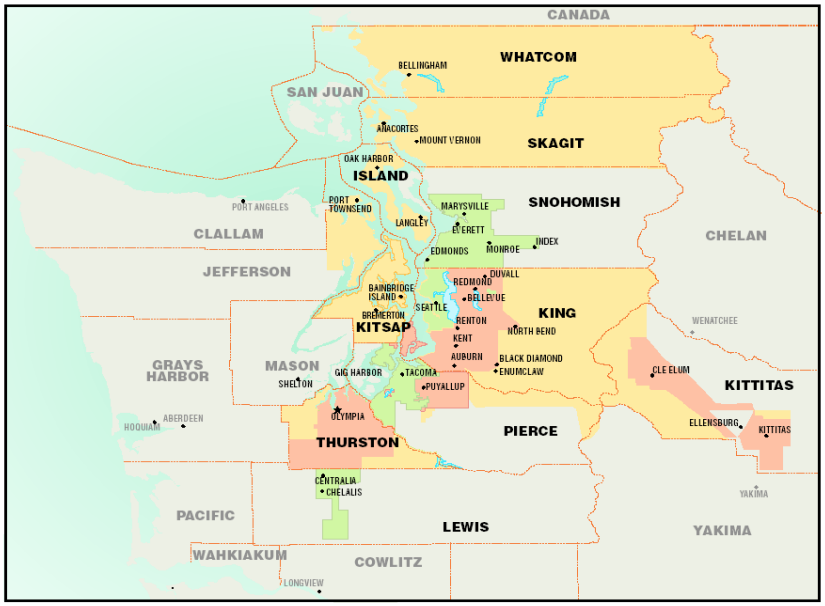
VI. DEMAND FORECAST

A. Overview

Each year, PSE develops a 20-year forecast of customers, energy sales and peak demand for its electric and gas service territories. PSE uses the forecast for short-term planning activities such as the annual revenue forecast, marketing and operations plans, and in various long-term planning activities such as the Least Cost Plan, and in its transmission and distribution planning. This chapter provides a description of the Company's long term load forecasting process. It provides an explanation of the forecast methodology for its customer counts, sales and peak demand forecasts and explains the sources of forecast inputs. This chapter concludes by discussing the electric and gas load forecasts for the next 20 years. Appendix K provides a more in-depth discussion of the technical forecast methodology, followed by a discussion of the methodology used to convert a monthly billed sales forecast to an hourly delivered load forecast.

PSE's electric service territory covers nine counties in the state (Whatcom, Skagit, Island, King, Kittitas, Pierce, Thurston, Kitsap and Jefferson), while the gas service territory covers six counties (King, Snohomish, Pierce, Thurston, a small portion of Kittitas, and Lewis). The residents in these counties account for about two-thirds of the state's population.

PUGET SOUND ENERGY SERVICE TERRITORY



Combined electric and natural gas service
Electric service
Natural gas service

Puget Sound Energy's service territories:
Electric Service: Island, Jefferson, parts of King (not Seattle), Kitsap, Kittitas, Pierce (not Tacoma), Thurston, Skagit and Whatcom counties. (Public utility districts also serve parts of some counties.)
Natural Gas Service: King, Lewis, Pierce, Snohomish, Thurston and parts of Kittitas counties.

Puget Sound Energy is Washington state's largest energy utility, providing electric and natural gas service to more than 1.2 million customers, primarily in Washington state's Puget Sound region.

PSE PUGET SOUND ENERGY

B. Forecast Methodology

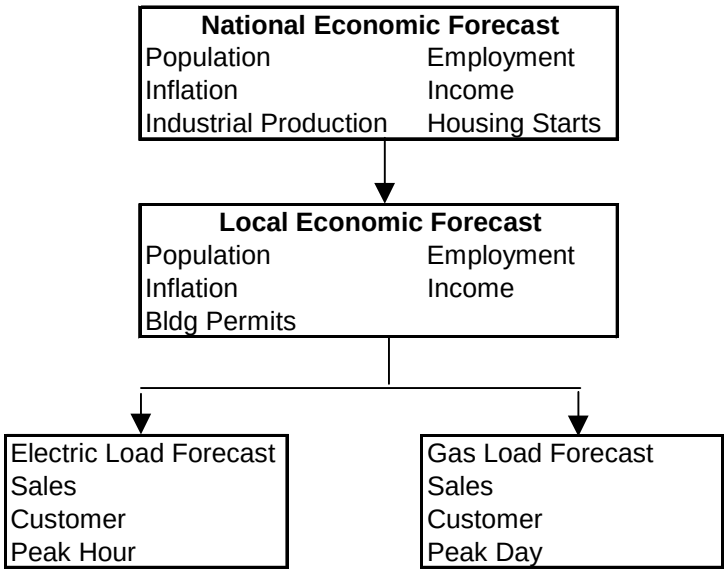
The Company primarily relies on econometric methods to produce its load forecasts. This section provides a general description of the three econometric methodologies used to forecast a) billed energy sales and customer counts, b) system peak loads and c) hourly distribution of loads.

