

**LONG-TERM ELECTRIC PEAK DEMAND
AND CAPACITY RESOURCE FORECAST
FOR TEXAS**

1992



VOLUME II

**A REVIEW OF CURRENT UTILITY-DEVELOPED LOAD FORECASTS
AND CAPACITY RESOURCE PLANS**

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ABSTRACT

More than adequate electrical generating capacity exists to meet demand in the short term in Texas. This offers high reliability, but also imposes the cost of plant investments. Despite these near-term capacity surpluses, a number of resource planning issues deserve prompt attention:

1. Alleviate transmission bottlenecks.
2. Moderate near-term rate increases to prevent widespread self-generation or bypass.
3. Scrutinize promotional activities.
4. Examine end-use energy efficiency programs.
5. Research solar and wind technologies.
6. Consider dispersed resources to defer investments in transmission and distribution system upgrades.

The **Long-Term Electric Peak Demand and Capacity Resource Forecast for Texas 1992** is designed to provide information and recommendations to policy makers and others interested in the present and future status of the Texas electric power industry. Volume I of this two-volume report provides staff-recommended electricity demand projections for 13 of the state's largest generating utilities and a capacity resource plan for Texas. The economic outlook for Texas, fuel markets, cogeneration activity, demand-side management program impacts, environmental issues, and strategic rate design are highlighted. Substantial emphasis is placed on alternative power sources (particularly purchases from qualifying facilities) and energy efficiency to reduce the rate of growth of peak demand. The current report recognizes the end of the late 1980s economic recession in Texas, yet emphasizes efficiency improvements as the key to reliable and low-cost electrical services, environmental integrity, and increased economic growth.

Volume II summarizes the electricity demand forecasts, energy efficiency plans, and capacity resource plans developed by generating electric utilities and filed at the Commission in December 1991 (or later amended). The technical appendices provide a description of the staff's econometric electricity demand forecasting and resource planning system used to develop the load forecast contained in Volume I, and are available upon request.

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VOLUME II
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CHAPTER ONE

STATEWIDE SUMMARY

This volume, Volume II of the *Long-Term Electric Peak Demand and Capacity Resource Forecast for Texas 1992*, summarizes the electricity demand forecasts, energy efficiency plans, and capacity resource plans developed by the generating electric utilities in Texas that were filed with the Public Utility Commission of Texas (PUCT) in December 1991.

An aggregate of the utilities' filings indicates that electrical energy sales and peak demand will grow at an estimated annual compound rate of 2.4 percent through 2001. The diversified sum of the generating utilities' peak demands is expected to reach 60,699 MW in 2001. The utilities report that system-wide installed generation capacity will increase 8,878 MW, from 67,726 MW in 1991 to 76,604 MW in 2001 representing an increase of 13.1 percent. Forecast adjustments totaling 4,928 MW in 2001 have been made to account for the impact of interruptible loads, loss of load due to self-generation, efficiency gains from the National Appliance Energy Conservation Act of 1987 (NAECA), and utility-sponsored demand-side management (DSM) programs. The statewide reserve margin is projected to decline from 35.1 percent in 1991 to an adequate reserve margin of 19.5 percent in 2001.

Methodology

The information summarized in this volume was provided by each generating electric utility in the state pursuant to Article III, Section 16 of the Public Utility Regulatory Act (PURA). PURA mandates that every generating electric utility provide the following information to the PUCT:

1. A description of methods and economic/demographic assumptions incorporated in the forecast and of projected population growth, urban development, industrial expansion, and other growth factors influencing the demand for electric energy in the service area;

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

2. A list of existing electric generating plants in service with a description of planned and potential generating capacity at existing sites;
3. Projected annual system capacity, peak load, interruptible load, and reserve margins;
4. Forecasted annual load duration curves and peak loads for major demand sectors in the service area;
5. Projected annual firm purchases and sales of capacity;
6. A description of how electrical energy requirements identified in the forecast will be met;
7. Descriptions of current load management and conservation programs and efforts to encourage cogeneration and small power production; and
8. Such additional information (including historical data) deemed necessary to the evaluation of utility forecasts and resource plans and the development of the statewide electrical energy forecast.

Data for 36 generating entities have been collected from the *Load and Capacity Resource Forecast Filing* forms filed in 1991. These include all generating utilities except four municipal utilities: The cities of Brady, Coleman, Robstown, and Sanger. These cities did not file the above information, but because they have a minimal share of sales, peak demand, and generating capacity, their absence does not materially alter this summary.

The PUCT staff has modified some of the numbers filed to increase comparability among the utilities, to estimate missing numbers, or simply to correct misplaced numbers. The databases that contain the raw utility information for customers, megawatts, and megawatt-hours are available upon request.

The December 1991 filing marks the second time that the Commission staff requested a 15-year load forecast and capacity resource plan. In general, utilities were reluctant to officially provide five additional years (2002-2006) of forecast and resource plan data. Many utilities insisted that projections for these years do not constitute an official forecast. Therefore, caution should be exercised in interpreting projections beyond 2001.

The state's boundaries do not include all of the service areas of four major utilities. These multi-jurisdictional utilities (El Paso Electric Company [EPE], Gulf States Utilities Company [GSU], Southwestern Electric Power Company [SWEPCO], and Southwestern Public Service Company [SPS]) have provided information on their "total system" as well as the "Texas" portion of their service areas. The "Texas" portion does not refer to the

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

jurisdiction of the PUCT but to the geographical sales and demand. Where applicable, allocators of the ratio of the demand in Texas to the system demand or the ratio of sales in Texas to total system sales have been used to apportion Texas capacity and generation. For the multi-jurisdictional utilities, numbering of the tables included at the end of the chapters distinguish total company by an A (e.g., 4.2A) and Texas by a B.

Three regional reliability councils serve portions of Texas: the Electric Reliability Council of Texas (ERCOT), the Southwest Power Pool (SPP), and the Western Systems Coordinating Council (WSCC). ERCOT utilities, however, encompass most of the state, serving about 84 percent of the summer peak demand in 1991. ERCOT includes 20 municipalities, 51 cooperatives, 6 investor-owned utilities, and 3 river authorities. ERCOT is a self-contained grid system residing entirely within the state except for a 220-MW asynchronous DC tie at the Oklaunion plant in the Southwest Power Pool. The Western Systems Coordinating Council (WSCC) also borders ERCOT. ERCOT members BEPC, COA, CPL, CPS, HL&P, LCRA, TNP, TU Electric, and WTU are covered in detail in this volume. In addition, EPE of WSCC and GSU, SPS, and SWEPCO of SPP are other major Texas utilities covered in detail in this report. A list of electric utilities that responded to the December 1991 *Load and Capacity Resource Forecast Filing* is provided below.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

**Electric Utilities in Texas
That Provided December 1991
Load and Capacity Resource Forecast Filings**

<u>Utility Name</u>	<u>Abbreviation Used</u>	<u>Regional Reliability Affiliation</u>
City of Austin Electric Utility Dept.	(COA)	ERCOT
Brazos Electric Power Cooperative, Inc.	(BEPC)	ERCOT
Brazos River Authority	(BRA)	ERCOT
Brownfield Municipal Power & Light	(BPL)	SPP
Brownsville Public Utilities Board	(PUB)	ERCOT
City of Bryan	(BRYAN)	ERCOT
Central Power and Light Company	(CPL)	ERCOT
City of Denton		
El Paso Electric Company	(EPE)	WSCC
City of Electra	(ELECTRA)	SPP
City of Floydada		
City of Greenville	(GREENVILLE)	ERCOT
Guadalupe-Blanco River Authority	(GBRA)	ERCOT
Gulf States Utilities Company	(GSU)	SPP
City of Hearne	(HEARNE)	ERCOT
Houston Lighting and Power Company	(HL&P)	ERCOT
Lower Colorado River Authority	(LCRA)	ERCOT
Lubbock Power & Light	(LPL)	SPP
Medina Electric Cooperative, Inc.	(MEC)	ERCOT
Northeast Texas Electric Cooperative, Inc.	(NTEC)	SPP
Sabine River Authority	(SRA)	SPP
Sam Rayburn G & T, Inc.	(SRGT)	SPP
Sam Rayburn Municipal Power Agency	(SRMPA)	SPP
City Public Service of San Antonio	(CPS)	ERCOT
San Miguel Electric Cooperative, Inc.	(SMEC)	ERCOT
South Texas Electric Cooperative, Inc.	(STEC)	ERCOT
Southwestern Electric Power Company	(SWEPCO)	SPP
Southwestern Power Administration	(SPA)	ERCOT
Southwestern Public Service Company	(SPS)	SPP
Texas Municipal Power Agency	(TMPA)	ERCOT
Texas-New Mexico Power Company	(TNP)	ERCOT
Texas Utilities Electric Company	(TU Electric)	ERCOT
City of Tulia	(TULIA)	SPP
City of Weatherford	(WEATHERFORD)	ERCOT
City of Whitesboro	(WHITESBORO)	ERCOT
West Texas Utilities Company	(WTU)	ERCOT

Notes:

- 1) The cities of Bryan, Denton, and Greenville are included in TMPA.
- 2) STEC and MEC are combined for reporting purposes.
- 3) The city of Floydada purchases power from SPS. The generation they have is used as standby generation.

Demand Forecast

Number of Customers The number of residential customers served by the generating utilities selling retail power in the state increased to 5,402,135 in 1991 from 4,169,468 in 1981, an annual growth rate of 2.6 percent. Figure 1.1 shows that the number of residential customers increased annually over the last 13 years, but there was considerable slowdown in growth after 1985. The number of residential customers is projected to grow at a compound rate of 1.7 percent per year reaching 6,415,859 in 2001. Over the ten years to 1991, the number of commercial customers increased at a slower rate, 2.1 percent per year. This sector is expected to grow at a rate of 1.4 percent through 2001. Annual growth from 2001 to 2006 is expected to be 1.5 percent. The number of industrial customers has declined since 1986; however an annual growth rate of 1.8 percent is projected for the next ten years.

COA experienced the highest growth rate in the number of residential electric customers over the 10-year period from 1981 to 1991 with an average rate of 4.4 percent per year. CPS, which serves San Antonio, and TU Electric, which serves Dallas and Fort Worth,

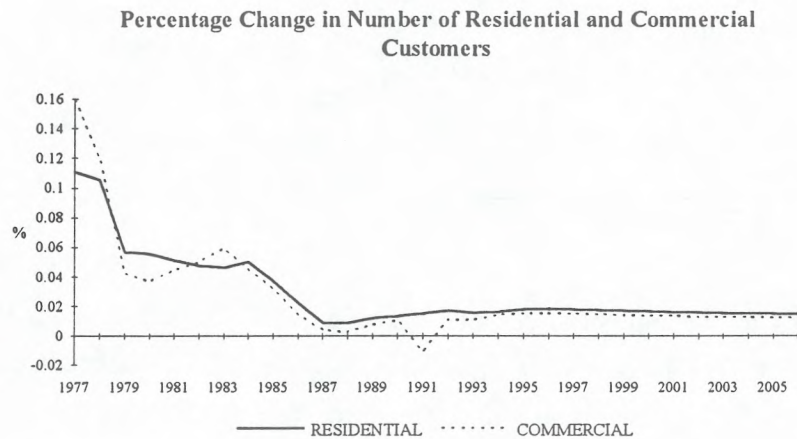


Figure 1.1

followed with about 3.7 percent each. In the past ten years, the slowest-growing service areas in terms of the number of residential customers were SPS and SWEPCO with 10-year average annual growth rates of less than 1 percent.

SWEPCO is the only major utility projecting a rate of growth in residential customers of less than one percent for the forecast period. TU ELECTRIC, HL&P, GSU, WTU, and TNP project residential growth rates between 1 and 2 percent while CPL, CPS, COA, and EPE are projecting rates between 2 and 3 percent. Only WTU expects growth rates over the next decade to be greater than in the past ten years.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

Table 1.1, at the end of this chapter, shows the statewide annual aggregate number of customers by customer class for the period from 1977 to 2006.

Sales Electric generating utilities recorded system sales of 241,038,308 MWH of electricity in Texas during 1991. Sales in Texas are projected to reach 305,359,919 MWH in 2001, representing an average annual growth rate of 2.4 percent compared to the 2.7 percent annual rate experienced over the last ten years. Sales in 2006 are expected to reach 344,541,156 MWH representing a five-year growth rate of 2.4 percent.

Compound annual growth rates of system sales in Texas for the 13 largest utilities over the 1991 to 2001 time period are presented below. The 23 smaller utilities project an annual aggregate 3.2 percent rate of growth in sales.

