

Table 1.1. Existing and Proposed Natural Gas Power Plants in Washington, Oregon and Idaho

Pipeline	State	Proponent/Owner	Facility name	Earliest Online Date	Capacity (MW)	Max. fuel use (MDth/day)	Status
GTN	OR	Portland General Electric Co.	Beaver	1977	534	80	Operating
GTN	WA	Avista Corp.	Northeast	1978	69	20	Operating
Northwest	WA	Puget Sound Energy	Frederickson	1981	178	51	Operating
Westcoast	WA	Puget Sound Energy	Point Whitehorn	1981	178	51	Operating
Northwest	WA	Puget Sound Energy	Fredonia	1984	247	71	Operating
Northwest	WA	March Point Associates	March Point	1991	140	21	Operating
Northwest	WA	Puget Sound Energy	Encogen	1993	160	27	Operating
Westcoast	WA	Sumas Cogeneration Co.	Sumas Energy	1993	123	21	Operating
Westcoast	WA	Tenaska Power Partners	Tenaska Washington	1994	245	41	Operating
GTN	ID	Avista Corp.	Rathdrum	1995	176	51	Operating
GTN	OR	Portland General Electric Co.	Coyote Springs Cogen. Project	1995	237	40	Operating
Northwest	WA	KVA Resources	Longview Fibre	1995	65	11	Operating
GTN	OR	PacifiCorp	Hermiston Generating Project	1996	469	70	Operating
Northwest	WA	Clark Public Utilities	River Road	1997	248	37	Operating
<i>Total Operating</i>					<i>3,069</i>	<i>555</i>	
GTN	ID	Avista Energy/Cogentrix	Rathdrum Power Project	2001	270	43	Construction
GTN	OR	City of Klamath Falls	Klamath Falls	2001	484	77	Construction
GTN	OR	Hermiston Power Partnership	Hermiston Power Project	2002	546	87	Construction
GTN	OR	Avista Power	Coyote Springs 2	2002	260	45	Construction
<i>Total Under Construction</i>					<i>1,560</i>	<i>252</i>	
Northwest	WA	FPL Energy	Everett Delta	2002	242	39	Permitted
Northwest	WA	Westcoast/EPCOR	Frederickson	2002	249	40	Permitted
Northwest	WA	Weyerhaeuser Co.	Cowlitz Cogeneration Project	2002	310	50	Permitted
Northwest	WA	Tractebel Power, Inc.	Chehalis Generation Facility	2002	520	83	Permitted
Northwest	WA	Energy Northwest	Satsop Combustion Turbine Project	2003	532	85	Permitted
Northwest	WA	Avista	Mint Farm	2004	245	39	Proposed
GTN	WA	Northwest Power Enterprises	Northwest Regional Power Facility	2003	838	134	Permitted
<i>Total Permitted</i>					<i>2,936</i>	<i>470</i>	
Northwest	WA	Enron	Longview Project	2003	249	40	Proposed
GTN	OR	PG&E National Energy Group	Umatilla Generating Project 1 & 2	2003	550	88	Proposed
Westcoast	WA	National Energy Systems Co.	Sumas 2 Generation Facility	2003	660	106	Proposed
Northwest	WA	Avista	Mint Farm	2004	245	39	Proposed
Northwest	WA	Goldendale Aluminum/NESCO	Goldendale	2004	248	40	Proposed
Northwest	ID	Ida-West Energy Co.	Garnet Energy Facility	2004	250	40	Proposed
GTN	WA	Northwest Power Enterprises	Starbuck Power Project	2004	1,100	176	Proposed
Northwest	WA	Cogentrix Energy	Mercer Ranch Generation Project	2005	850	136	Proposed
GTN	WA	Newport Northwest LLC	Wallula	2004	1,300	208	Proposed
Westcoast	WA	BP	BP Cherry Point	2004	600	96	Proposed
Northwest	WA	TransAlta	Centralia	2004	248	40	Proposed
GTN	OR	Cogentrix	Grizzly Power Generation Project	2005	980	157	Proposed
GTN	OR	Portland General Electric	Port Westward Generating Plant	2005	650	105	Proposed
GTN	OR	Westward Energy LLC	Summit/Westward Energy Project	2005	520	83	Proposed
<i>Total Proposed</i>					<i>8,450</i>	<i>1,354</i>	
<i>All Plants</i>					<i>16,015</i>	<i>2,631</i>	