Billed Energy Sales and Customer Counts Forecasts

PSE designed its forecasting process to provide monthly forecasts of customers and billed sales at the customer class and service territory levels. The five electric customer classes are residential, commercial, industrial, streetlights and resale. The eleven gas customer classes by customer type are firm (residential, commercial, industrial, commercial large volume, and industrial large volume), interruptible (commercial and industrial interruptible), and transportation (commercial firm, commercial interruptible, industrial firm and industrial interruptible).

The forecasting models are premised upon electricity or gas as inputs into the production of various economic activities. In the case of the residential sector, customer uses include space heating; water heating; lighting; cooking; refrigeration; dish washing; laundry washing; and various other plug loads. In the case of the commercial and industrial sectors, these activities include heating, venting, and air conditioning (HVAC); lighting; computers; and other production processes. Since energy is an input to these economic activities, the economic and demographic conditions at the national and local levels drive the demand for energy. Exhibit VI-1 below provides a general overview of the relationships between the national and local economic inputs vis-à-vis the forecast of energy outputs.

Exhibit VI-1
PSE Forecasting Model Overview



PSE relies upon an econometric approach to develop the demand for electricity or gas at the customer class level. The forecasting models use historical data to develop trends in average use per customer and customer counts, accounting for economic and demographic changes, temperature sensitivity, responsiveness to rates, and impacts of conservation and other changes in customer usage and behavior, including known near-term load additions or deletions. Billed sales in the month are defined as the sum of the billed sales across all customer classes, where billed sales for each class are estimated from the product of sales per customer equations and the customer count equations. For a more detailed discussion of PSE's billed sales and customer forecast methodology, please refer to Appendix K, Description of the Load Forecasting Models.

Peak Load Forecasts

PSE projects peak load forecasts for the next 20 years to support planning for peak capacity requirements, and long-term distribution and transmission planning activities. For electric, the peak hour for the normal and extreme design temperatures represent the relevant range of peak loads. Peak hourly loads for electric are projected for 23-degree, 16-degree, and 13-degree Fahrenheit design temperatures. For gas, PSE uses peak day for the design day temperature to represent its relevant peak for gas using a 52-degree day design temperature. Peak load forecasts are also developed via econometric equations. Observed monthly peak loads are regressed against weather sensitive delivered sales from both residential and non-residential

sectors, with deviations of actual peak hour temperature from normal peak temperature for the month, with day of the week effects, and with unique weather events such as a cold snap or El Nino. Given the forecasts of weather and non-weather sensitive delivered sales, normal system peak loads are then developed for the designed temperatures. A more detailed discussion of the peak load forecasting models is presented in Appendix K.

Hourly Load Profile

Electricity demand and production has a level of complication beyond that of natural gas demand and production: its lack of storability. Because there is no way to store large amounts of electricity in a practical manner, the momentary interaction between electricity production and consumption is very important. For this reason, and for purposes of analyzing the effectiveness of different electric generating resources, an hourly profile of PSE electricity demand is required.

The load profile of PSE's system demand was constructed to resemble a typical year of hourly usage incorporating variations due to i) time of day, ii) day of week, iii) month of year, iv) typical temperature variation, v) and holidays. The use of this hourly load profile is different from most load forecasts developed for forecasts. Often it is typical for the forecaster to assume normal temperatures in order to get an "expected" or average load. Because electricity demand is so temperature volatile on a momentary basis, it is important to evaluate how a new resource will impact the supply portfolio in meeting this load. The calculation of the hourly load profile followed these steps:

1. A historical relationship was developed between the components (i-v) listed above and total system load (MWh) for the period 1/1/1994 – 12/16/2004 using an econometric equation.
2. A single year hourly temperature profile (8760 hours) was constructed from NOAA hourly observed data at Seattle-Tacoma International Airport between 1/1/1950 and 12/31/2003. In a process of ranking, sorting and averaging the data the resultant profile provides typically observed temperatures and typically observed times.
3. By forecasting electricity demand using the regression equation developed in step 1 for the year 2005 and using the temperature profile developed in step 2, a profile of electricity load using variable temperature was developed.

A more detailed explanation of the methodology used to develop the hourly load profile is presented in Appendix K.

C. Key Forecast Assumptions

Energy use forecasts for long-term planning purposes are based primarily on economic activity and fuel prices. Regional economic growth results in increased employment and a greater demand for electricity. Economic growth also increases the number of customers, as more people move to the region for jobs. Retail energy prices affect the type of fuel used in appliances, as well as the efficiency of the appliances and levels of use. Conservation and other programs instituted by PSE and neighboring utilities also affect energy consumption. The following section presents the forecasts of economic and demographic variables, retail prices, conservation savings, and other key assumptions used in this forecast.