<u>Over 3%</u>		<u>2% - 3%</u>		<u>1% - 2%</u>	
CPS	4.2	SWEPCO	2.9*	SPS	1.9*
BEPC	4.0	CPL	2.7	HL&P	1.5
COA	3.1	TU ELECTRIC	2.7	TNP	1.3
		EPE	2.2*	GSU	1.0*
		LCRA	2.1		
		WTU	2.0		

* Texas only

Sales to the industrial sector totaled 81,538,176 MWH from the generating utilities in 1991. This accounts for more than one-third of all system sales, making this the largest sector in the state. The industrial sector will continue as the largest electricity consumer throughout the forecast horizon. The HL&P, SPS-Texas, and SWEPCO-Texas systems rely on industrial customers for about half of their sales. GSU, CPS, and TNP are all dependent on industrial customers for over one-third of their sales while industrial customers in CPL's service territory account for 32.3 percent of total sales. Sales statewide to industrial customers are projected to grow at an annual rate of 2.2 percent over the next ten years and at 2.7 percent from 2001 to 2006. These rates are more than double the 1-percent rate of growth experienced during the previous 10-year period. Of the 13 largest utilities, excluding BEPC and LCRA who sell primarily wholesale, only SPS, SWEPCO, COA, WTU, and EPE project rates of growth in industrial sales that are lower over the next ten years than experienced in the previous decade.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

As seen in Figure 1.2, the residential sector consumes the second-largest portion of energy at 28.7 percent of all sales by the generating utilities. Annual growth in residential sales is projected at about half the rate of the preceding ten years, dropping

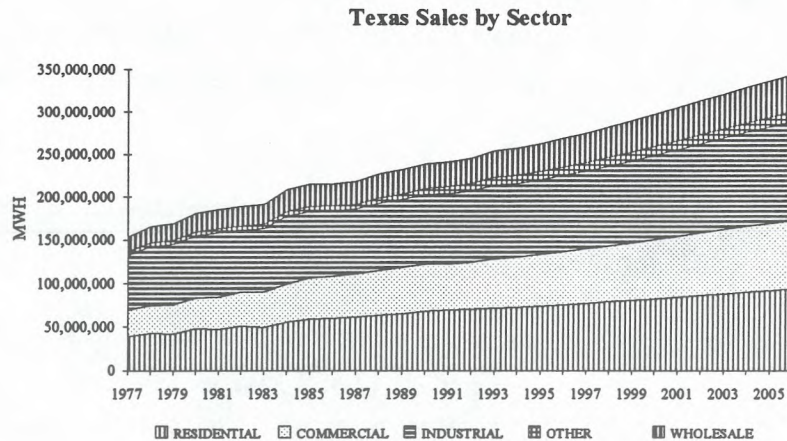


Figure 1.2

from 3.9 percent to 2.0 percent. An annual rate of 2.2 percent is forecast for 2001 to 2006. All of the major utilities project lower rates of growth in residential sales for the future than experienced over the past decade except WTU whose projected 10-year average annual growth rate increases from 2.3 percent to 2.5 percent.

Commercial sales accounted for 22.1 percent of all sales by generating utilities in 1991. It should be noted that the distinction between industrial and commercial customers varies among utilities. Annual growth in sales to commercial customers through 2001 is projected at a rate of 2.8 percent, and for the 2001 to 2006 period at 2.5 percent. Of the 13 largest utilities, only SPS and WTU expect higher commercial sales growth rates over the next ten years than experienced during the past ten years.

Wholesale customers take a significant percentage of total system sales from a few utilities; LCRA makes 98 percent of its sales to wholesale customers and all of BEPC's sales are wholesale. SPS and WTU sell significant percentages of system sales to wholesale customers in Texas, at 18.6 percent and 28.2 percent, respectively. Wholesale sales are made to non-generating electric cooperatives and municipalities who sell to residential, commercial, industrial, or other retail customers. Sales between the generating utilities are reported to the PUCT as off-system sales.

TU Electric is the largest utility in the state providing 34.1 percent of all system sales by utilities in 1991. HL&P shows the next highest level of sales with 24.7 percent of the state total, followed in order by CPL, GSU, CPS, SPS, SWEPCO, LCRA, COA, WTU,

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

EPE, BEPC, and TNP. The four largest utilities make over two-thirds of annual sales by generating utilities in the state and the 13 largest utilities sell about 96 percent of the total. The 23 utilities making up the "other" category account for less than 4 percent of system sales in the state.

Table 1.2, at the end of this chapter, shows the statewide aggregate sales by customer class in MWH for the period from 1977 to 2006.

Peak Demand During the summer of 1991, electric utilities experienced a peak demand of 47,538 MW in Texas. System peak demand in Texas is projected to reach 60,234 MW by 2001. This is equivalent to a 2.4 percent annual growth rate, compared with the 2.1 percent experienced over the previous ten years. Without the adjustments to demand, discussed in the following section, peak demand could reach 65,174 MW by 2001. The peak demand before adjustments quantifies what might occur if exogenous factors such as conservation or demand-side management activities did not occur. Utilities try to reduce peak demand through demand-side management activities and anticipate the effects of exogenous factors in order to meet the adjusted peak demand. Adjusted peak is expected to rise at an annual rate of 2.3 percent through 2006.

In 2001, TU Electric and HL&P will account for 35.8 percent and 21.6 percent, respectively, of adjusted system peak demand in Texas if the utilities' projections are realized. However, their respective growth rates in demand rank fourth and eighth among the major generating utilities in Texas. Below, the utilities are grouped into three ranges of projected compound growth rates for the 1991 to 2001 time period. For the multi-jurisdictional utilities, only the Texas portion of total system demand is shown. The growth rates for the non-Texas service areas of the multi-jurisdictional utilities are all projected to be less than the rates for their Texas service areas except for EPE, which forecasts a higher growth rate for the company's combined non-Texas service areas.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

<u>Over 3 %</u>		<u>2% - 3%</u>		<u>Under 2%</u>	
CPS	3.8	COA	2.9	GSU	1.8*
BEPC	3.6	SWEPCO	2.9*	HL&P	1.8
		TU ELECTRIC	2.5	LCRA	1.7
		EPE	2.4*	TNP	1.7
		WTU	2.3	SPS	1.6*
		CPL	2.1		

* Texas only

The aggregate demand of the 17 other utilities is projected to grow at 3.0 percent annually through 2001. ERCOT utilities project an aggregate 2.4 percent annual rate of growth.

Table 1.3, at the end of this chapter, summarizes the projected peak demand by sector and adjustments to demand over the 1977 to 2006 period.

Adjustments to Demand

Utilities typically adjust the results of their forecasting models to account for activities and events that require a unique modeling framework. Post-modeling adjustments are made in the categories of exogenous factors as well as active and passive demand-side management (DSM). Exogenous factors include losses in sales due to customer self-generation, capacity for standby service, and end-use efficiency improvements from the NAECA of 1987. Passive DSM includes conservation or energy efficiency programs, thermal storage programs, special rate structures, and economic development activities. Active DSM, which includes interruptible loads, refers to the direct control of customer loads. The adjustments forecast for 2001 totals 4,928 MW. The adjustments are projected to reach 6,414 MW in 2006.

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Loss of load due to industrial self-generation and the NAECA of 1987 are the primary exogenous factors that are expected to keep peak demand growth at about the same rate over the next ten years. Exogenous factors will account for 1,332 MW of peak demand reduction by 2001. This represents about 27 percent of total adjustments. The exogenous factors will account for 1,452 MW of peak demand reductions, 23 percent of total adjustments by 2006. HL&P, with a significant concentration of industrial customers, accounts for 752 MW of peak demand reduction in the year 2001 as a result of customer self-generation. TU Electric and HL&P account for over 93 percent of expected peak demand reduction due to the exogenous factors. SPS, LCRA, COA, and TNP are other utilities that pro-

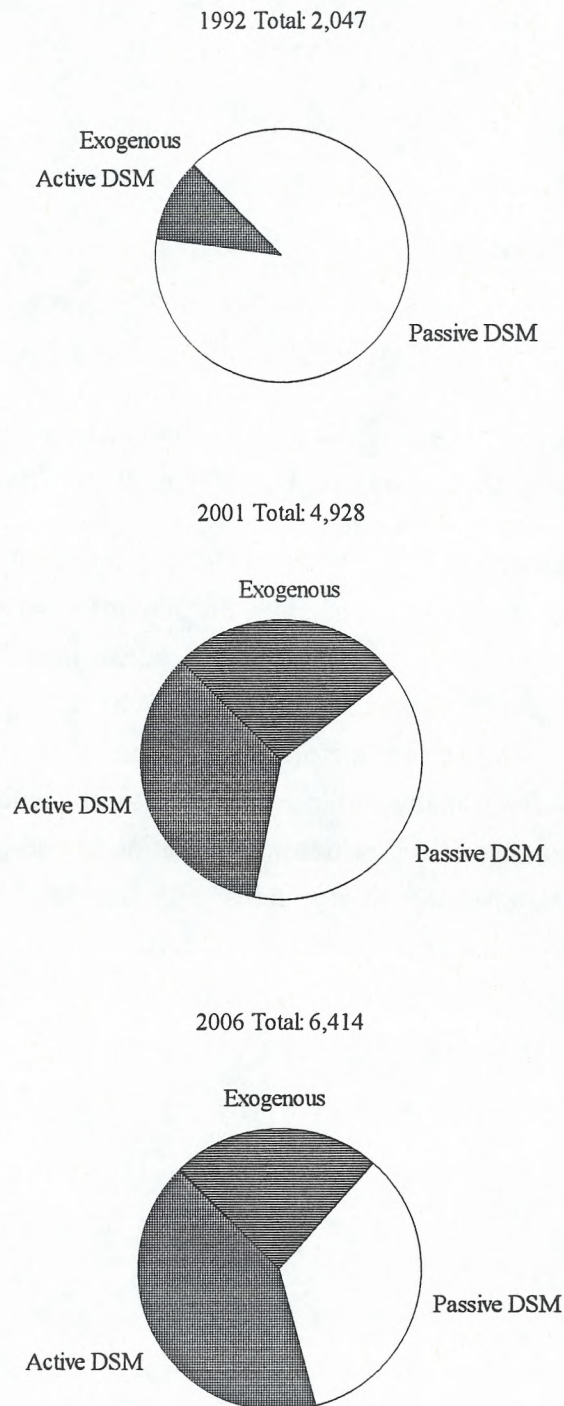


Figure 1.3
Adjustments to Demand

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

jected reductions in peak demand due to the 1987 NAECA. While only these utilities quantified the effects of the NAECA, it is likely that all of the utilities expect some reduction as a result of the Act.

DSM programs are responsible for the remaining adjustments to peak demand. In general, no adjustments are made for the historic impacts of DSM programs through 1990 as these are embedded in the data used to model future sales. DSM programs are projected to reduce total peak demand by 3,596 MW in 2001 and 4,962 MW in 2006. Those programs considered passive DSM are expected to grow from 207 MW in 1992 to 1,689 MW in 2001 and 2,730 MW in 2006. Programs under the active control of the utilities are expected to increase to 1,907 MW in 2001 and 2,232 MW in 2006 from 1,416 MW in 1991. Much of the active control consists of industrial interruptible loads.

CPL, GSU, HL&P, and TU Electric project that interruptible industrial loads during the next 10 to 15 years will reduce expected peak demand by 1,399 MW in 2001 and 1,665 MW in 2006. About 50 percent of the total interruptible load in Texas is projected to be within the HL&P and TU Electric service areas. In addition, SPS, TNP, LCRA, and COA interrupt load or cycle appliances in other classes of customers.

As in the 1989 filing, TU Electric, COA, and LCRA are ranked first-, second-, and third-highest in forecast reductions of peak demand due to DSM programs, not including interruptible loads.

TU Electric plans to reduce its expected peak demand by 924 MW in 2001 and 1,581 MW in 2006 as a result of passive DSM efforts. As a percentage of peak demand, the projected DSM program impacts of CPL, COA, and BEPC are greater than those of TU Electric.

Aggregate adjustments to peak demand from 1977 to 2006 are included in Table 1.3 at the end of this chapter.

Supply-Side Plans

Net Generation The 1991 Texas generation mix relied on natural gas for 40 percent, coal for 24 percent, lignite for 25 percent, and nuclear for 11 percent of the 232,848,257 MWH produced by the utilities. Net generation for Texas in 2001 is projected to be 306,181,570 MWH. This represents a 2.8 percent annual

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

rate of growth. TU Electric generated 32.7 percent of the total utility generation allocated to Texas and HL&P provided 22.4 percent. The six largest utilities generate 78.9 percent of the total, and the 13 largest utilities generated 95.5 percent of the total. Qualifying Facilities (QFs) provided an additional 24,001,917 MWH in 1991. QF sales to utilities are projected to decrease to 16,621,582 MWH in 2001. The ERCOT utilities provided 81.9 percent of the allocated total net generation in 1991 or if QF energy is included, 83.2 percent.

The utility generation fuel mix should change somewhat over the forecast period as seen in Figure 1.4. In 1981, nearly 65 percent of the total generation was gas-fired. Reliance on gas diminished significantly by 1991, to about 39 percent, but is expected to increase to almost 43 percent by 2001. No utilities are now totally dependent upon gas, although GSU, WTU, and BEPC were in 1981. In 1991, GSU, and WTU were still relying on gas for over 50 percent of generation, while SWEPCO, CPS, COA, and LCRA relied on gas for less than 25 percent.

Not included in the calculation of fuel mix are the energy purchases from co-generators, which are predominantly gas-fired generation. Including the co-generated power purchased by utilities, gas accounts for about 45 percent of total generation provided by utilities. TU Electric and HL&P purchase about 87 percent of the total Texas-cogenerated energy purchases.