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7/17/03 Session Expanded Table

	Last	Open High	Open Low	High	Low	Most Recent Settle	Change	Open Interest	Estimated Volume	Last Updated
<u>August 2003</u>	4.945	0.000	0.000	4.979	4.934	4.934	0.011	39540	0	7/17/03 06:40:08
<u>September 2003</u>	4.965	0.000	0.000	5.000	4.957	4.950	0.015	43001	0	7/17/03 06:40:08
<u>October 2003</u>	4.995	0.000	0.000	5.031	4.995	4.985	0.010	35249	0	7/17/03 05:44:47
<u>November 2003</u>	5.210	0.000	0.000	5.250	5.210	5.200	0.010	22495	0	7/17/03 05:44:47
<u>December 2003</u>	5.405	0.000	0.000	5.447	5.405	5.393	0.012	26332	0	7/17/03 05:44:47
<u>January 2004</u>	5.513	0.000	0.000	5.550	5.513	5.493	0.020	20309	0	7/16/03 21:56:23
<u>February 2004</u>	5.467	0.000	0.000	5.489	5.465	5.431	0.036	14631	0	7/16/03 19:33:16
<u>March 2004</u>	5.324	0.000	0.000	5.340	5.324	5.286	0.038	13776	0	7/16/03 19:33:16
<u>April 2004</u>	4.770	0.000	0.000	4.770	4.770	4.754	0.016	13441	0	7/16/03 19:33:16
<u>May 2004</u>	4.624	0.000	0.000	0.000	0.000	4.624	0.000	11178	0	7/17/03 06:30:28
<u>June 2004</u>	4.619	0.000	0.000	0.000	0.000	4.619	0.000	10578	0	7/17/03 06:30:28
<u>July 2004</u>	4.614	0.000	0.000	0.000	0.000	4.614	0.000	7142	0	7/17/03 06:30:28
<u>August 2004</u>	4.622	0.000	0.000	0.000	0.000	4.622	0.000	7388	0	7/17/03 06:30:28
<u>September 2004</u>	4.607	0.000	0.000	4.617	4.607	4.617	-0.010	6101	0	7/17/03 06:35:22
<u>October 2004</u>	4.652	0.000	0.000	0.000	0.000	4.652	0.000	7183	0	7/17/03 06:30:28
<u>November 2004</u>	4.816	0.000	0.000	0.000	0.000	4.816	0.000	6091	0	7/17/03 06:30:28
<u>December 2004</u>	4.990	0.000	0.000	0.000	0.000	4.990	0.000	8668	0	7/17/03 06:30:28
<u>January 2005</u>	5.090	0.000	0.000	0.000	0.000	5.090	0.000	6756	0	7/17/03 06:30:28
<u>February 2005</u>	5.040	0.000	0.000	0.000	0.000	5.040	0.000	6860	0	7/17/03 06:30:28
<u>March 2005</u>	4.885	0.000	0.000	0.000	0.000	4.885	0.000	5887	0	7/17/03 06:30:28
<u>April 2005</u>	4.538	0.000	0.000	0.000	0.000	4.538	0.000	5736	0	7/17/03 06:30:28
<u>May 2005</u>	4.453	0.000	0.000	0.000	0.000	4.453	0.000	3139	0	7/17/03 06:30:28
<u>June 2005</u>	4.433	0.000	0.000	0.000	0.000	4.433	0.000	3094	0	7/17/03 06:30:28
<u>July 2005</u>	4.433	0.000	0.000	0.000	0.000	4.433	0.000	4396	0	7/17/03 06:30:28
<u>August 2005</u>	4.433	0.000	0.000	0.000	0.000	4.433	0.000	3706	0	7/17/03 06:30:28
<u>September 2005</u>	4.433	0.000	0.000	0.000	0.000	4.433	0.000	2063	0	7/17/03 06:30:28
<u>October 2005</u>	4.467	0.000	0.000	0.000	0.000	4.467	0.000	3234	0	7/17/03 06:30:28
<u>November 2005</u>	4.627	0.000	0.000	0.000	0.000	4.627	0.000	2804	0	7/17/03 06:30:28
<u>December 2005</u>	4.807	0.000	0.000	0.000	0.000	4.807	0.000	2915	0	7/17/03 06:30:28
<u>January 2006</u>	4.907	0.000	0.000	0.000	0.000	4.907	0.000	2310	0	7/17/03 06:30:28
<u>February 2006</u>	4.842	0.000	0.000	0.000	0.000	4.842	0.000	1512	0	7/17/03 06:30:28
<u>March 2006</u>	4.757	0.000	0.000	0.000	0.000	4.757	0.000	3258	0	7/17/03 06:30:28
<u>April 2006</u>	4.457	0.000	0.000	0.000	0.000	4.457	0.000	1000	0	7/17/03 06:30:28
<u>May 2006</u>	4.382	0.000	0.000	0.000	0.000	4.382	0.000	658	0	7/17/03 06:30:28
<u>June 2006</u>	4.362	0.000	0.000	0.000	0.000	4.362	0.000	912	0	7/17/03 06:30:28

