),3)	14.06572	0.666706	21.09734	0
D(Walla Walla(-4),3)	12.39921	0.594683	20.85013	0
D(Walla Walla(-5),3)	10.76875	0.52416	20.54478	0
D(Walla Walla(-6),3)	9.127886	0.454739	20.07281	0
D(Walla Walla(-7),3)	7.481165	0.385673	19.39768	0
D(Walla Walla(-8),3)	5.834625	0.31669	18.42376	0
D(Walla Walla(-9),3)	4.140135	0.247095	16.75524	0
D(Walla Walla(-10),3)	2.508812	0.176608	14.20551	0
D(Walla Walla(-11),3)	1.141799	0.106347	10.73652	0
D(Walla Walla(-12),3)	0.339659	0.043668	7.778136	0
C	-0.444378	11.47543	-0.038724	0.9691
Trend	-0.001096	0.041302	-0.026528	0.9788
R-squared	0.905858	Mean dependent var	-1.6131	
Adjusted R-squared	0.903036	S.D. dependent var	405.122	
S.E. of regression	126.1513	Akaike info criterion	12.5435	
Sum squared resid	7431906	Schwarz criterion	12.6735	
Log likelihood	-3007.975	F-statistic	320.971	
Durbin-Watson stat	2.140873	Prob(F-statistic)	0	

ADF Test Statistic	-25.82736	1% Critical Value*	-3.9776	
		5% Critical Value	-3.4192	
		10% Critical Value	-3.1319	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(YAKIMA,3)				
Method: Least Squares				
Date: 08/07/06 Time: 08:50				
Sample: 1955:01 2005:12				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Yakima(-1),2)	-19.10531	0.739731	-25.82736	0
D(Yakima(-1),3)	16.75071	0.709986	23.59301	0
D(Yakima(-2),3)	15.21766	0.653999	23.26862	0
D(Yakima(-3),3)	13.64865	0.590112	23.12893	0
D(Yakima(-4),3)	12.03161	0.526642	22.8459	0
D(Yakima(-5),3)	10.43545	0.464305	22.47541	0
D(Yakima(-6),3)	8.841856	0.403171	21.9308	0
D(Yakima(-7),3)	7.25936	0.341598	21.25116	0
D(Yakima(-8),3)	5.642384	0.280655	20.10434	0
D(Yakima(-9),3)	3.996899	0.219161	18.2373	0
D(Yakima(-10),3)	2.40975	0.157159	15.3332	0
D(Yakima(-11),3)	1.050214	0.094784	11.08013	0
D(Yakima(-12),3)	0.303799	0.038873	7.815244	0
C	-1.694769	9.348554	-0.181287	0.8562
Trend	0.006381	0.026491	0.240881	0.8097
R-squared	0.908149	Mean dependent var	-0.6397	
Adjusted R-squared	0.905995	S.D. dependent var	377.575	
S.E. of regression	115.7652	Akaike info criterion	12.3652	
Sum squared resid	8000744	Schwarz criterion	12.4735	
Log likelihood	-3768.754	F-statistic	421.62	
Durbin-Watson stat	2.111359	Prob(F-statistic)	0	