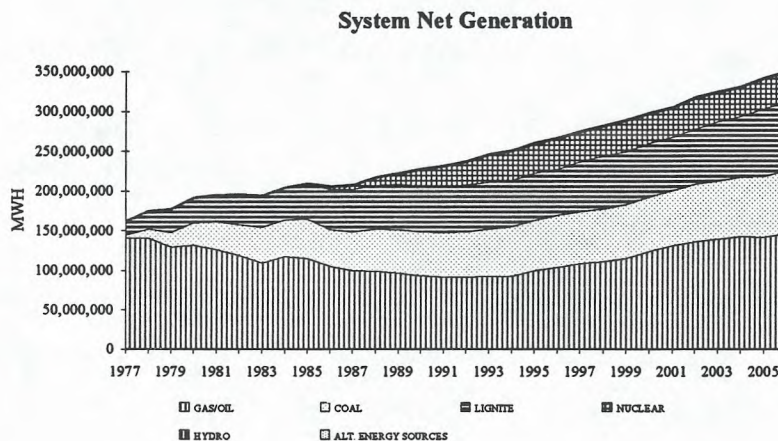


Figure 1.4

The output of coal-fired generation grew from 18 percent over the decade to 24 percent of the total in 1991. Lignite use also increased to 25 percent of 1991 generation. The utilities project their coal- and lignite-fired generation each to provide 23 and 22 percent of the total in 2001. SPS, SWEPCO, and LCRA rely on coal-fired generation for over

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

half of their total, while GSU and EPE do so for less than 15 percent. TU Electric and the aggregate of the 23 other utilities rely on lignite-fired generation for over half of their MWH output, while all of TNP's generation is fueled with lignite. SWEPCO's generation is about 28 percent lignite-fired and HL&P system generates about 19 percent from lignite.

As a percentage of net generation, nuclear-powered generation is only projected to increase about 1 percent, from 11 percent in 1991 to nearly 12 percent in 2001. In the mid-1990s, EPE is projected as the most reliant on nuclear power as a percentage of total generation, followed by CPS, COA, CPL, GSU, HL&P, and TU Electric. After commercial operation of Comanche Peak Unit 2, scheduled for summer 1993, nuclear-powered generation for Texas should stabilize with annual output in the 35- to 38-million MWH range.

Hydroelectric and alternative energy sources provide less than 0.5 percent of net generation.

Table 1.4 contains the statewide data for net generation and can be found at the end of this chapter.

Installed Capacity Installed capacity apportioned to Texas was 61,048 MW in 1991. Projections indicate that capacity will reach 69,709 MW in 2001 and 76,205 MW in 2006. The 8,661 MW increase represents a 1.3 percent annual growth rate over the next ten years. Capacity additions of 15,157 MW may be added by 2006, which is a 25 percent increase above the 1991 level. TU Electric owns the largest portion of installed capacity, with 33 percent of the allocated total. The five largest utilities, TU Electric, HL&P, GSU, CPL, and CPS, own nearly three-fourths of the total. On a total-system basis, the utilities plan to add 8,888 MW of capacity by 2001.

Gas-fired capacity makes up 63 percent of the 1991 total capacity; coal, 15 percent; lignite, 14 percent; and nuclear, 7 percent. The 1991 renewable energy sources are represented by 642 MW of hydroelectric generation capacity and less than one MW of solar-powered capacity. Renewable and alternative sources of energy are not scheduled for any significant expansion, although Lubbock is currently planning a 10-MW unit powered by a municipal waste incinerator for 1995.

Table 1.5 at the end of this chapter contains the figures for installed capacity by fuel type.

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Net System Capacity Net system capacity, which is the sum of installed capacity and net purchased power, is projected to reach 71,982 MW in 2001, representing a 1.1 percent annual increase. This growth rate is significantly lower than the projected annual growth of 2.4 percent in peak demand, resulting in an expected decline in reserve margins over the next decade. (See Figure 1.5.)

The purchase of capacity from another utility or from other suppliers such as cogenerators is an option available to many utilities in Texas. Cogeneration capacity in 1991 totaled over 7,300 MW with just over half of the total in the HL&P service area. TU Electric, GSU, CPL, and

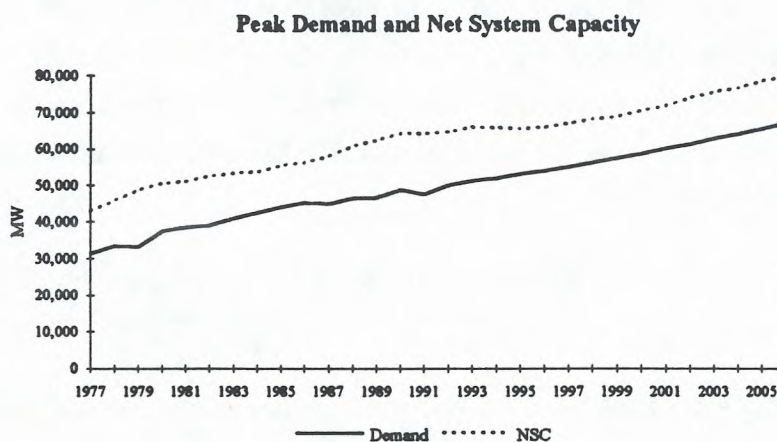


Figure 1.5

TNP each have over 500 MW of cogeneration capacity in their service areas. Purchases from qualifying facilities in Texas reached 3,121 MW in 1991.

TU Electric takes 60 percent of the total capacity purchases from cogenerators, with 1,841 MW, followed by HL&P with 945 MW, TNP with 335 MW, and GSU with 11 MW, of which 5 MW have been allocated to Texas. Although purchases from qualifying facilities appear to decline over the next decade to 1,857 MW in 2001, this simply reflects the expiration of current contracts with cogenerators. As the need for additional capacity becomes imminent, it is likely that new contracts will be negotiated and that the purchased capacity will be higher than presently projected levels, assuming that relative prices of natural gas do not dramatically increase. As reported in the PUCT publication *Cogeneration and Small Power Production in Texas* (June 1992), about 930 MW of additional cogeneration capacity in the state are under construction or planned.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TU Electric, HL&P, GSU, CPS, and BEPC account for 80 percent of additions to net system capacity over the next ten years. TU Electric will experience the largest increase in their net system capacity, accounting for about 46.7 percent of total additions.

Reserve Margins The reserve margin is calculated as the net system capacity minus peak demand after adjustments, divided by peak demand after adjustments. The reserve margin can be seen in Figure 1.5 as the difference between net system capacity and peak demand after adjustments. Utility projections indicate enough capacity to ensure a reliable electric system statewide, with the reserve margin declining from 35.1 percent in 1991 to 19.5 percent in 2001, assuming that the utilities' demand forecasts and resource plans are realized. The reserve of 16,684 MW in 1991 is projected to fall to 11,748 MW in 2001. The reserve margin will continue to fall between 2001 and 2006 to 18.4 percent, or 12,344 MW in that year.

The ERCOT reserve margin in 1991 of 34.8 percent is projected to decline to 19.6 percent by 2001, and to 18.3 percent in 2006. The reserve margin of a few utilities within the ERCOT system raises some concern. If the demand projections are realized, CPL and WTU will have reserve margins which are only slightly higher than 15 percent in 2001. However, other utilities and resources within the ERCOT system will provide enough capacity to prevent a decline in system reliability.

System Expansion If the utility plans are realized, a net addition of 8,878 MW of capacity will occur through 2001. Gas-fueled capacity will provide the largest portion of the plant additions during the forecast period with 5,300 MW to be added by 2001, about 57 percent of net capacity additions. Commercial operation of Comanche Peak Unit 2 will add 1,150 MW of nuclear capacity in Texas, 13 percent of total capacity additions in Texas through 2001. Lignite-fired capacity is the second-largest contributor with 1,800 MW, 20 percent of net additions over the same period. Additions of coal-fueled capacity only account for about 600 MW, 7 percent of total net additions between 1991 and 2001. Figure 1.6 shows net changes to installed capacity by fuel type over the forecast period.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

Utilities will need 6,496 MW of additional capacity to meet growing demand system-wide between 2001 and 2006. Because of TU Electric's size and growth rate, most of the net capacity additions will occur in the TU Electric service area.

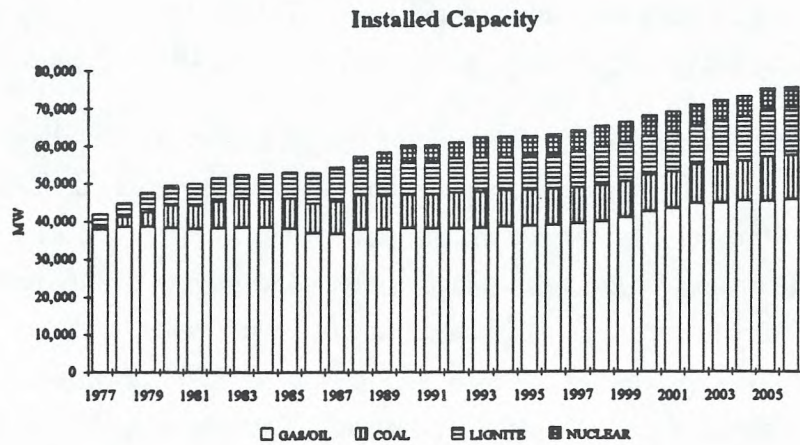


Figure 1.6

Capacity changes over the forecast period as projected by the utilities are summarized in Table 1.6 at the end of this chapter.

Forecast Comparison With 1989 Filings

Based on the 1989 filing, the utilities' forecasts projected a 1999 Texas adjusted peak demand of 59,045 MW, while the current forecasts show an adjusted peak demand for 1999 of 57,475 MW. The rate of growth for adjusted peak demand is 2.4 percent in both filings. However, there have been significant changes in some of the utilities' resource plans.

A detailed comparison across major utilities shows significant variations in projected peak demands between the two filings. COA and LCRA had the greatest percentage reductions in their projected 1999 peak demand. These two utilities reduced their 1999 peak demand by 12.0 and 11.1 percent, respectively. BEPC, with a 7.7 percent reduction, was next among the utilities with significant reductions from 1989 to the current filing.

In contrast, three major utilities projected higher 1999 peak demands than in the 1989 filing. SWEPCO ranked first with 9.1 percent more peak demand projected for 1999. SPS and GSU also projected greater peak demand in 1999 than estimated in the last filing.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

Only two utilities, GSU and BEPC, report significantly higher 10-year growth rates in this filing.

The Commission staff proposed the deferral of several power plants in the *Long-Term Electric Peak Demand and Capacity Resource Forecast for Texas 1990*. TU Electric has deferred Twin Oak 1 and 2 to 1997 and 1998. Staff recommended the postponement of Forest Grove to 1999, and this plant is not included in the current 15-year forecast. The commercial operation dates for HL&P's Malakoff units have been deferred beyond 2004. Unit 1 is scheduled to serve summer peak in 2005. CPL will repower J. L. Bates in 2002, and CPS will defer J. K. Spruce Unit 2 to 2002. BEPC has postponed participation in a lignite plant to beyond 2006. Staff recommended that LCRA defer one 127-MW unit to 2000 and another 127-MW unit to beyond 2000. Neither one of these plants is included in the current forecast.

This concludes the statewide summary of demand forecasts and capacity plans filed by the Texas utilities. The 13 largest utilities are analyzed in detail in Chapters 2 through 14. The final chapter is a summary of 23 other generating utilities.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.1
TOTAL TEXAS SYSTEM
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	3,215,802	434,622	36,750	49,790	349
1978	3,554,515	486,751	39,859	68,338	376
1979	3,757,390	507,626	40,811	70,352	392
1980	3,966,623	526,366	43,219	70,888	383
1981	4,169,468	549,933	43,828	71,757	382
1982	4,369,377	577,477	45,642	73,367	376
1983	4,572,783	611,865	46,658	75,687	365
1984	4,802,448	640,034	48,785	78,099	358
1985	4,982,478	660,475	49,437	82,199	342
1986	5,095,799	670,436	48,931	72,026	347
1987	5,141,720	673,078	48,580	73,029	349
1988	5,187,266	674,943	49,175	57,469	339
1989	5,249,910	680,075	49,064	59,945	331
1990	5,320,877	687,333	49,218	63,491	341
1991	5,402,135	680,065	48,658	74,194	523
1992	5,495,578	687,324	48,702	73,416	515
1993	5,582,050	694,749	49,521	73,839	508
1994	5,675,299	704,614	50,307	74,523	487
1995	5,779,071	715,251	51,098	75,301	487
1996	5,886,746	726,154	52,056	76,092	487
1997	5,994,719	736,993	53,109	76,852	487
1998	6,102,270	747,649	54,235	77,606	487
1999	6,208,486	757,997	55,435	78,325	487
2000	6,313,001	768,268	56,717	79,041	487
2001	6,415,859	778,615	58,062	79,728	487
2002	6,520,023	788,577	59,468	80,459	487
2003	6,622,412	798,557	60,899	81,200	487
2004	6,724,629	808,586	62,344	81,885	487
2005	6,826,110	818,535	63,837	84,095	487
2006	6,926,515	828,426	65,349	83,189	487