<u>July 2006</u>	4.368	0.000	0.000	0.000	0.000	4.368	0.000	1124	0	7/17/03 06:30:21
<u>August 2006</u>	4.378	0.000	0.000	0.000	0.000	4.378	0.000	706	0	7/17/03 06:30:21
<u>September 2006</u>	4.401	0.000	0.000	0.000	0.000	4.401	0.000	1101	0	7/17/03 06:30:21
<u>October 2006</u>	4.411	0.000	0.000	0.000	0.000	4.411	0.000	624	0	7/17/03 06:30:21
<u>November 2006</u>	4.571	0.000	0.000	0.000	0.000	4.571	0.000	584	0	7/17/03 06:30:21
<u>December 2006</u>	4.766	0.000	0.000	0.000	0.000	4.766	0.000	736	0	7/17/03 06:30:21
<u>January 2007</u>	4.873	0.000	0.000	0.000	0.000	4.873	0.000	381	0	7/17/03 06:30:21
<u>February 2007</u>	4.783	0.000	0.000	0.000	0.000	4.783	0.000	243	0	7/17/03 06:30:21
<u>March 2007</u>	4.683	0.000	0.000	0.000	0.000	4.683	0.000	101	0	7/17/03 06:30:21
<u>April 2007</u>	4.473	0.000	0.000	0.000	0.000	4.473	0.000	91	0	7/17/03 06:30:21
<u>May 2007</u>	4.483	0.000	0.000	0.000	0.000	4.483	0.000	91	0	7/17/03 06:30:21
<u>June 2007</u>	4.518	0.000	0.000	0.000	0.000	4.518	0.000	98	0	7/17/03 06:30:21
<u>July 2007</u>	4.553	0.000	0.000	0.000	0.000	4.553	0.000	77	0	7/17/03 06:30:21
<u>August 2007</u>	4.568	0.000	0.000	0.000	0.000	4.568	0.000	72	0	7/17/03 06:30:21
<u>September 2007</u>	4.543	0.000	0.000	0.000	0.000	4.543	0.000	72	0	7/17/03 06:30:21
<u>October 2007</u>	4.518	0.000	0.000	0.000	0.000	4.518	0.000	72	0	7/17/03 06:30:21
<u>November 2007</u>	4.618	0.000	0.000	0.000	0.000	4.618	0.000	127	0	7/17/03 06:30:21
<u>December 2007</u>	4.713	0.000	0.000	0.000	0.000	4.713	0.000	217	0	7/17/03 06:30:21