Economic and Demographic Assumptions

The Puget Sound area is a major commercial and manufacturing center in the Pacific Northwest, with strong links to the national and state economies. These links create jobs not only for directly affected industries, but also indirectly for supporting industries through multiplier effects. This means the performance of the national and regional economies impacts PSE's service territory economy.

National Economic Outlook.

The "May 2003 US Forecasts" prepared by Global Insight provides a long-term national economic outlook. The forecast predicts only mild variations in growth over the next 25 years. After recording its first recession in about 10 years in 2001, the national economy grew at about 2.3 percent in 2003, and is projected to follow its historical (1970-2003) growth rate of approximately 3.1 percent over the next 20 years. This projection is based on the expectation that advances in technology will result in higher productivity and efficiencies, even though the percentage of employed Americans will decline as the population ages. Exhibit VI-2 summarizes the national economic forecasts used as inputs to the model.

Exhibit VI-2
National U.S. Economic Outlook

	2004	2005	2010	2015	2020	2024	aarg
GDP (96$B)	$ 10,161.5	$ 10,537.7	$ 12,311.2	$ 14,184.6	$ 16,263.4	$ 17,925.8	3.1%
Employment (mill)	131.9	134.9	144.4	152.5	160.0	164.3	1.0%
Population (mill)	294.2	296.8	309.3	322.0	334.7	345.0	0.8%

aarg: average annual rate of growth

A national economic recovery is underway. The U.S. economy experienced one of its more robust growth years in 2004. That trend is expected to continue at a more moderate level in 2005, bolstered by continuing consumer spending, but aided this time by business investment which was not present in the last three years. Federal spending may level off slightly; however, exports are expected to gain ground again. As a result, the Federal Reserve Board recently started increasing the federal funds rate to pre-empt inflation pressures.

Regional Economic Outlook. During the next two decades, PSE expects employment in the counties that it serves to grow at a slower rate (1.6 percent) compared to its 30-year historical growth rate of 3.3 percent per year. Factors contributing to the long-term slower growth in employment include not only the recession in 2001 to 2003, but also an expectation that Boeing's more efficient production processes will not provide the historical employment highs of 2000. Even at this rate, the Company projects that local employers will create approximately 630,000 jobs between 2004 and 2024—more than one-third of the jobs in the area today. During this period, 750,000 new residents are expected to live in the counties that PSE currently serves, raising the population to about 4.1 million. At the start of the decade (2001-2003), the regional economy experienced one of its worst recessions in the last 20 years, with employment declining in 2002 by about 2 percent. Nearly 30,000 company-wide layoffs at Boeing, and additional layoffs in the high technology and telecom sectors, contributed to this recession. The 2002 decline in employment impacted the region significantly, with a return to the peak employment levels of 2000 not likely until later in 2005. Employment, however, was expected to grow by a modest 1.6 percent in 2004. Exhibit VI-3 summarizes the employment and population data used as inputs.

Exhibit VI-3
Service Area Economic Growth Assumptions

	2004	2005	2010	2015	2020	2024	aarg
Electric Service Area							
Employment (thous.)	1,705.2	1,747.3	1,949.5	2,093.3	2,231.9	2,343.5	1.6%
Population (thous.)	3,415.3	3,448.7	3,664.7	3,835.6	4,011.5	4,167.7	1.0%
Gas Service Area							
Employment (thous.)	1,686.6	1,724.8	1,924.1	2,065.5	2,204.9	2,317.3	1.6%
Population (thous.)	3,393.7	3,423.5	3,641.3	3,816.3	3,996.7	4,156.6	1.0%

aarg: average annual rate of growth

Most of the long-term growth in employment is expected to come from the service sectors, including business services and computer industries. Not all counties will grow at the same pace. Estimates indicate that smaller counties such as Island County and Jefferson County will experience higher percentage growth rates compared to King County. However, the absolute amount of jobs created will still be higher in King County than in the smaller counties.

Retail Energy Price Assumptions.

PSE's electric demand models require the forecasting of retail energy prices. The efficiency levels of new appliances, frequency of use, and the type of fuel used to operate them all are affected by energy prices. Exhibit VI-4 shows electric and gas retail rate forecasts over the next 20 years for residential, commercial and industrial customer classes.

Exhibit VI-4
Retail Rate Forecasts

(nominal)	2004	2005	2010	2015	2020	2024	aarg
Residential							
Electric, cent/kwh	6.30	6.95	8.95	10.18	11.60	12.78	3.6%
Natural Gas, $/therm	0.90	1.10	0.93	1.17	1.34	1.41	2.3%
Commercial							
Electric, cent/kwh	7.04	7.40	8.07	9.27	10.90	12.46	2.9%
Natural Gas, $/therm	0.80	0.98	0.80	1.04	1.20	1.27	2.4%
Industrial							
Electric, cent/kwh	6.67	7.03	7.67	8.82	10.36	11.85	2.9%
Natural Gas, $/therm	0.73	0.92	0.73	0.97	1.14	1.20	2.5%