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.2
TOTAL TEXAS SYSTEM
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	39,258,653	30,573,103	62,603,485	4,222,126	16,973,424	153,630,790	1,659,742
1978	42,578,923	32,453,210	66,981,370	4,581,681	18,658,554	165,253,738	1,352,627
1979	42,378,817	32,854,458	69,748,278	4,568,306	19,311,937	168,861,796	2,015,195
1980	48,120,583	35,602,849	71,045,245	4,877,704	21,637,690	181,284,071	1,589,988
1981	47,406,425	37,294,123	73,642,669	4,660,869	21,995,332	184,999,418	1,447,724
1982	50,811,292	39,785,305	70,876,207	4,889,916	22,968,516	189,331,235	2,755,014
1983	49,825,594	40,537,006	72,805,338	4,902,042	23,046,979	191,116,959	2,870,933
1984	55,475,951	43,986,021	78,234,019	5,308,024	25,420,801	208,424,816	4,404,422
1985	59,199,767	47,349,296	76,716,972	5,762,696	26,096,500	215,125,231	5,432,354
1986	59,660,630	48,898,058	75,092,728	5,819,604	25,581,091	215,052,111	2,706,319
1987	61,185,754	49,723,268	74,924,276	5,806,890	26,271,386	217,911,900	1,487,289
1988	63,583,008	51,570,305	77,439,415	5,810,951	28,240,971	226,645,571	-656,100
1989	65,515,647	52,911,260	78,553,354	5,954,077	29,124,415	232,060,465	92,156
1990	67,934,035	54,650,164	80,845,412	6,144,657	29,113,308	238,688,599	-1,053,813
1991	69,288,816	53,219,998	81,538,176	8,344,256	28,646,894	241,038,308	-1,547,284
1992	70,301,682	54,601,464	82,262,876	8,723,910	29,783,716	245,673,648	-1,489,197
1993	71,847,650	56,210,271	85,862,348	8,902,299	31,202,735	254,025,304	-1,545,909
1994	72,494,490	57,616,570	86,050,626	9,017,902	32,112,547	257,292,135	-857,115
1995	74,274,436	59,232,290	86,999,285	9,185,462	33,013,494	262,704,967	45,824
1996	75,733,375	60,941,361	88,934,076	9,384,090	34,246,933	269,239,835	65,485
1997	77,350,587	62,587,813	90,815,878	9,558,806	35,180,395	275,493,479	641,803
1998	79,042,756	64,301,761	93,510,953	9,734,494	36,107,753	282,697,718	1,259,019
1999	80,680,423	66,059,347	96,092,463	9,918,805	37,009,948	289,760,986	2,020,060
2000	82,454,535	67,925,187	98,913,456	10,106,395	38,019,130	297,418,705	2,281,017
2001	84,395,405	69,880,422	101,853,726	10,304,633	38,925,732	305,359,919	2,508,847
2002	86,466,965	71,916,769	104,529,979	10,508,945	39,954,840	313,377,498	1,092,452
2003	88,394,908	73,806,636	107,663,898	10,702,204	40,868,290	321,435,935	1,061,859
2004	90,289,597	75,616,674	110,587,215	10,891,620	41,813,558	329,198,664	1,029,931
2005	92,084,057	77,292,942	113,437,707	11,079,847	42,757,515	336,652,070	1,252,246
2006	93,983,122	79,120,039	116,408,947	11,273,154	43,755,894	344,541,156	1,113,838

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.3
TOTAL TEXAS SYSTEM (With 1% Diversity)
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	31,923	0	-468	0	31,454	43,010	36.74%
1978	34,065	0	-645	0	33,419	45,826	37.12%
1979	33,840	0	-708	0	33,133	48,729	47.07%
1980	38,264	0	-720	0	37,545	50,481	34.45%
1981	38,930	0	-408	0	38,522	51,011	32.42%
1982	39,233	0	-219	0	39,014	52,456	34.45%
1983	41,316	0	-406	0	40,910	53,350	30.41%
1984	43,158	0	-538	0	42,620	53,674	25.94%
1985	45,024	0	-868	0	44,156	55,441	25.56%
1986	46,291	0	-980	0	45,311	56,271	24.19%
1987	46,260	-11	-1,260	0	44,989	57,991	28.90%
1988	47,946	-38	-1,409	0	46,499	60,819	30.79%
1989	48,148	13	-1,510	0	46,651	62,426	33.81%
1990	50,386	81	-1,677	0	48,791	64,279	31.75%
1991	48,838	116	-1,416	0	47,538	64,222	35.10%
1992	52,062	10	-1,850	-207	50,016	64,698	29.35%
1993	53,583	-19	-1,999	-330	51,233	66,059	28.94%
1994	54,453	-366	-1,788	-460	51,841	65,724	26.78%
1995	55,853	-686	-1,472	-643	53,051	65,552	23.56%
1996	57,221	-777	-1,556	-802	54,086	65,934	21.91%
1997	58,677	-932	-1,626	-970	55,136	67,003	21.52%
1998	60,227	-1,067	-1,698	-1,140	56,309	68,143	21.02%
1999	61,767	-1,180	-1,782	-1,317	57,475	68,842	19.78%
2000	63,415	-1,280	-1,844	-1,509	58,772	70,606	20.14%
2001	65,174	-1,332	-1,907	-1,689	60,234	71,982	19.50%
2002	66,853	-1,403	-1,983	-1,891	61,560	74,229	20.58%
2003	68,578	-1,441	-2,045	-2,103	62,979	75,802	20.36%
2004	70,208	-1,450	-2,108	-2,313	64,328	76,808	19.40%
2005	71,871	-1,451	-2,169	-2,522	65,720	78,788	19.88%
2006	73,548	-1,452	-2,232	-2,730	67,127	79,471	18.39%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

**TABLE 1.4
TOTAL TEXAS SYSTEM
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS**

YEAR	NATURAL		LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE	TOTAL
	GAS/OIL	COAL				ENERGY SOURCES	
1977	140,591,174	3,584,430	17,427,113	0	900,535	506,441	163,009,693
1978	140,150,341	11,385,517	23,173,268	0	694,669	496,318	175,900,114
1979	129,596,411	18,396,286	28,709,667	0	961,526	491,274	178,155,163
1980	131,725,978	27,883,793	31,724,828	0	784,535	593,135	192,712,270
1981	126,208,352	35,061,506	32,913,891	0	849,958	506,053	195,539,759
1982	118,519,663	38,730,747	37,626,400	0	876,792	434,246	196,187,848
1983	109,064,079	45,029,967	39,557,746	0	831,704	423,909	194,907,404
1984	117,350,116	46,598,966	39,829,563	0	856,059	388,103	205,022,807
1985	115,306,926	49,500,368	43,344,267	5,348	1,444,613	433,080	210,034,602
1986	105,431,126	45,473,959	51,330,304	2,408,112	1,702,708	441,061	206,787,269
1987	99,817,328	48,545,712	54,010,984	3,856,481	1,813,454	538,514	208,582,475
1988	98,867,036	52,630,031	55,707,989	9,305,907	1,231,314	539,720	218,281,997
1989	96,409,375	54,735,707	57,183,967	12,501,540	1,307,201	669,023	222,806,814
1990	93,064,060	55,470,600	57,459,070	19,989,309	1,715,910	786,038	228,484,987
1991	91,799,300	55,569,844	57,951,119	25,199,127	1,527,358	801,502	232,848,257
1992	91,493,626	56,754,968	59,385,975	28,308,041	1,442,960	891,796	238,277,367
1993	92,454,707	59,328,082	59,398,913	33,525,757	1,442,960	904,225	247,054,644
1994	92,214,331	62,309,528	58,915,591	35,481,877	1,442,960	888,457	251,252,745
1995	99,455,802	63,768,670	58,766,179	36,449,328	1,442,960	966,875	260,849,815
1996	103,549,930	65,441,787	58,029,741	38,512,167	1,442,960	970,862	267,947,447
1997	108,629,887	65,271,931	62,861,177	36,277,424	1,442,960	964,212	275,447,592
1998	110,566,087	67,019,371	66,344,172	36,163,620	1,442,960	965,845	282,502,055
1999	114,574,153	67,900,858	66,599,923	38,221,625	1,442,960	966,417	289,705,936
2000	123,322,750	69,529,305	67,068,501	36,438,372	1,442,960	967,999	298,769,886
2001	130,608,173	69,983,717	67,023,207	36,158,729	1,442,960	964,784	306,181,570
2002	135,845,205	72,260,518	69,085,909	38,198,579	1,442,960	1,000,302	317,833,473
2003	138,814,235	73,636,441	74,306,049	36,296,759	1,442,960	998,580	325,495,024
2004	141,772,179	75,612,864	75,755,100	36,235,938	1,442,960	997,656	331,816,697
2005	141,334,326	76,643,828	84,682,436	37,984,795	1,442,960	995,179	343,083,525
2006	146,467,365	78,419,550	86,556,209	36,822,047	1,442,960	992,771	350,700,903

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

**TABLE 1.5
TOTAL TEXAS SYSTEM
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS**

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO/ OTHER	TOTAL INSTALLED CAPACITY	FIRM PURCHASES FROM UTILITIES	FIRM PURCHASES FROM NON- UTILITIES	FIRM OFF-SYSTEM SALES
1977	37,953	1,008	3,050	0	575	42,586	468	186	229
1978	38,634	2,492	3,800	0	575	45,501	484	187	346
1979	38,581	3,764	5,300	0	598	48,243	545	311	371
1980	38,274	5,943	5,300	0	598	50,115	1,132	247	1,013
1981	38,182	5,984	5,845	0	594	50,604	1,655	202	1,450
1982	38,316	6,919	6,236	0	592	52,064	2,480	326	2,414
1983	38,503	7,589	6,236	0	599	52,928	2,419	307	2,304
1984	38,427	7,539	6,626	0	637	53,229	1,820	411	1,787
1985	38,147	7,891	6,997	0	657	53,692	2,372	1,775	2,398
1986	36,868	7,905	7,855	297	657	53,583	1,978	2,690	1,980
1987	36,842	8,403	8,603	622	657	55,127	1,942	2,877	1,955
1988	38,010	8,910	8,658	1,641	658	57,877	1,775	2,946	1,780
1989	37,911	8,935	8,645	2,959	664	59,114	1,395	3,244	1,328
1990	38,228	8,967	8,790	4,431	672	61,088	1,037	3,258	1,103
1991	38,193	8,956	8,801	4,426	672	61,048	1,006	3,240	1,072
1992	38,222	9,438	8,938	4,418	672	61,688	1,211	3,061	1,262
1993	38,320	9,515	8,948	5,573	672	63,027	1,402	3,052	1,422
1994	38,566	9,510	8,947	5,568	672	63,263	1,253	2,477	1,270
1995	38,744	9,517	8,950	5,568	682	63,460	1,357	2,054	1,320
1996	38,996	9,525	8,950	5,568	682	63,721	1,403	2,184	1,374
1997	39,281	9,532	9,703	5,581	682	64,779	1,143	1,997	916
1998	39,771	9,531	10,453	5,582	682	66,019	1,300	1,887	1,063
1999	40,769	9,532	10,453	5,580	682	67,016	1,370	1,590	1,135
2000	42,415	9,581	10,455	5,581	682	68,714	1,160	1,625	894
2001	43,260	9,582	10,603	5,582	682	69,709	1,168	1,958	853
2002	44,597	10,076	10,603	5,575	689	71,541	1,117	2,317	746
2003	44,806	10,082	11,667	5,582	689	72,826	1,134	2,507	665
2004	45,315	10,479	11,667	5,578	689	73,729	1,240	2,600	761
2005	45,051	11,703	12,811	5,576	689	75,831	1,301	2,456	800
2006	45,422	11,705	12,811	5,578	689	76,205	1,422	2,747	903

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.6

**PLANNED ADDITIONS AND RETIREMENTS TO INSTALLED CAPACITY
ON A TOTAL SYSTEM BASIS**

Year	Utility	Additions [Retirements]	Construction Costs Including AFUDC (000's)	MW	Fuel
1992	CPL	Oklauion Rerating		2	Coal
	CPS	J K Spruce 1	\$571,930	498	Coal
	GSU	Repower Louisiana Station		20	Gas
	GSU	Other		73	Gas
	HL&P	Upgrade		40	Gas
	SPS	Unspecified		10	Gas
	TNP	TNP CFB		149	Lignite
	WTU	Oklauion Rerating		11	Coal
	WTU	Rerating		4	Gas
Net Capacity Additions				807	
1993	HL&P	Upgrade		40	Coal
	HL&P	Upgrade		15	Gas
	TUEC	Comanche Peak 2	\$4,169,823	1,150	Uranium
Net Capacity Additions				1,205	
1994	BEPC	R. W. Miller 4 & 5	\$63,756	208	Gas
	HL&P	Upgrade		55	Gas
Net Capacity Additions				263	
1995	HL&P	DuPont		158	Gas
	HL&P	Upgrade		15	Gas
	LPL	Trash 1		10	Refuse
Net Capacity Additions				183	
1996	HL&P	Upgrade		15	Gas
	HL&P	Webster 1 & 2		220	Gas
Net Capacity Additions				235	
1997	BEPC	Unnamed	\$174,363	283	Gas
	GSU	Relicense River Bend		33	Uranium
	TUEC	Twin Oak 1	\$1,589,169	750	Lignite
Net Capacity Additions				1,066	
1998	HL&P	Unknown		219	Gas
	HL&P	Greens Bayou 3 & 4		220	Gas
	LCRA	Unknown		88	Gas
	TUEC	Twin Oak 2	\$926,471	750	Lignite
	WTU	[Abilene 4]		(18)	Gas
	WTU	[Lake Pauline 1]		(19)	Gas
	WTU	[Fort Stockton 2]		(5)	Gas
Net Capacity Additions				1,235	
1999	CPS	GT 99	\$37,038	70	Gas
	GSU	Sabine 4	\$500	26	Gas
	GSU	Nelson 3,4	\$5,600	58	Gas
	GSU	Willow Glen 4 & 5	\$800	36	Gas
	SPS	Moore County Plant		48	Gas
	TMPA	Unnamed		200	Gas
	TUEC	Undesignated CC		645	Gas
Net Capacity Additions				1,083	