<u>January 2008</u>	4.808	0.000	0.000	0.000	0.000	4.808	0.000	138	0	7/17/03 06:30:21
<u>February 2008</u>	4.748	0.000	0.000	0.000	0.000	4.748	0.000	90	0	7/17/03 06:30:21
<u>March 2008</u>	4.668	0.000	0.000	0.000	0.000	4.668	0.000	93	0	7/17/03 06:30:21
<u>April 2008</u>	4.538	0.000	0.000	0.000	0.000	4.538	0.000	92	0	7/17/03 06:30:21
<u>May 2008</u>	4.558	0.000	0.000	0.000	0.000	4.558	0.000	62	0	7/17/03 06:30:21
<u>June 2008</u>	4.558	0.000	0.000	0.000	0.000	4.558	0.000	61	0	7/17/03 06:30:21
<u>July 2008</u>	4.588	0.000	0.000	0.000	0.000	4.588	0.000	64	0	7/17/03 06:30:21
<u>August 2008</u>	4.618	0.000	0.000	0.000	0.000	4.618	0.000	64	0	7/17/03 06:30:21
<u>September 2008</u>	4.628	0.000	0.000	0.000	0.000	4.628	0.000	55	0	7/17/03 06:30:21
<u>October 2008</u>	4.608	0.000	0.000	0.000	0.000	4.608	0.000	55	0	7/17/03 06:30:21
<u>November 2008</u>	4.683	0.000	0.000	0.000	0.000	4.683	0.000	55	0	7/17/03 06:30:21
<u>December 2008</u>	4.758	0.000	0.000	0.000	0.000	4.758	0.000	55	0	7/17/03 06:30:21
<u>January 2009</u>	4.818	0.000	0.000	0.000	0.000	4.818	0.000	0	0	7/17/03 06:30:21
<u>February 2009</u>	4.768	0.000	0.000	0.000	0.000	4.768	0.000	0	0	7/17/03 06:30:21
<u>March 2009</u>	4.708	0.000	0.000	0.000	0.000	4.708	0.000	0	0	7/17/03 06:30:21
<u>April 2009</u>	4.608	0.000	0.000	0.000	0.000	4.608	0.000	0	0	7/17/03 06:30:21
<u>May 2009</u>	4.608	0.000	0.000	0.000	0.000	4.608	0.000	0	0	7/17/03 06:30:21
<u>June 2009</u>	4.608	0.000	0.000	0.000	0.000	4.608	0.000	0	0	7/17/03 06:30:21
<u>July 2009</u>	4.608	0.000	0.000	0.000	0.000	4.608	0.000	0	0	7/17/03 06:30:21