aarg: average annual rate of growth

The forecast for electric rates assumes a small rate increase due to a general rate case and due to power cost adjustments over the next two years. To determine long-term retail rates, PSE used Global Insight's forecast of electric rates for the state, and adjusted these rates to provide starting points in line with PSE's retail rates. PSE assumes real electricity prices (i.e., nominal prices adjusted for inflation) will be flat or will grow only moderately over time due to competitive

pressures resulting in reduced costs, additional capacity in regions lacking sufficient energy supply, declining coal prices, and greater efficiency in new generation technologies. Based on Global Insight's model, the Northwest is expected to increase generation—mostly in the form of gas-fired facilities, with small amounts of coal and wind power required by governmental mandates. As most of the region continues to rely on gas for new generation, the prices are likely to become more similar to the average for the region. Exhibit VI-4 illustrates that electric rates will grow between 2.9 percent and 3.6 percent over the next 20 years. Given the average rate of inflation (about 3 percent), this means real electric rates will be flat.

Over the next 20 years, gas retail rates are expected to increase from 2.3 percent to 2.5 percent per year, which is slightly lower than the long-term rate of inflation. Near-term, the forecast accounts for the most recent increase in gas cost through the PGA in October 2004, and for a small rate increase due to a general rate case in 2005. PSE bases its long-term growth rates in gas on Global Insight's forecast for the distribution margin and CERA's Rearview Mirror scenario for the gas cost. Chapter V provides a more detailed discussion of the gas cost forecast. CERA's Rearview Mirror scenario assumes that the marginal cost of gas will increase with the depletion of lower cost reserves, and with growing transportation costs as gas becomes available in more remote markets. However, the impact of an increasing supply cost on long-term gas prices will be limited by the potential for higher LNG and Alaskan gas imports, and by the demand response to higher prices. Demand response would include use of alternate fuel, lower thermostat settings, plant shutdowns, and moving gas-intensive industries to countries with lower-cost fuels. In summary, PSE expects gas retail rates to remain virtually unchanged in real terms.

Conservation Savings Assumptions

The 2005 Least Cost Plan starts with a no conservation load forecast scenario. Because the start year of the Least Cost Plan analysis is 2006, PSE assumes that conservation targets for 2004 and 2005 established in the 2003 Least Cost Plan are achieved in this scenario. Hence, some conservation is present even in a no conservation scenario for Least Cost Plan analysis.

Exhibit VI-5 illustrates the relative effects of a megawatt of conservation savings achieved from each customer class by month. For example, one megawatt saved by a residential customer in January would reduce on-peak demand by 1.45 aMW. One megawatt saved in January by a commercial customer, on the other hand, would reduce peak by 1.16 aMW.

Exhibit VI-5
Assumed On-Peak Contributions per aMW of Conservation by End-Use Sector

Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Residential	1.45	1.32	1.09	0.96	0.83	0.75	0.69	0.7	0.73	0.86	1.23	1.39
Commercial	1.16	1.12	0.97	0.92	0.9	0.9	0.89	0.92	0.91	0.92	1.18	1.21
Industrial	1.05	0.91	0.96	0.98	1.05	1.01	1	1.05	1	0.99	0.92	1.08

Other Key Assumptions

Major Accounts Assumptions –

a) Closure of two major production facilities is expected to reduce electric loads in both the near-term and in the future.

b) PSE anticipates completion of a water treatment plant in 2004, adding 2.3 aMW by the middle of the year.

c) Due to the development of fuel cells as an alternative power source for a sewage treatment plant, PSE expects the plant's electric consumption to decline by about 8 aMW by 2005, but gas consumption is expected to increase to 2 million therms a year by 2005.

d) PSE expects a major residential development in Kittitas County to add approximately 150-250 residential customers per year in the next few years.

Weather – PSE based its billed sales forecast on normal weather defined as the average weather using the last 30 years, ending the fourth quarter of 2004.

Loss Factors – Based on more current analysis, the electric loss factor was increased from 6.4 percent to 6.6 percent, while the gas loss factor remains at 0.8 percent of total sales.

D. Electric Sales and Customer Forecasts

Base Case Electric Billed Sales Forecasts

Without conservation savings, PSE's electric sales are expected to grow at an average annual rate of 1.7 percent per year in this forecast, from 2,268 aMW in 2004, to 3,148 aMW in 2024. Even with conservation savings taken into account, PSE expects billed sales to grow approximately 1.3 percent per year in the next 20 years. Compared to the historical growth rate of 2.1 percent per year, this new forecast anticipates lower sales growth as a result of the initial ramp-up in savings from conservation programs, slightly faster growth in retail rates, slower near-term growth in population and employment, and an increase in the construction of multifamily units, with lower use per customer. Exhibit VI-6 shows the forecast of electric sales by class for the next 20 years.