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.6
(Continued)
PLANNED ADDITIONS AND RETIREMENTS TO INSTALLED CAPACITY
ON A TOTAL SYSTEM BASIS

Year	Utility	Additions [Retirements]	Construction Costs Including AFUDC (000's)	MW	Fuel
2000	BEPC	Unnamed		104	Gas
	CPS	GT 00	\$77,052	140	Gas
	EPE	Turbine 1	\$41,250	80	Gas
	GSU	Neches 8	\$2,534	105	Gas
	HL&P	Unknown		412	Gas
	LPL	Combined 1		50	Coal
	SPS	Denver City	\$6,324	50	Gas
	TUEC	Undesignated CC		645	Gas
	WTU	Repower Rio Pecos 5		122	Gas
	WTU	[Rio Pecos 4 & 5]		(41)	Gas
	WTU	WTU CC 1	\$69,111	114	Gas
	Net Capacity Additions				1,781
2001	BEPC	Unnamed		104	Gas
	CPL	[Laredo 1]		(36)	Gas
	CPL	Repower Laredo 2	\$53,136	89	Gas
	CPS	GT 01	\$80,195	140	Gas
	GSU	Willow Glen 3	\$4,000	22	Gas
	HL&P	Unknown		206	Gas
	SPS	Refurbish Riverview	\$3,065	25	Gas
	SWEPCO	Repower Wilkes 2	\$43,732	87	Gas
	SWEPCO	[Lieberman 1 & 2]		(56)	Gas
	TNP	TNP CFB	\$456,543	149	Lignite
TUEC	Undesignated PSI		290	Gas	
Net Capacity Additions				1,020	
2002	BEPC	Unnamed		104	Gas
	CPL	Repower J. L. Bates	\$94,393	163	Gas
	CPS	J. K. Spruce 2	\$763,639	500	Coal
	GSU	Unknown		17	GP*
	HL&P	Unknown		412	Gas
	SWEPCO	Wilkes 3	\$43,732	87	Gas
	SWEPCO	[Knox Lee 2 & 3]		(74)	Gas
	TUEC	[Eagle Mountain]		(115)	Gas
	TUEC	[Parkdale]		(87)	Gas
	TUEC	Undesignated CT		272	Gas
	TUEC	Undesignated CC		620	Gas
	TUEC	[River Crest]		(110)	Gas
	TUEC	Upgrade		31	Gas
	WTU	[Lake Pauline 2]		(27)	Gas
	WTU	WTU CC 2	\$69,111	114	Gas
Net Capacity Additions				1,907	

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

TABLE 1.6

(Continued)

**PLANNED ADDITIONS AND RETIREMENTS TO INSTALLED CAPACITY
ON A TOTAL SYSTEM BASIS**

Year	Utility	Additions [Retirements]	Construction Costs Including AFUDC (000's)	MW	Fuel
2003	COA	Gas Turbine	\$37,000	100	Gas
	CPL	SWEPSCO Lignite	\$785,880	193	Lignite
	HL&P	Unknown		206	Gas
	SWEPSCO	SWEPSCO Lignite	\$785,880	227	Lignite
	SWEPSCO	[Lone Star 1]		(50)	Gas
	TUEC	[Mountain Creek 6]		(115)	Gas
	TUEC	Undesignated GS1		660	Lignite
	TUEC	Undesignated CT		272	Gas
	TUEC	[Parkdale 2 & 3]		(240)	Gas
	WTU	SWEPSCO Lignite		82	Lignite
	WTU	[Paint Creek 1]		(35)	Gas
	Net Capacity Additions				1,300
2004	COA	FB Coal	\$568,000	400	Coal
	CPL	Repower L. C. Hill 1		173	Gas
	CPL	[Victoria]		(45)	Gas
	CPL	[Lon C. Hill 3]		(158)	Gas
	GSU	Neches 4, 5, & 6	\$1,067	160	Gas
	HL&P	Unknown		206	Gas
	TUEC	Undesignated CT		272	Gas
	TUEC	Upgrade		16	Gas
Net Capacity Additions				1,024	
2005	CPL	[La Palma 7]		(47)	Gas
	CPL	J. L. Bates		(111)	Gas
	CPL	Coletto	\$584,046	373	Coal
	CPS	Unnamed	\$1,099,116	500	Lignite
	HL&P	Malakoff (1)		645	Lignite
	SWEPSCO	Coletto	\$584,046	112	Coal
	TUEC	Undesignated GS1		650	Coal
	WTU	Coletto	\$584,046	140	Coal
WTU	[Paint Creek 2 & 3]		(85)	Gas	
Net Capacity Additions				2,177	
2006	CPS	Unspecified		(100)	Gas
	EPE	Turbine 2	\$45,600	80	Gas
	SWEPSCO	[Lieberman 3 & 4]		(220)	Gas
	SWEPSCO	[Knox Lee 4]		(83)	Gas
	SWEPSCO	SWEPSCO CC	\$105,861	218	Gas
	SWEPSCO	SWEPSCO CT	\$61,760	146	Gas
	TUEC	Undesignated CT		242	Gas
	WTU	WTU CC 3	\$69,111	114	Gas
Net Capacity Additions				397	

1992-2001	8,878 MW
1992-2006	15,683 MW
2001-2006	6,805 MW

* Natural gas pressure-drop at Sabine site to provide energy supply.

** Capacity shown for Coletto Creek and SWEPSCO Lignite indicate that utility's share of the unit.

STATEWIDE SUMMARY OF RESOURCE PLANS FILED WITH THE PUCT

CHAPTER TWO

TEXAS UTILITIES ELECTRIC COMPANY

Texas Utilities Electric Company (TU Electric) is the principal subsidiary of Texas Utilities Company (Texas Utilities). Texas Utilities also has three other subsidiaries that perform specialized services for the Texas Utilities Company system. Texas Utilities Fuel Company acquires, stores, and delivers fuel gas and provides other fuel services for the generation of electric energy by TU Electric. Texas Utilities Mining Company owns and operates fuel production facilities for the surface mining and recovery of lignite for use at the utility's generating stations. Texas Utilities Services, Inc. furnishes financial, accounting, computer, and other administrative services. Effective January 1, 1984, TU Electric, by consolidation, became the successor of Dallas Power & Light Company, Texas Electric Service Company, and Texas Power & Light Company, which had been subsidiaries of Texas Utilities.

TU Electric is engaged in the generation, purchase, transmission, distribution, and sale of electric energy in the north central, eastern, and western parts of Texas. These areas have a 1992 estimated population of 5,500,000--about one-third of the population of Texas. Electric service is provided in 91 counties and 372 incorporated municipalities, including Dallas, Fort Worth, Midland, Odessa, Wichita Falls, Arlington, Irving, Plano, Richardson, Waco, Tyler, and Killeen. The urban areas comprise banking, insurance, and commercial centers with substantial electronics, aerospace, petrochemical, specialized steel manufacturing, and automotive and aircraft assembly. The territory served also includes major portions of the oil and gas fields in the Permian Basin and East Texas, substantial farming and ranching sections of the state, and the Dallas-Fort Worth International Airport. TU Electric is a member of the Electric Reliability Council of Texas (ERCOT).

TU Electric operating revenues in 1991 totaled \$4,893,173,000 with total assets as of December 31, 1991 valued at \$18,792,782,000. The company's capital structure as of that date was comprised of 40.1 percent common equity, 9.1 percent preferred stock, and 50.8 percent long-term debt.

System Resource Planning

Texas Utilities Electric Company prepares an annual System Resource Plan that includes a detailed forecast of anticipated load growth and a plan of the resources to be utilized in meeting those future loads. The objective of the resource planning process is to coordinate and integrate TU Electric's demand-side planning activities with the supply-side planning activities in order to plan to meet the forecasted load economically and reliably.

The resource planning process consists of the following discrete activities which, when combined in the proper sequence, result in the System Resource Plan:

- Planning Assumptions
- Load Forecast
- Conservation and Load Management Forecast
- Firm-Load Forecast
- Supply-Side Plan
- Financial Assessment
- Resource Plan Selection

Demand Forecast

After an initial set of planning assumptions is determined, development of forecasts of peak demand and net consumed energy sales is the second step in the system resource planning process. Forecasts of peak demand and net consumed energy sales are derived via a system of econometric equations which produce a forecast of customers and MWH sales by class and an end-use model which generates system demand by hour. TU Electric's Econometric Forecasting Model provides broad perspectives on future developments and alternatives to company decision makers. Econometric equations of the relationships between electricity consumption and a variety of influences, including weather, economic and demographic changes, and electric and natural gas prices, are determined statistically from actual historical data. Forecasts of these several influences are used in the TU Electric model to estimate levels of future electricity consumption.

The two most important of these factors are the number of jobs added and the growth of real (inflation-adjusted) personal income. Over the long term, employment opportunities are a basic determinant of the number of customers served by TU Electric, and the real

TEXAS UTILITIES ELECTRIC COMPANY

personal income received by these customers is a basic determinant of their level of spending and, hence, energy consumption.

Non-farm employment in the TU Electric service area grew at a compound annual rate of 3.1 percent over the past two decades. Non-farm employment increased 7.2 percent from 1983 to 1984 as the national recovery gained momentum, as oil prices remained relatively high, and as Texas and the Southwest continued to grow. During this period, employment growth in the service area was also influenced by the passage of the Economic Recovery Act of 1981, which along with the financial deregulation of the 1980s, spurred investments in real estate and overbuilding in metropolitan areas throughout the U.S.

During the 1986-1988 downturn, several coincident events caused the service area economy to slow and some measures even contracted. Oil prices plunged and construction activity collapsed. In short, the economies of Texas and the Southwest performed poorly. The service area lost 28,000 jobs from 1985 to 1987. Growth recovered in 1988, 1989, and 1990 with job gains of 40,000, 47,000, and 50,000, respectively.

Household real personal income in the TU Electric service area grew at a compound annual growth rate of 4.2 percent between 1970 and 1990. This compares to a 2.9 percent annual growth rate for the nation. Similar to the employment rate, real personal income experienced robust growth in 1984 and 1985, weakness during the 1986-1988 downturn, and moderate expansion the last three years.

Stable and increasing oil prices and a moderate recovery in the Southwest and Texas, competitively priced office space and housing, and the underlying diversity of the Dallas-Fort Worth economy support the 1992-2001 base-case forecast of electricity sales and peak demand.

Number of Customers

Table 2.1 and Figure 2.1 show the number of historical and projected customers to be served by TU Electric. Electric service was provided to 1,906,930 residential customers in 1991. The historical data for the period from 1981 through 1991 indicate an average annual compound growth rate of 3.2 percent for the residential class of customer. Growth at a rate of 1.6 percent annually is projected to continue into 2001, with a slightly lower annual growth rate of 1.25 percent during the 2001-2006 period.

Commercial customers totaled 209,267 in 1991.

This smaller number of commercial customers reflects the recent reclassification of approximately 15,000 customers to other revenue groups.

The projected rate of increase is 1.1 percent per year for the next 10 years.

Industrial customers

totaled 22,999 in 1991. The annual rate of growth is expected to increase for the number of industrial customers, from 1.3 percent over the historical period to 2.2 percent through 2001.

Sales

Total system sales were 82,289,134 MWH in 1991 after growing at a compound rate of about 3.5 percent annually for 10 years.

TU Electric's projection of system sales are shown in Figure 2.2. Growth over the next 10 years will drop to 2.7 percent annually, with an estimated total system sales in 2001 of 107,590,211 MWH. Sales will continue to grow at a rate of 3.0 percent over the 2001-2006 time period.

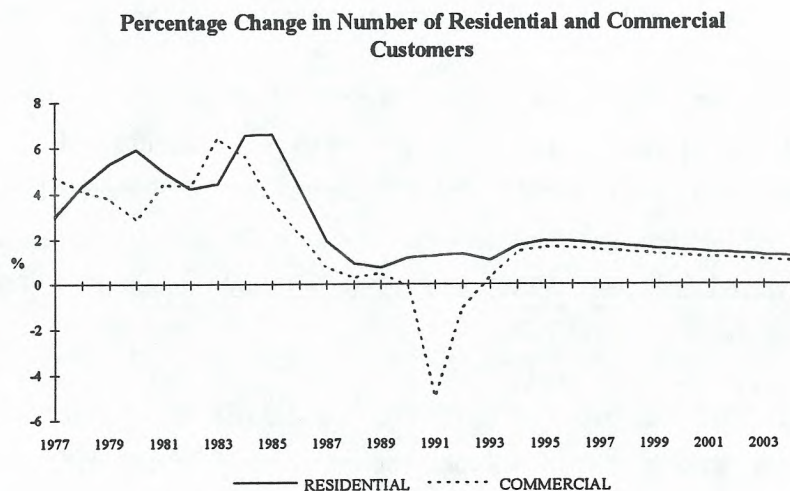


Figure 2.1

TEXAS UTILITIES ELECTRIC COMPANY

Sales to the residential sector totaled 28,430,645 MWH. Sales to residential customers in 1991 comprised 34.6 percent of total system sales, slightly higher than in 1981, which was 32.1 percent.