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Electric Use per Customer--Weather Normalized

The following information includes historic and projected use per customer information.

Historic Information

Weather Adjusted Billed Sales, Net of Sch48,MWHs

Year	Res	Com	Ind	StLt	Rsl	Total
1996	9,197,970	6,750,926	1,714,896	72,572	132,094	17,868,459
1997	9,258,858	6,963,714	1,619,474	72,578	133,727	18,048,351
1998	9,291,522	7,143,280	1,665,235	74,314	136,559	18,310,911
1999	9,720,657	7,395,715	1,632,008	74,933	139,482	18,962,795
2000	9,701,393	7,556,581	1,586,396	77,378	141,850	19,063,598
2001	9,445,577	7,866,243	1,748,209	78,461	76,592	19,215,081

Note: For Resale(Rsl), Seatac goes away about the middle of 2001.

Customer Counts

	Res custs	Non-Res Cust	Total Custs
1996	754,097	94,966	849,063
1997	767,476	96,987	864,463
1998	782,095	99,739	881,834
1999	797,421	96,769	894,190
2000	811,585	104,430	916,015
2001	826,187	105,790	931,977

(2001 Annual Report)

Weather Adjusted kWh/Customer

Year	Residential	Non-Residential	Total Customers
1996	12,197	91,301	21,045
1997	12,064	90,625	20,878
1998	11,880	90,430	20,765
1999	12,190	95,507	21,207
2000	11,954	89,651	20,811
2001	11,433	92,348	20,618

1996-2001 Percentage Change

	Residential	Non-Residential	Total Customers
	-6.3%	1.1%	-2.0%

Use Per Customer Actual and Projected Using Forecast

Weather Adj. kWh/Customer and Forecast kWh/Customer

Year	Residential	Non-Residential	Total Customers
1996	12,197	91,301	21,045
1997	12,064	90,625	20,878
1998	11,880	90,430	20,765
1999	12,190	95,507	21,207
2000	11,954	89,651	20,811
2001	11,433	92,348	20,618
2002	11,500	87,471	
2003	11,507	86,298	
2004	11,414	83,929	
2005	11,312	85,034	
2006	11,304	85,301	

Villamor
Forecast

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.910331881
R Square	0.828704134
Adjusted R Si	0.80967126
Standard Errc	154.513035
Observations	11

ANOVA

	df	SS	MS	F
Regression	1	1039502.118	1039502.118	43.54067245
Residual	9	214868.5019	23874.27799	
Total	10	1254370.62		

Residential Regression and Actual/ Projection

Year	Residential Actual/ Projected	Regression	Year To Year Changes in Regression kWh/Cust
1996	12,197	12,191	
1997	12,064	12,094	-0.80%
1998	11,880	11,997	-0.80%
1999	12,190	11,899	-0.81%
2000	11,954	11,802	-0.82%
2001	11,433	11,705	-0.82%
2002	11,500	11,608	-0.83%
2003	11,507	11,511	-0.84%
2004	11,414	11,413	-0.84%
2005	11,312	11,316	-0.85%
2006	11,304	11,219	-0.86%

	Coefficients	Standard Error	t Stat	P-value	Jpper 95.0%
Intercept	206224.6516	29479.24874	6.995587079	6.35563E-05	272911.4
X Variable 1	-97.21120952	14.73223984	-6.598535629	9.94428E-05	-63.8845

2002-2005 Average Reduction in Residential kWh/Customer: -0.84%

Use Per Customer Actual and Projected Using Updated Forecast

Forecast updated for lower income and slower economic recovery.

Weather Adj. kWh/Customer and Updated Forecast kWh/Customer

Year	Residential	Non-Residential	Total Customers
1996	12,197	91,301	21,045
1997	12,064	90,625	20,878
1998	11,880	90,430	20,765
1999	12,190	95,507	21,207
2000	11,954	89,651	20,811
2001	11,433	92,348	20,618
2002	11,343	85,309	
2003	11,358	84,365	
2004	11,278	82,002	
2005	11,183	83,120	
2006	11,174	83,391	

← Villamor Updated Forecast

Year to Year Percentage Change in kWh/Customer

Year	Residential	Non-Residential
1996		
1997	-1.1%	-0.7%
1998	-1.5%	-0.2%
1999	2.6%	5.6%
2000	-1.9%	-6.1%
2001	-4.4%	3.0%
2002	-0.8%	-7.6%
2003	0.1%	-1.1%
2004	-0.7%	-2.8%
2005	-0.8%	1.4%
2006	-0.1%	0.3%
Average:	-0.9%	-0.8%

SUMMARY OUTPUT--Regression of Residential Use/Customer over Time--1996-2006
Using Villamor Updated Forecast

Regression Statistics	
Multiple R	0.92572487
R Square	0.85696653
Adjusted R Squ	0.84107392
Standard Error	165.169004
Observations	11

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1471044.459	1471044.459	53.922336	4.35884E-05
Residual	9	245527.1992	27280.79991		