Exhibit VI-6
Electric Sales Forecasts by Class in aMW

	2004	2005	2010	2015	2020	2024	aarg
Base without Conservation							
Total	2,268	2,282	2,460	2,690	2,929	3,148	1.7%
Residential	1,136	1,137	1,175	1,261	1,348	1,429	1.2%
Commercial	976	989	1,118	1,258	1,407	1,542	2.3%
Industrial	145	144	153	155	156	158	0.4%
Others	11	11	13	15	18	20	3.0%

aarg: average annual rate of growth

Without conservation, commercial and industrial sales will grow by about 2.3 percent and 0.4 percent per year, respectively. Historically, commercial sales have grown at slightly more than 2 percent per year in the last 10 years. Growth in non-manufacturing employment, which is expected to grow the fastest in the future, drives the growth in commercial sales. Manufacturing employment had been gradually declining in the last few years. However, this sector's employment growth is not expected to grow significantly in the next 20 years as the economy continues to grow. Thus industrial sales is only expected to grow slightly over the next 20 years. The industrial load does not include the large industrial customers who opted to contract with outside parties for their power supplies since 2001, although their power is still transported through PSE's distribution lines. With the fast growth in commercial loads, the share of commercial and industrial sales to total sales increases from 49 percent in 2004 to 54 percent in 2024.

The slower growth in residential billed sales is caused by several factors. Given the declining amount of available land for single-family housing development, single-family home sales growth will slow. However, multifamily housing units, which have lower average energy use per customer, are expected to grow. As a result, average residential use per customer is expected to decline due to construction of multifamily units and use of more efficient appliances. Consequently, the share of the residential sector in total sales is expected to decline by 4 percent from about 50 percent in 2004 to 46 percent in 2023.

Exhibit VI-7 compares the trends in residential use per customer since the 2003 Least Cost Plan. The differences are due to changes in assumptions for electric prices. Projections of electric rates have increased from 3 percent to 3.6 percent per year due to the general rate case, an expected reduction in the Bonneville Power Administration (BPA) residential exchange

credit, and higher gas spot prices. Conservation savings have also increased compared to the 2003 Least Cost Plan.

Exhibit VI-7
Comparison of Residential Normalized Electric Use per Customer in MWh

	2004	2005	2010	2015	2020	2024	aarg
LCP 2003	11.184	11.024	10.510	10.607	10.724		-0.3%
LCP 2004	11.408	11.223	10.331	9.905	9.745	9.680	-0.7%

aarg: average annual rate of growth

Base Case Electric Customer Forecasts

As shown in Exhibit VI-8, PSE expects electric customer numbers to grow at an average annual growth rate of 1.7 percent per year between 2004 and 2024, to 1,391,376 customers in 2024. This projection is slightly lower than the average growth rate of about 1.9 percent per year in the last five years. This reflects the slowdown in population growth, a decrease in the amount of affordable land for development, and higher mortgage rates which reduce housing starts.

Exhibit VI-8
Electric Customer Count Forecasts by Class (Year End)

	2004	2005	2010	2015	2020	2024	aarg
Total	997,843	1,014,691	1,106,970	1,203,535	1,303,956	1,391,376	1.7%
Residential	879,098	893,500	970,944	1,051,791	1,135,018	1,207,013	1.6%
Commercial	112,586	114,910	129,130	144,190	160,501	175,076	2.2%
Industrial	3,967	3,988	4,091	4,108	4,137	4,164	0.2%
Others	2,192	2,294	2,805	3,446	4,300	5,124	4.3%

aarg: average annual rate of growth

Currently, the residential sector accounts for 88 percent of the total number of customers in PSE's service area. Although the residential sector is growing at a slower rate than the commercial and industrial sectors, it will account for most of the growth in the number of customers (this is with regard to absolute numbers, as the residential sector claims the largest share of the total customer base). The residential growth also reflects a gradually increasing share of multifamily units in the next 20 years. Thus, its share in the total customer base is not expected to change much in the next 20 years.

Electric Peak Hour Forecast (Normal or Expected)

PSE also bases the peak load forecast on the system sales forecast. The peak forecasting model uses an econometric equation that allows for different effects of residential vs. non-

residential energy loads, in addition to the temperature observed at peak. The annual normal peak load is assumed to occur at 23 degrees Fahrenheit. Exhibit VI-9 below shows the forecast of expected electric peak based on 23 degrees Fahrenheit without conservation for the next 20 years.

Exhibit VI-9
Electric Peak Forecast without Conservation in MWs

	2004	2005	2010	2015	2020	2024	aarg
Normal Peaks	4,668	4,684	4,945	5,307	5,687	6,034	1.4%

aarg: average annual rate of growth

PSE expects peak loads to grow by 1.4 percent per year in the next 20 years, with peak load growing slower than total energy sales. Since the residential energy load is growing slower than non-residential energy loads (commercial and industrial), and residential energy contributes more to peak than non-residential energy, the system peak load grows more slowly than the system energy loads, and more similar to the growth rate in residential sales.