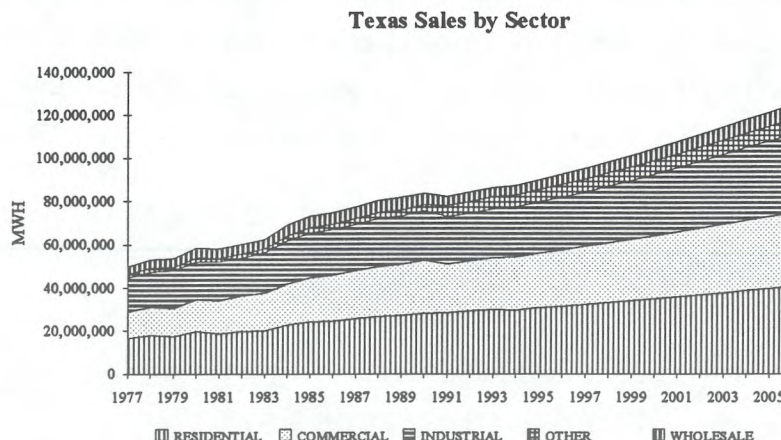


Figure 2.2

The growth rate for the residential sector

is projected to be 2.3 percent annually for the next ten years and to reach 35,826,086 MWH in 2001. TU Electric projects sales within the commercial sector to increase from 22,639,233 MWH in 1991 at the rate of 2.9 percent per annum through 2001. Industrial sales have grown at an average annual compound rate of 2.0 percent since 1981 to a total of 21,975,850 MWH in 1991. Sales to wholesale customers, at 4,231,515 MWH, comprised 5.1 percent of total system sales for 1991 and are expected to maintain about the same share of total sales over the next ten years.

Peak Demand

Over the period from 1981 through 1991, TU Electric experienced 2.6 percent annual growth in firm peak demand. Peak demand, which is shown in Figure 2.3 and Table 2.3, increased from 12,970 MW in 1981 to 16,831 MW in 1991. TU Electric projects that firm peak demand will increase over the next ten years (1991-2001) at a growth rate of 2.5 percent per year and continue at about the same rate from 2001 to 2006. As a result, peak demand will reach 21,535 MW in 2001 and 24,418 MW in 2006.

Adjustments to Demand

The TU Electric Conservation and Load Management forecast is based on TU Electric's goal of offsetting 20 percent of the increase in peak demand from customer growth through demand-side management. Load reduction resulting from these activities is reported as active and passive load management. Active and passive load management have fundamentally different impacts on the company. Passive load management programs include programs such as efficient heating, ventilation, and air conditioning (HVAC) equipment, building

RESOURCE PLAN FILED WITH PUCT

structures, and lighting. Once these programs are in place they reduce load regardless of any action on the part of the company. Active load control, on the other hand, can be controlled at the discretion of the company. Active load control includes interruptible load and direct control of customer end-use equipment.

The current Energy Action, Conservation and Load Management programs as defined in the Company's current Energy Efficiency Plan filing include:

- EA New Single Family
- EA New Multifamily
- EA Existing Single Family
- EA Existing Multifamily
- EA Room Unit
- EA Efficient Water Heating
- EA Thermal Cool Storage
- EA On-peak Efficiency Improvement
- EA On-peak Load Shift
- EA Interruptible
- EA Commercial Audit
- EA Residential Audit
- EA Off-Peak Lighting

In addition to the programs currently contained in the preliminary 1992 Energy Action Program, the 1992 Preliminary Demand-Side Resource Plan forecast includes estimates of demand and energy reductions in the category "Other Technology" to recognize the balance of the demand-side potential in TU Electric's service area.

Several new activities have been included in the 1992 programs as pilot projects. In order to address the needs of low- or fixed-income, elderly, or otherwise needy customers more effectively, TU Electric will pilot several components of a Special Needs Program in 1992. Home energy audits, credit and energy utilization counseling, school science projects, repair and fix-up seminars, and an efficient appliance use and care program targeted at "special needs" geographic areas will be tested to determine acceptance and operational requirements. The use of electrotechnologies that significantly improve the quality of the environment and the company's load factor will also be eligible for incentives. A pilot project will be conducted to determine the feasibility of extending demand-side management expertise and programs to wholesale customers.

TEXAS UTILITIES ELECTRIC COMPANY

The forecast of passive demand-side program savings over the 1991-2001 time frame is a 924-MW reduction in 2001 peak demand. The forecast for active load management during the same period is a 635-MW reduction in peak demand. Exogenous factors, primarily the effects of the National Appliance Energy Conservation Act of 1987, should result in conservation of 480 MW in 2001. Subtraction of the load management savings from the system peak load forecast yields the firm demand that must be served by supply-side options.

Supply-Side Plan

TU Electric annually prepares a System Resource Plan which includes both a Demand-Side Plan and a Supply-Side Plan and, when combined, provides the additional capability needed to serve anticipated future load growth, replace retired generating capacity, and replace expired purchased power contracts.

There are many criteria that must be considered when creating a plan of capacity additions to adequately serve anticipated future loads. Following are the major criteria considered for each supply-side plan alternative:

- Maintaining system reliability
- Creating a plan with low revenue requirements consistent with TU Electric guidelines regarding construction expenditures
- Complying with environmental and regulatory requirements
- Maintaining TU Electric's minimum generating reserve criteria while considering the ERCOT planning criteria
- Maintaining both fuel and capacity diversity
- Ensuring adequate plan flexibility to respond to unforeseeable changes

When the company prepares its annual Supply-Side Plan for use in the System Resource Plan, the various generating capacity options available are determined based upon system capacity needs after consideration of the various factors that influence the planning process, such as fuel cost and availability, capital costs, total revenue requirements, system reliability, and flexibility to respond to future changing conditions.

Installed Capacity In 1991, TU Electric owned or operated 76 generating units with a total capacity of 19,928 MW. As Table 2.5 and Figure 2.5 show, gas-fueled plants made up 64.9 percent of this capacity; lignite-fueled stations made

RESOURCE PLAN FILED WITH PUCT

up 29.3 percent; and nuclear-fueled, 5.8 percent. As of December 31, 1991, TU Electric's production plant in service carried a total historical cost of \$11,371,056,000.

Net System Capacity Installed capacity plus the net of firm off-system sales and purchases yields net system capacity. The net system capacity and associated reserve margin are shown in Table 2.3 and Figure 2.3. The purchases of 1,921 MW of firm capacity from other utilities, cogenerators, and other small power producers, no firm off-system sales, and installed capacity of 19,928 MW resulted in a net system capacity of 21,849 MW in 1991.

The company plans no firm off-system sales for the forecast period. Firm purchases made up about 8.8 percent of net system capacity in 1991 but are projected to decrease to 5.1 percent in 2001. Purchases from cogenerators account for a large portion of the purchased capacity. Suppliers of capacity include Aluminum Company of America; CoGen Lyondell, Inc.; Power Resource, Inc.; Cogenron, Inc.; Wichita Falls Energy Company; Texasgulf, Inc.; Encogen One Partners, Ltd; Tenaska III Texas Partners; Dow Chemical Company; and Bio-Energy Partners.

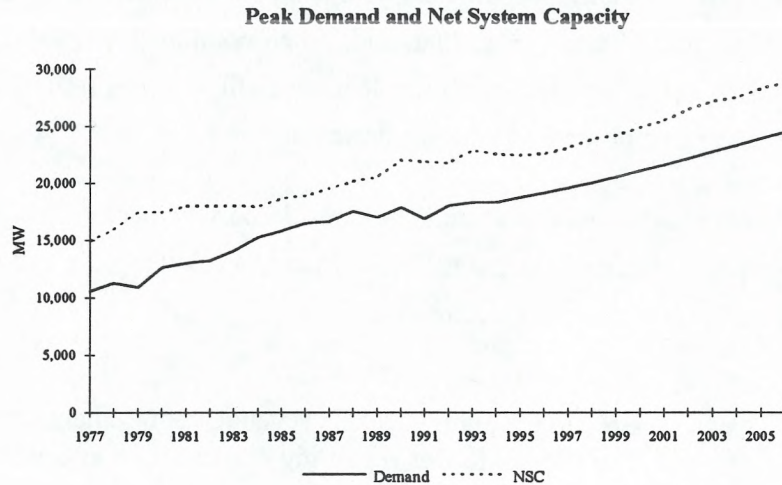


Figure 2.3

Net Generation

For the year 1991, gas and oil is projected to provide 42.7 percent of the energy generated, lignite 50.3 percent and nuclear 7.0 percent, as shown on Table 2.4. This differs from the generation mix in 1981, which shows that gas and oil supplied 47.3 percent and lignite 52.7 percent.

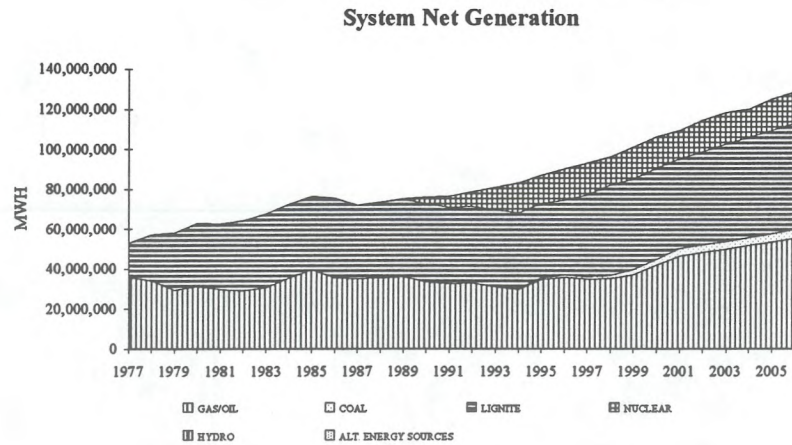


Figure 2.4

As Figure 2.4 indicates, TU Electric is diversifying its reliance on fossil fuels by adding nuclear-fueled units to its net generation. Comanche Peak Unit One was turned over to the TU Electric dispatcher for inclusion in the daily generation plan in August 1990. Unit Two is scheduled for service in 1993.

System Expansion

Planned capacity additions will increase total installed generating capability by about 21 percent over the next 10-year period to 24,158 MW. As shown on Table 2.5, this 24,158 MW plus 1,305 MW of purchases in the year 2001 will equate to a total system capability of 25,463 MW. A policy of diversifying the fuel mix is evidenced by the Comanche Peak nuclear plant under construction in Somervell and Hood Counties. TU Electric added 1,150 MW of nuclear capacity in 1990 and anticipates adding an additional 1,150 MW in 1993. Nuclear power will account for 5.8 percent of total installed capacity in 1991 and 9.5 percent in 2001. Additions to lignite/coal capacity in 750 MW increments from Twin Oak 1 and 2 in Robertson County in 1997 and 1998 provide 1,500 MW of additional base load capacity. Additions planned in the 10-year forecast period increase gas capacity from 12,933 MW in 1991 to 14,513 MW in 2001. This involves additions of 645-MW combined-cycle combustion turbine plants in 1999 and 2000 as well as two 145-MW simple-cycle combustion turbines in 2001. No retirements are planned for the forecast period. While the period beyond 2001

does not represent an official forecast of TU Electric, projected demand through the year 2006 may require additional generating capacity.

Several transmission line construction projects are planned for 1992, including a new 40-mile 345-KV circuit between Comanche Peak and Benbrook, and a new 138-KV tie between TU Electric's Permian Basin Generating Station and West Texas Utilities' Barrilla

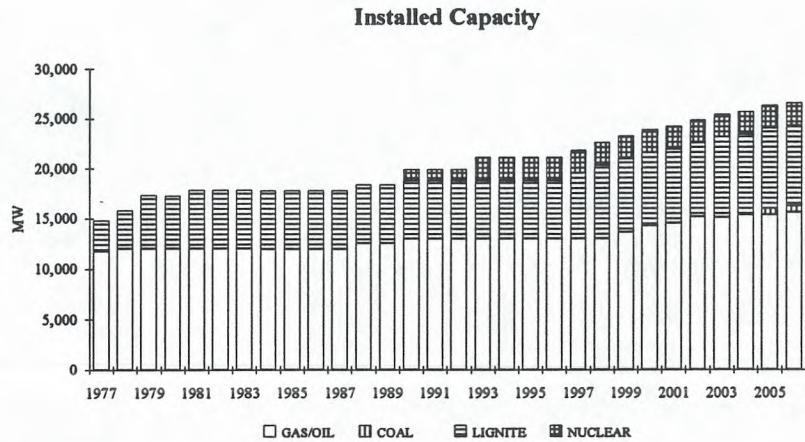


Figure 2.5

Switching Station. In the period 1993-1996, plans include approximately 144 circuit miles of new or rebuilt 138-KV line and 9 circuit miles of new or rebuilt 69-KV line. In addition, there are 100 circuit miles of new 345-KV line. A new 85-mile double circuit line, Limestone-Watermill, interconnecting TU Electric with Houston Lighting & Power, with sections in Freestone, Ellis, Navarro, Dallas, and Limestone Counties, is scheduled for 1999. Within the forecast period, approximately 80 transmission projects are planned covering new and upgraded lines and new substations.