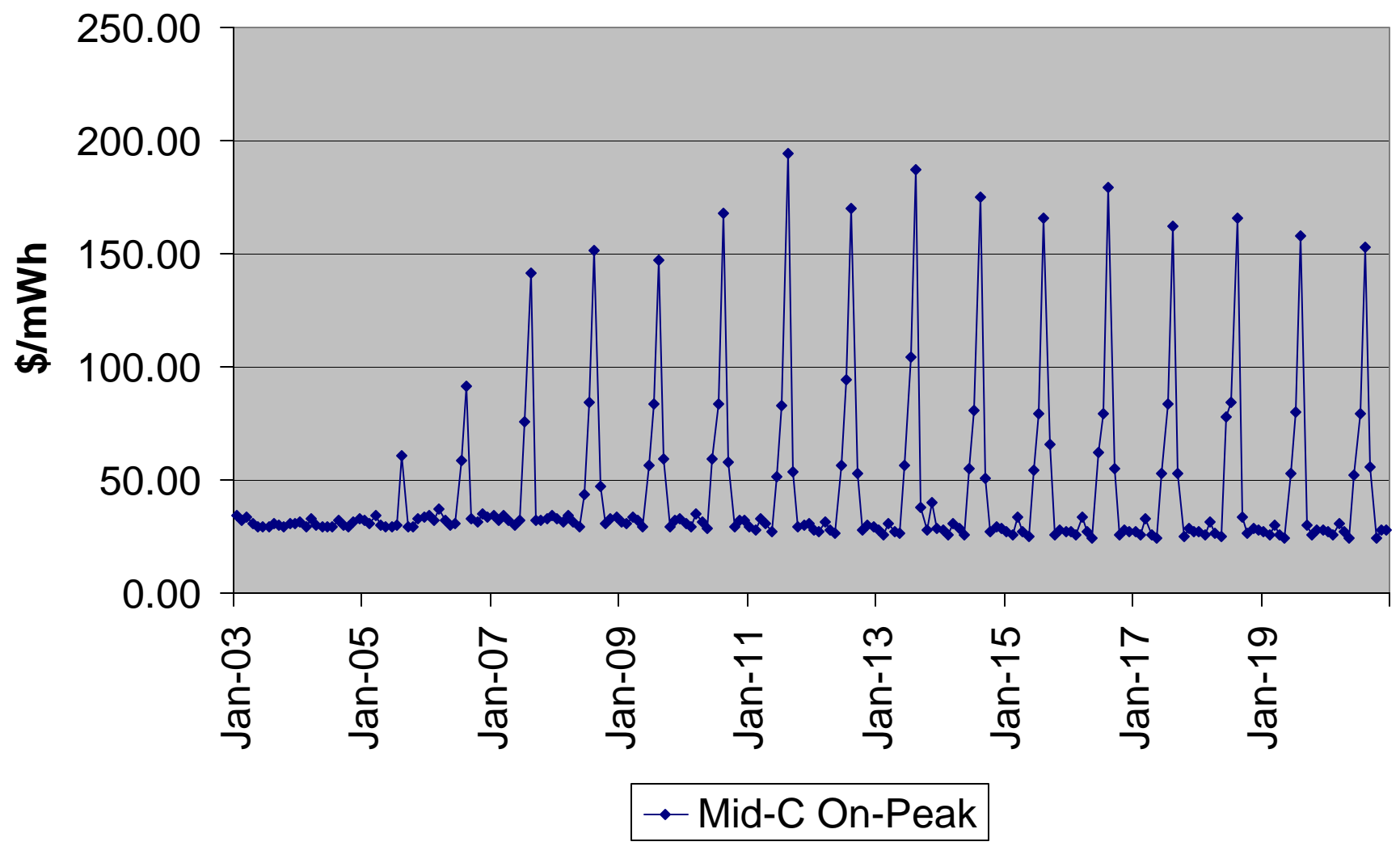
Residential Regression and Actual/Updated Projection