Electric Sales Forecast Scenarios

In order to capture the range of economic possibilities in the forecast of billed sales, high and low sales forecast scenarios were developed in order to capture the upper and lower possible outcomes. The Base Case long-term sales forecast assumes that the economy grows smoothly over time, with no major shocks or disruptions, where the forecast of sales is expected to fall on the 50th percentile. The High Case forecast assumes a GDP growth rate of 3.6 percent, while the Low Case assumes a 2.6 percent average growth rate compared to 3 percent in the Base Case scenario. The High Case also assumes a low inflation rate and high productivity growth, and vice versa for the Low Case scenario.

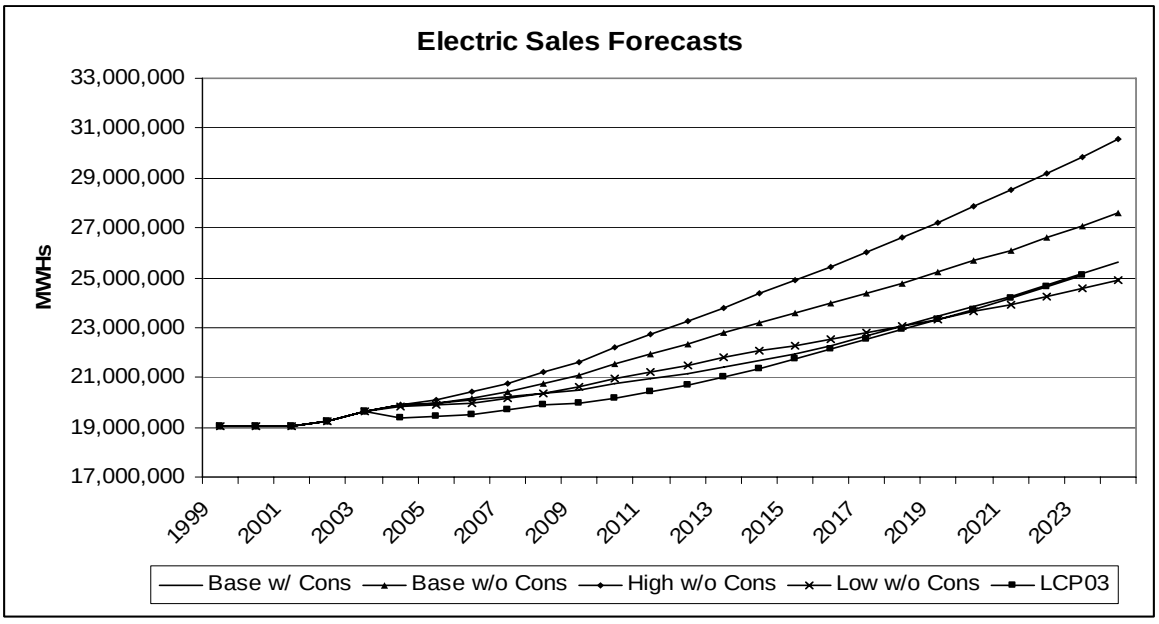
In actual implementation, the High and Low Case sales forecasts were developed using previously developed relationships between base, high and low population and employment variables—the key drivers in the forecast. High-to-base and low-to-base ratios were developed and applied to the current base case forecasts of population and employment. PSE ran the forecasting model with the new set of population and employment forecast scenarios, making no changes to other inputs. Exhibits VI-10 and VI-11 provide a comparison of the Base Case forecast with conservation, to the High and Low Case forecasts.

Exhibit VI-10
Electric Sales Forecast Scenarios in aMW

	2004	2005	2010	2015	2020	2024	aarg
Scenarios							
Base Case with Conservation	2,268	2,282	2,366	2,503	2,722	2,927	1.3%
Base Case - No Conservation	2,268	2,282	2,460	2,690	2,929	3,148	1.7%
High Case - No Conservation	2,272	2,296	2,534	2,842	3,181	3,488	2.2%
Low Case - No Conservation	2,264	2,268	2,388	2,546	2,697	2,842	1.1%
2003 LCP	2,214	2,220	2,303	2,481	2,710		1.3%

aarg: average annual rate of growth

Exhibit VI-11



The Base Case forecast without conservation shows an annual growth of about 1.7 percent, while the High and Low Case forecasts show annual growth of 2.2 percent and 1.1 percent, respectively. Compared to the forecast in the 2003 Least Cost Plan, the new forecast is slightly higher, but grows at about the same rate primarily due to slightly higher initial population levels and customer growth.

E. Gas Sales and Customer Forecasts

Base Case Gas Billed Sales Forecasts

PSE's natural gas billed sales (shown in Exhibit VI-12) are expected to grow at an average annual rate of 2 percent per year in the next 20 years, from 1,044,953 Mtherms in 2004 to 1,549,695 Mtherms by 2024. Compared to the historical growth rate of about 2.9 percent per year, this new forecast anticipates a slower growth rate in the future. The slow-down results from reduced customer growth in the residential sector, improved appliance efficiencies, and a slight decline in residential use per customer with conversions to multifamily housing.