Changes Since the 1989 Filing

The above information reflects several changes that have been made since the Company's 1989 filing. A number of power plant construction projects have been deferred. The planned dates of commercial operation for Twin Oak Units 1 and 2 have been deferred from 1995 and 1996 to 1997 and 1998, respectively. Forest Grove, another lignite plant, previously expected to be in commercial operation in 1998, has been removed from the 1992-2001 forecast period. The 375-MW capacity of combined-cycle combustion turbine unit in 1997 has been changed to 645 MW in 1999. In addition, another 645-MW combustion turbine unit and a 290-MW simple-cycle combustion turbine are added in years 2000 and 2001, respectively. The deferrals of the above units are attributable to a lower demand forecast and to the deferred retirements of some generating units. The addition of the combined-

TEXAS UTILITIES ELECTRIC COMPANY

cycle combustion turbine capacity satisfies the company's need for intermediate-load, low-cost, high-efficiency, gas-fueled capacity to take advantage of the near-term low cost and availability of gas and to continue the long-term effort to more efficiently utilize natural gas in the production of electric energy.

While the 1989 filing identified 1,574 MW of purchases in 1999, which includes 750 MW of unspecified resources, the 1991 filing identifies 1,305 MW of purchases and capacity from unspecified resources in 2001. Unspecified resources may be made up of one or more of the following: purchases from QFs (cogenerators and/or small power producers), purchases from other utilities, deferred retirements, simple-cycle or combined-cycle combustion turbines, additional reductions in demand resulting from conservation or load management programs, or solid-fueled base-load units.

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TABLE 2.1
TU ELECTRIC
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	1,139,823	150,435	16,961	11,177	59
1978	1,189,435	156,665	17,602	11,301	61
1979	1,252,657	162,622	18,317	11,455	71
1980	1,326,771	167,280	19,193	11,445	77
1981	1,392,678	174,650	20,183	10,377	79
1982	1,451,429	182,227	21,145	10,111	72
1983	1,516,023	193,914	21,959	10,195	63
1984	1,615,015	204,763	23,446	10,258	62
1985	1,721,791	212,164	23,985	12,230	61
1986	1,795,922	216,948	24,086	12,875	61
1987	1,830,517	218,589	23,913	13,378	64
1988	1,847,357	219,237	23,919	13,853	64
1989	1,861,206	220,333	23,727	15,067	67
1990	1,883,006	220,169	23,600	17,811	66
1991	1,906,930	209,267	22,999	27,473	253
1992	1,932,970	207,130	22,196	27,884	248
1993	1,953,797	207,693	22,822	28,094	240
1994	1,987,537	210,709	23,205	28,498	219
1995	2,025,980	214,184	23,642	28,965	217
1996	2,064,634	217,673	24,250	29,438	217
1997	2,101,997	221,022	24,961	29,888	217
1998	2,137,805	224,221	25,755	30,322	217
1999	2,172,082	227,269	26,637	30,727	217
2000	2,204,784	230,162	27,590	31,119	217
2001	2,236,399	232,947	28,597	31,493	217
2002	2,267,058	235,644	29,648	31,857	217
2003	2,296,379	238,207	30,728	32,203	217
2004	2,324,670	240,660	31,829	32,530	217
2005	2,352,518	243,082	32,967	32,857	217
2006	2,380,255	245,495	34,133	33,184	217

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

TEXAS UTILITIES ELECTRIC COMPANY

TABLE 2.2
TEXAS UTILITIES ELECTRIC COMPANY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	16,642,382	12,347,755	15,678,254	1,565,518	3,445,380	49,679,289	53,072
1978	17,943,224	13,117,202	16,469,636	1,728,056	3,869,018	53,127,136	-53,445
1979	17,394,404	13,264,435	17,275,859	1,669,727	4,155,815	53,760,240	-295,063
1980	19,844,409	14,683,104	17,581,265	1,796,988	4,454,706	58,360,472	-90,643
1981	18,676,240	15,383,162	17,992,261	1,692,108	4,372,626	58,116,397	-184,729
1982	19,945,086	16,475,251	17,526,411	1,730,272	4,612,885	60,289,905	18,294
1983	20,162,506	17,366,562	18,690,077	1,790,473	4,670,437	62,680,055	-15,817
1984	22,693,288	19,026,268	20,343,557	1,920,422	5,127,042	69,110,577	71,169
1985	24,300,789	20,349,335	20,921,532	2,324,782	5,396,133	73,292,571	732,749
1986	24,604,110	21,453,433	21,013,279	2,385,169	5,398,768	74,854,759	4,176
1987	25,716,080	22,324,328	21,420,705	2,499,981	5,501,169	77,462,263	1,260,397
1988	26,634,150	23,187,122	22,287,732	2,613,600	5,740,712	80,463,316	1,415,992
1989	27,204,860	23,836,335	22,163,409	2,690,161	5,825,942	81,720,707	1,343,426
1990	28,059,092	24,796,117	22,639,827	2,845,567	5,163,352	83,503,955	870,216
1991	28,430,645	22,639,233	21,975,850	5,011,891	4,231,515	82,289,134	163,467
1992	29,187,812	23,169,148	22,110,261	5,335,928	4,403,561	84,206,710	-407,982
1993	29,904,904	23,966,082	22,768,422	5,453,054	4,368,380	86,460,842	-407,982
1994	29,701,800	24,464,060	23,116,442	5,527,714	4,356,117	87,166,133	-446,572
1995	30,854,408	25,273,900	23,632,454	5,654,674	4,555,329	89,970,765	-446,572
1996	31,513,278	26,074,197	24,374,127	5,775,241	4,753,079	92,489,922	-446,572
1997	32,337,994	26,831,152	25,151,100	5,892,088	4,939,075	95,151,409	-446,572
1998	33,150,510	27,613,489	26,238,218	6,011,695	5,134,533	98,148,445	-446,572
1999	34,018,775	28,406,060	27,231,738	6,134,202	5,333,412	101,124,187	-446,572
2000	34,928,372	29,208,564	28,400,279	6,259,626	5,542,156	104,338,997	-446,572
2001	35,826,086	30,009,939	29,624,706	6,384,753	5,744,727	107,590,211	-446,572
2002	36,782,014	30,850,912	30,779,353	6,516,971	6,091,455	111,020,705	-446,572
2003	37,752,091	31,661,050	32,314,972	6,644,339	6,255,632	114,628,084	-446,572
2004	38,696,411	32,442,855	33,712,499	6,767,503	6,419,592	118,038,860	-446,572
2005	39,615,147	33,197,191	35,086,318	6,887,490	6,565,632	121,351,778	-446,572
2006	40,520,313	33,929,316	36,602,499	7,003,960	6,710,074	124,766,162	-446,572

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 2.3
TEXAS UTILITIES ELECTRIC COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	10,798	0	-273	0	10,525	14,919	41.75%
1978	11,548	0	-316	0	11,232	15,932	41.84%
1979	11,202	0	-322	0	10,880	17,432	60.22%
1980	12,970	0	-379	0	12,591	17,412	38.29%
1981	12,970	0	0	0	12,970	17,957	38.45%
1982	13,204	0	0	0	13,204	17,957	36.00%
1983	14,029	0	0	0	14,029	17,957	28.00%
1984	15,265	0	-76	0	15,189	17,905	17.88%
1985	15,898	0	-129	0	15,769	18,614	18.04%
1986	16,537	0	-130	0	16,407	18,854	14.91%
1987	16,680	0	-113	0	16,567	19,465	17.49%
1988	17,620	0	-160	0	17,460	20,115	15.21%
1989	17,146	0	-202	0	16,944	20,448	20.68%
1990	18,007	135	-347	0	17,795	21,949	23.34%
1991	16,952	220	-341	0	16,831	21,849	29.81%
1992	18,428	-4	-424	-47	17,953	21,699	20.87%
1993	18,887	-87	-452	-111	18,237	22,849	25.29%
1994	19,018	-162	-466	-166	18,224	22,499	23.46%
1995	19,690	-228	-490	-277	18,695	22,399	19.81%
1996	20,254	-290	-514	-364	19,086	22,522	18.00%
1997	20,868	-344	-538	-463	19,523	23,072	18.18%
1998	21,498	-391	-562	-566	19,979	23,822	19.24%
1999	22,171	-434	-587	-678	20,472	24,157	18.00%
2000	22,878	-459	-611	-802	21,006	24,828	18.19%
2001	23,574	-480	-635	-924	21,535	25,463	18.24%
2002	24,334	-512	-650	-1,056	22,116	26,424	19.48%
2003	25,068	-516	-665	-1,189	22,698	27,151	19.62%
2004	25,787	-519	-680	-1,319	23,269	27,487	18.13%
2005	26,514	-520	-695	-1,451	23,848	28,287	18.61%
2006	27,232	-523	-710	-1,581	24,418	28,756	17.77%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

TEXAS UTILITIES ELECTRIC COMPANY

TABLE 2.4
TEXAS UTILITIES ELECTRIC COMPANY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	35,729,122	0	17,427,113	0	0	0	53,156,235
1978	34,022,809	0	23,173,268	0	0	0	57,196,077
1979	29,341,762	0	28,709,667	0	0	0	58,051,429
1980	31,140,813	0	31,724,828	0	0	0	62,865,641
1981	29,533,522	0	32,913,891	0	0	0	62,447,413
1982	29,011,849	0	35,212,877	0	0	0	64,224,726
1983	30,730,441	0	36,976,153	0	0	0	67,706,594
1984	35,545,693	0	37,036,944	0	0	0	72,582,637
1985	39,484,319	0	36,871,077	0	0	0	76,355,396
1986	35,538,822	0	39,929,049	0	0	0	75,467,871
1987	35,145,809	0	36,733,116	0	0	0	71,878,925
1988	35,538,345	0	37,955,052	0	0	0	73,493,397
1989	35,953,518	0	38,971,877	0	0	0	74,925,395
1990	33,482,350	0	39,130,210	3,431,843	0	0	76,044,403
1991	32,628,546	0	38,357,309	5,340,746	0	0	76,326,601
1992	32,776,000	0	38,545,000	7,232,000	0	0	78,553,000
1993	30,866,000	0	38,790,000	11,190,000	0	0	80,846,000
1994	29,725,000	630,000	37,585,000	15,197,000	0	0	83,137,000
1995	34,306,000	1,196,000	37,384,000	14,152,000	0	0	87,038,000
1996	35,742,000	1,370,000	37,387,000	15,771,000	0	0	90,270,000
1997	34,833,000	1,277,000	41,029,000	15,725,000	0	0	92,864,000
1998	34,962,000	1,754,000	45,276,000	14,048,000	0	0	96,040,000
1999	36,892,000	2,607,000	45,658,000	15,745,000	0	0	100,902,000
2000	41,761,000	3,079,000	45,664,000	15,752,000	0	0	106,256,000
2001	46,461,000	3,676,000	45,196,000	14,040,000	0	0	109,373,000
2002	48,110,715	3,813,647	46,888,357	15,745,000	0	0	114,557,719
2003	49,819,008	3,960,384	48,692,469	15,725,000	0	0	118,196,861
2004	51,587,958	4,087,558	50,256,063	14,080,000	0	0	120,011,579
2005	53,419,718	4,202,542	51,669,775	15,745,000	0	0	125,037,035
2006	55,316,520	4,320,375	53,118,518	15,725,000	0	0	128,480,413

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 2.5
TEXAS UTILITIES ELECTRIC COMPANY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	11,774	0	3,050	0	35	60	0	14,919
1978	12,037	0	3,800	0	35	60	0	15,932
1979	12,037	0	5,300	0	35	60	0	17,432
1980	12,017	0	5,300	0	35	60	0	17,412
1981	12,017	0	5,845	0	35	60	0	17,957
1982	12,017	0	5,845	0	35	60	0	17,957
1983	12,017	0	5,845	0	35	60	0	17,957
1984	11,965	0	5,845	0	35	60	0	17,905
1985	11,959	0	5,845	0	450	360	0	18,614
1986	11,959	0	5,845	0	50	1,000	0	18,854
1987	11,959	0	5,845	0	50	1,611	0	19,465
1988	12,544	0	5,845	0	50	1,676	0	20,115
1989	12,544	0	5,845	0	50	2,009	0	20,448
1990	12,933	0	5,845	1,150	0	2,021	0	21,949
1991	12,933	0	5,845	1,150	0	1,921	0	21,849
1992	12,933	0	5,845	1,150	0	1,771	0	21,699
1993	12,933	0	5,845	2,300	0	1,771	0	22,849
1994	12,933	0	5,845	2,300	0	1,421	0	22,499
1995	12,933	0	5,845	2,300	0	1,321	0	22,399
1996	12,933	0	5,845	2,300	0	1,444	0	22,522
1997	12,933	0	6,595	2,300	0	1,244	0	23,072
1998	12,933	0	7,345	2,300	0	1,244	0	23,822
1999	13,578	0	7,345	2,300	0	934	0	24,157
2000	14,223	0	7,345	2,300	0	960	0	24,828
2001	14,513	0	7,345	2,300	0	1,305	0	25,463
2002	15,124	0	7,345	2,300	0	1,655	0	26,424
2003	15,041	0	8,005	2,300	0	1,805	0	27,151
2004	15,329	0	8,005	2,300	0	1,853	0	27,487
2005	15,329	650	8,005	2,300	0	2,003	0	28,287
2006	15,571	650	8,005	2,300	0	2,230	0	28,756

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER THREE

HOUSTON LIGHTING AND POWER COMPANY

Houston Lighting & Power Company (HL&P) is an investor-owned utility engaged in generating, purchasing, transmitting, and distributing electricity. The utility's service area covers an estimated 5,000 square miles within the Texas Gulf Coast region, including the City of Houston. HL&P is a member of the Electric Reliability Council of Texas (ERCOT). The company's 1991 total electric operating revenues were \$3,674,543,000, and total assets as of December 31, 1991 were valued at \$10,242,687,000.