Year	Residential Actual/Updated Projected	Regression	Year To Year Changes in Regression kWh/Cust
1996	12,197	12,220	
1997	12,064	12,104	-0.95%
1998	11,880	11,988	-0.96%
1999	12,190	11,873	-0.96%
2000	11,954	11,757	-0.97%
2001	11,433	11,641	-0.98%
2002	11,343	11,526	-0.99%
2003	11,358	11,410	-1.00%
2004	11,278	11,294	-1.01%
2005	11,183	11,179	-1.02%
2006	11,174	11,063	-1.03%

	Coefficients	Standard Error	t Stat	P-value	Lower 95%
Intercept	243041.478	31512.28086	7.71259557	2.9614E-05	171755.6915
X Variable 1	-115.642256	15.74824663	-7.343182961	4.35884E-05	-151.2672924

2002-2005 Average Reduction in Residential kWh/Customer: -1.01%

NWPPC Price Forecast



completed of the extent of available gas. The level of proven reserves of natural gas is a dynamic statistic that depends on economics, e.g., whether it is economic to produce the gas at current prices, in addition to physics. “Undiscovered Resources” means amounts of gas that are estimated to be developable at reasonable cost; only a portion of this is assumed to be capable of being produced and brought to market at profitable prices. “Endowment” is a geological estimate of the total amount of gas available in an area prior to the development of any gas wells. It is the sum of gas already produced, gas available from remaining marketable reserves, gas which has been located but is not producible and marketable, and gas which is in undiscovered reserves. None of the amounts of gas described by these terms can be taken as fixed; even estimates of total gas endowment are frequently updated based on results of exploration.

Table 4.1. North American Natural Gas Reserves²⁴

U.S. Dry Natural Gas Proven Reserves as of 12/31/99	167.4 Tcf
<i>Texas</i>	<i>40.2 Tcf</i>
<i>Gulf of Mexico Federal Offshore</i>	<i>25.1 Tcf</i>
<i>New Mexico</i>	<i>15.1 Tcf</i>
<i>Wyoming</i>	<i>13.4 Tcf</i>
<i>Oklahoma</i>	<i>11.7 Tcf</i>
<i>Alaska</i>	<i>9.7 Tcf</i>
<i>Louisiana</i>	<i>9.4 Tcf</i>
Canadian Proven Natural Gas Reserves as of 1/1/00	63.9 Tcf
Total U.S. and Canadian Proven Natural Gas Reserves	231.3 Tcf
1999 U.S. Natural Gas Consumption	21.7 Tcf
1998 Canadian Natural Gas Consumption	3.0 Tcf
Approximate U.S. and Canadian Annual Gas Consumption	24.7 Tcf
<u>Years of reserves with no growth in demand or reserves:</u>	<u>9.4 years</u>

Sources: Energy Information Administration: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 1999 Annual Report; Natural Gas Annual 1999; Country Analysis Briefs

Western Canadian Sedimentary Basin

Canadian natural gas comes from fields in the far north of British Columbia and Alberta, a geologic area known as the Western Canadian Sedimentary Basin (WCSB). It is processed to remove impurities, and then piped south. The gas can flow south through British Columbia on a pipeline owned by Westcoast Energy, Inc. through Alberta on the TransCanada pipeline to Kingsgate, BC, or east to markets on the East Coast of the U.S. and Canada through the TransCanada or Alliance pipelines.

The geographic area of natural gas exploration in British Columbia and Alberta is enormous – larger than the area of Washington and Oregon combined. Development conditions are harsh: most of the area is swampy in summer, and bitter cold in winter. Much of the development takes place during the winter months when the ground is frozen and heavy equipment can be moved. Equipment failures are relatively frequent due to the harsh weather.

²⁴ Currently, natural gas imports from and exports to Mexico are about equal. For this reason, we disregard Mexico as a supplier of gas in this simplistic analysis.