Exhibit VI-12
Gas Sales Forecast in Therms (000s)

	2004	2005	2010	2015	2020	2024	aarg
Base without Conservation							
Total	1,044,953	1,059,254	1,204,022	1,317,463	1,445,096	1,549,695	2.0%
Residential	520,777	527,410	600,567	659,798	708,471	743,099	1.8%
Commercial	218,568	221,953	263,717	309,591	364,049	412,936	3.2%
Industrial	35,122	34,183	36,863	37,647	39,066	39,942	0.6%
Interruptibles	71,480	69,597	75,470	67,021	67,242	68,069	-0.2%
Transportation	199,006	206,111	227,405	243,406	266,268	285,648	1.8%

aarg: average annual rate of growth

Over the next 20 years, PSE expects a slightly faster growth in gas billed sales during the first eight years compared to the remaining 12 years. This is because gas rates remain flat nominal in the next eight years, while the nominal rate grows at approximately the rate of inflation in the long term. While PSE expects most of the growth to occur within the residential sector, mainly from customer growth, the growth in the commercial sector is expected to be faster than the growth in the residential sector. As a result, the share of the residential sector in total sales declines from 50 percent in 2003 to 48 percent in 2024. Growth in the non-residential sector will likely result from increasing penetration of gas in commercial and industrial applications and as the price remains economic relative to other fuels. Thus, use per customer in each of the non-residential sectors is expected to increase, although the number of customers in some sectors might decrease.

Base Case Gas Customer Forecasts

PSE projects a gas customer growth rate of 2.5 percent per year in the next 20 years (as shown in Exhibit VI-13). Compared to the historical growth rate of about 4 percent per year, the new forecast reflects slower population growth, hence slower demand for housing, and a declining pool of potential conversion customers.

Exhibit VI-13
Gas Customer Count Forecasts by Class (Year End)

	2004	2005	2010	2015	2020	2024	aarg
Base							
Total	666,254	683,837	782,856	890,132	994,497	1,086,497	2.5%
Residential	613,936	630,133	721,727	820,660	915,571	999,065	2.5%
Commercial	48,900	50,265	57,700	66,080	75,542	84,048	2.7%
Industrial	2,719	2,761	2,796	2,778	2,773	2,770	0.1%
Interruptibles	568	547	501	477	469	467	-1.0%
Transportation	132	131	133	137	142	147	0.5%

aarg: average annual rate of growth

Currently, the residential sector accounts for about 92 percent of PSE's total customer base. With a growth rate of 2.5 percent per year over the next 20 years, PSE expects the residential share to be about the same by 2024. The decline in the total pool of conversion customers will be limited by the increasing penetration of gas into multifamily buildings (townhomes and condominiums). While the commercial sector will only account for about 7 percent of PSE's total customer base, the Company also expects the commercial sector to grow at approximately 2.7 percent per year in the next 20 years. This is consistent with the expected increased penetration of gas into new buildings. New restrictions on the use of alternative fuels (especially oil and its associated liabilities) will contribute to a gradual decline in the growth rate of interruptible customers. Many of PSE's current interruptible customers, especially those with smaller loads, will choose to "firm-up" their demand by seeking solutions that range from becoming "all-firm" customers to arranging for various combinations of firm, interruptible and transportation services.

Gas Peak Day Forecasts

PSE's gas peak day forecast predicts that peak firm gas requirements will increase from 8.9 million therms in 2004 to 13.9 million therms in 2024, for a growth rate of about 2.2 percent per year in the next 20 years (as shown in Exhibit VI-14). This rate is slightly higher than the growth in billed sales because of faster growth in the first 7 years of the forecast, which is due to a flat or declining gas retail rate. The forecasted peak days are estimated to be 90 percent accurate within plus or minus 5.5 percent.[1] PSE expects the residential sector to account for about 70 percent of the peak daily requirement, while the commercial and industrial sectors will account for 26 percent and 3 percent, respectively. The forecasts for peak requirements include large volume commercial and industrial customers. PSE computes losses using 0.8 percent of the peak day requirements from the three customer sectors. The expansion in customer base and

[1] As discussed earlier, the standard error for the peak day estimate is about 3.2 percent.

changes in use per customer are the primary drivers of the growth in peak across all sectors. However, rising base loads also contribute moderately due to increasing saturation of gas in other end-uses such as cooking, clothes drying and fireplaces. This is offset slightly by reductions in heating loads resulting from increasing efficiencies in appliances, as well as the increasing penetration of gas into the multifamily sector, which has a smaller use per customer.

Exhibit VI-14
Gas Peak Day Forecast with Conservation in Therms

	2004	2005	2010	2015	2020	2024	aarg
Base without Conservation							
Total	8,977,663	9,011,214	10,529,014	11,716,765	12,922,646	13,926,527	2.2%
Residential	6,210,775	6,254,232	7,184,115	7,855,857	8,443,375	8,889,133	1.7%
Commercial	2,387,771	2,395,944	2,922,149	3,420,907	4,015,137	4,555,256	3.1%
Industrial	307,295	288,949	338,518	346,266	360,753	370,735	0.2%
Losses	71,821	72,090	84,232	93,734	103,381	111,404	2.1%
LCP03	8,165,536	8,322,800	9,275,200	10,336,500	11,438,900		2.0%

aarg: average annual rate of growth

Compared to the peak day forecast produced in the 2003 Least Cost Plan, the new forecast is higher for the following reasons: the current number of customers is greater than that of the previous forecast; the design heating degree day has been revised from 51 HDD to 52 HDD; the equation estimation method has been changed to account for data biases resulting from customers being out of service during cold events; and finally, use per customer does not decline as much in the first few years of the forecast because gas costs are not expected to increase and are even expected to decline slightly (see Chapter V).

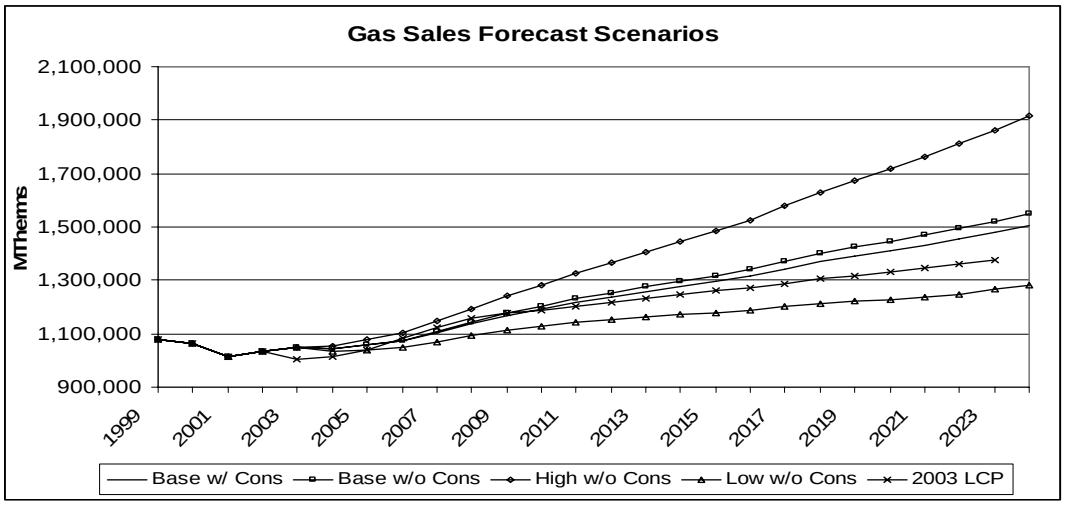
Gas Sales Forecast Scenarios

PSE's high and low case economic scenarios for population and employment use the same methodology as the high and low case economic scenarios used for the electric demand forecast. Exhibits VI-15 and VI-16 compare current forecasts with those generated for the 2003 Least Cost Plan.

Exhibit VI-15
Gas Sales Forecast Scenarios in Therms (000s)

	2004	2005	2010	2015	2020	2024	aarg
Scenarios							
Base Case with Conservation	1,044,953	1,059,254	1,192,973	1,294,591	1,410,944	1,506,892	1.8%
Base Case - No Conservation	1,044,953	1,059,254	1,204,022	1,317,463	1,445,096	1,549,695	2.0%
High Case - No Conservation	1,055,487	1,077,468	1,282,806	1,483,108	1,718,095	1,916,352	3.0%
Low Case - No Conservation	1,033,222	1,040,547	1,129,560	1,177,180	1,229,629	1,279,762	1.1%
2003 LCP	1,015,999	1,041,013	1,189,618	1,262,191	1,333,354		1.7%

Exhibit VI-16



The 2005 Least Cost Plan forecast is higher than the 2003 Least Cost Plan forecast primarily because of higher initial use per customer and also higher use per customer growth in the forecast period. Actual initial use per customer is higher because of slower-than-anticipated growth in actual rates. The higher growth in use per customer arises mainly from flat or declining retail rates assumed in the near term in the 2005 Least Cost Plan forecast. By 2015, the high-case forecast predicts loads that are about 12 percent higher than the base-case forecast, while the low-case forecast anticipates loads about 11 percent lower than the base-case forecast.

Associated with the gas sales forecast scenarios are gas peak-day load forecasts in therms per day. Below is a graph showing the base, high and low peak-day forecast for gas based on 52 HDD, and consistent with the high and low economic and demographic assumptions described above. Note that these scenarios are driven mainly by the high and low economic and demographic forecast scenarios, and not by other inputs such as price or conservation. The average growth per year over the next 20 years for the gas peak day loads are 2.2 percent for the base case, 3.7 percent for the high case, and 1.1 percent for the low case scenarios.

Exhibit VI-17