HL&P is a summer-peaking utility with annual peak demand usually occurring during the months of either July or August. The 1991 peak of 10,908 MW occurred on August 21. At the time of peak, there was an additional load of 693 MW of interruptible service. Total 1991 system sales amounted to 59,652,217 MWH. Currently, HL&P has 13,584 MW of installed capacity and has contracts for 945 MW of firm cogeneration power.

In 1991, about 44 percent of the total net energy generated by the utility used gas as the primary fuel. The remaining 56 percent was generated by either coal, lignite, or nuclear sources of energy. Cogeneration, primarily gas-fired, represented 16 percent of total energy.

Demand Forecast

In formulating its forecast, HL&P uses the Data Resources, Inc. projection of the national economy to drive the HL&P Service Area Model. The service area model generates a forecast of local population, employment, income, price deflators, and other economic variables, which in turn are used to drive the various customer class models utilized by HL&P. In addition, HL&P uses information from Pace Consultant's chemical outlook, estimates of self-generation, electricity and gas prices, residential appliance efficiencies, appliance market penetration, and weather data in its end-use modeling systems. The forecast results of these models are then adjusted for the impacts of demand-side management programs.

Number of Customers

HL&P provided electric service to an average of 1,231,176 residential customers in 1991 as shown in Table 3.1. Reflecting Houston's improving economy, growth in the number of residential customers increased steadily since the downturns in the summers of 1986 and 1987. HL&P projects a 1.7 percent annual growth rate for this class for the years 1991 through 2001 and 1.6 percent annually over 2001-2006 as depicted in Figure 3.1 and Table 3.1. Other retail classes are also projected to grow at annual rates similar to the residential class. Overall, customer projections reflect a continuation of Houston's moderate economic growth.

Percentage Change in Number of Residential and Commercial Customers

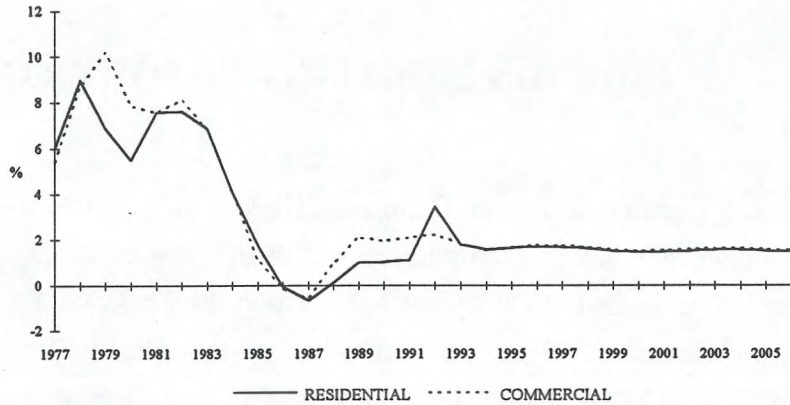


Figure 3.1

Sales

System MWH sales are projected to grow at 1.5 percent per year during the period 1991-2001 and at 2.0 percent per year from 2001 to 2006. The residential class is projected to grow only 0.85 percent annually over the 10-year period due to a

Texas Sales by Sector

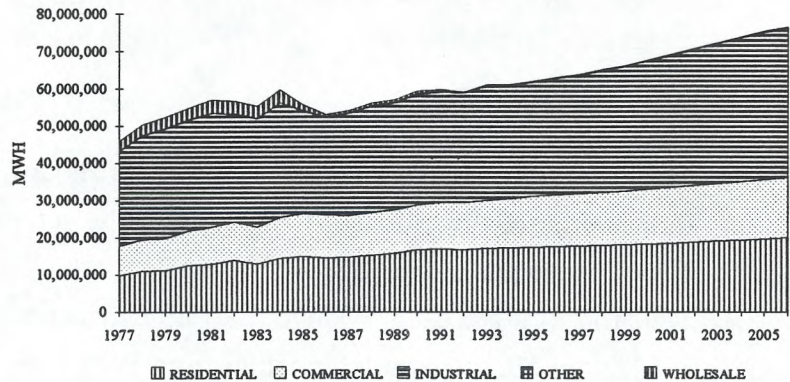


Figure 3.2

HOUSTON LIGHTING AND POWER COMPANY

decline in usage per customer, which is impacted by utility implementation of demand-side management programs and improvements in appliance efficiencies mandated in the National Appliance Energy Conservation Act of 1987. Commercial and industrial sales are forecast to grow at annual rates of 1.9 percent and 1.8 percent, respectively. Wholesale sales are expected to drop in the forecast period, the sales in 2001 being only 23.5 percent of the 1991 level. Sales by sector are shown in Figure 3.2 and Table 3.2.

Peak Demand The Company's forecast is depicted in Figure 3.3 and Table 3.3. HL&P's system demand after adjustments is projected to grow 1.8 percent annually for the next ten years. From 2001 to 2006, this demand growth is forecast to slow to 1.6 percent annually. Included in this demand projection are sales to TNP. HL&P is assumed to be TNP's swing supplier, providing the difference between TNP's peak load requirements and the load served by TNP generation and TNP's other suppliers. This load is forecast to be 27 MW in 1992 and is projected to increase to 167 MW by 2006.

Adjustments to Demand The load forecast incorporates numerous demand-side adjustments in addition to self-generation and appliance efficiency adjustments. HL&P projects a decline in its interruptible loads from 693 MW in 1991 to 333 MW in 2001, due primarily to the assumed expiration of two firm cogeneration contracts which result in significant amounts of interruptible load becoming self-served.

Supply-Side Plan

Installed Capacity HL&P had an installed capacity of approximately 13,584 MW in 1991. In addition, HL&P had 945 MW of cogenerated power under contract on a firm basis. HL&P's generation mix included 9,039 MW of gas-fired capacity of which 4,608 MW had dual-fuel capability to burn fuel oil. Significant amounts of coal and lignite capacity were also in use. These sources represented 2,335 MW and 1,440 MW, respectively. A total of 770 MW of nuclear capacity, representing HL&P's 30.8 percent share of the South Texas Project, is now operational. Figure 3.5 and Table 3.5 show installed capacity by fuel type.

Net System Capacity

Net system capacity for 1991 is 14,529 MW. This includes 945 MW of firm, cogenerated power. Effective October, 1989, 125 MW of capacity was added through contractual agreement with Applied Energy Systems, Inc. Net system capacity and peak demand after adjustments are shown in Figure 3.3, where the reserve margin is the distance between the two.

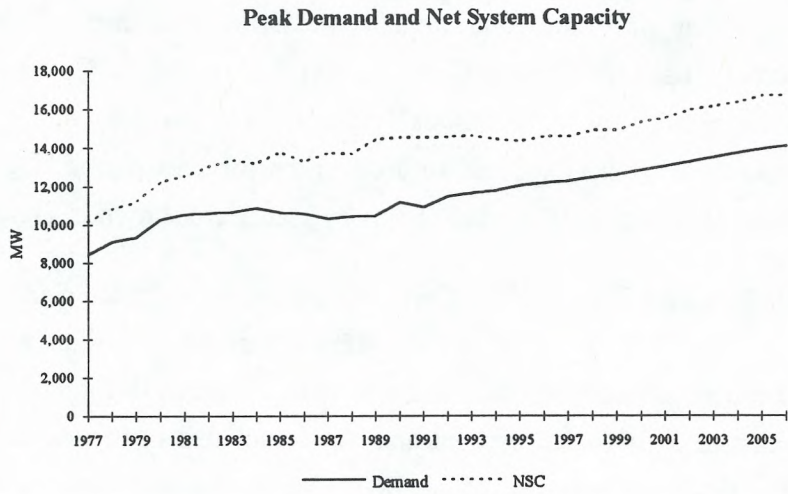


Figure 3.3

Net Generation

Net energy for load is projected to grow at about 1.5 percent from 1991 to 2001. Net generation by fuel type is shown in Figure 3.4 and listed in Table 3.4. As projected, natural gas will continue to be the primary source of energy in HL&P's generation mix. Energy from coal and lignite, as well as nuclear power, is projected to remain fairly constant throughout the forecast period.

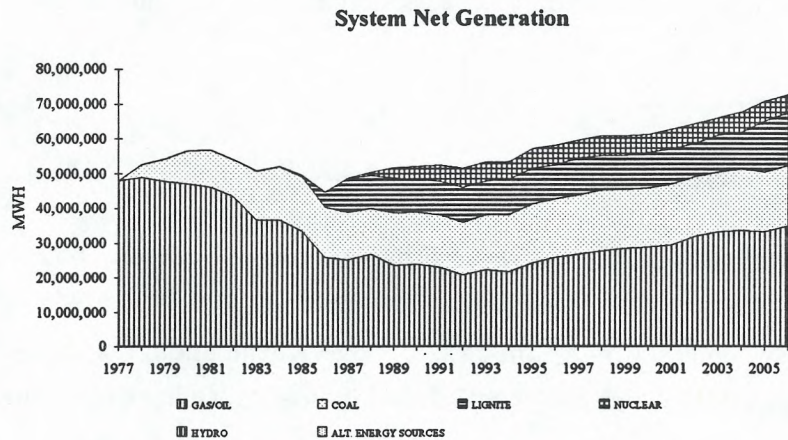


Figure 3.4

System Expansion

System net capacity is projected to increase to 15,469 MW by 2001. The next major capacity addition is a cogeneration venture with Dupont planned for 1995. This facility will consist of two gas turbines, rated at a combined 158 MW. Refurbish-

ment of retired units will add an additional 220 MW in 1996 and another 220 MW in 1998. Commercial operation of lignite generation units at HL&P's Malakoff site has been deferred to the year 2005 in this expansion plan.

To the extent that HL&P cannot secure cost-effective power purchases or demand-side management, the company intends to install gas turbine facilities to meet future customer requirements. Accordingly, HL&P shows gas plant additions in 1998 and each year from 2000 to 2004. It should be emphasized that HL&P has by no means abandoned cogeneration as a potentially viable resource option. As the current long-term, firm cogeneration contracts expire, HL&P will have a wide array of alternative resources with which to meet its future needs. However, HL&P must first define the resource plan with the lowest reasonable cost, excluding purchased capacity, to ensure that a viable plan to meet expected needs is in place should cogeneration not be available.

Seven 345-KV transmission projects, totaling 138 structure miles, eleven 138-KV transmission projects, totaling 16.4 structure miles, and one 69-KV transmission project of 1.3 miles are scheduled to be completed by 2004, including the 138-KV Baywood Loop and the 138-KV Global/Rollins Loop completed in 1992. In addition, HL&P is a partner in the planned Welch-Monticello HVDC Joint Venture.

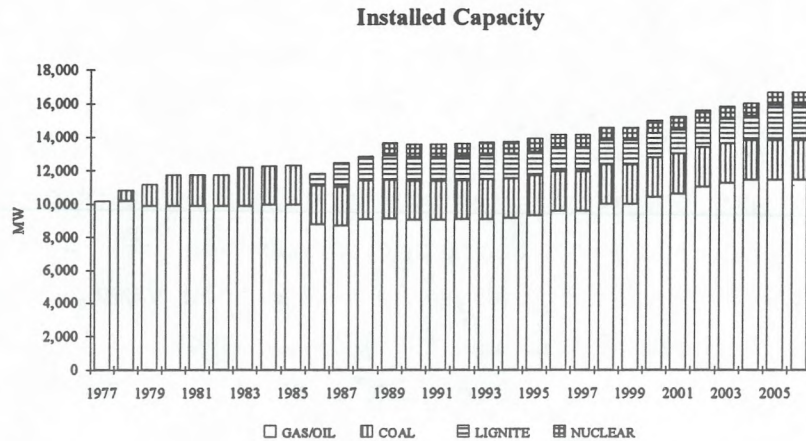


Figure 3.5

RESOURCE PLAN FILED WITH PUCT

**Changes Since the
1989 Filing**

A comparison of the 1989 filing and the current one indicates that the forecasts are similar. In the 1989 filing, growth in peak demand was projected as 2.0 percent annually from 1989 to 1999. In the 1991 filing, growth in peak is expected to be 1.8 percent from 1991 to 2001. Peak demand in 1999 was forecast as 12,716 MW in the 1989 filing and as 12,591 MW in the 1991 filing. Major changes since 1989 in HL&P's system expansion plan include the 158-MW Dupont cogeneration project planned for 1995, a new contract with Bayou Cogeneration which extends purchases of 270 MW through March 2005, a new contract with Clear Lake Cogeneration for 50 MW from 1994 to 2005, and postponement of the commercial operation of the Malakoff plant from 1997 to 2005.

HOUSTON LIGHTING AND POWER COMPANY

TABLE 3.1
HOUSTON LIGHTING AND POWER COMPANY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	684,064	98,111	1,418	75	6
1978	743,634	106,915	1,499	80	6
1979	819,297	114,279	1,550	80	6
1980	883,755	120,552	1,597	70	6
1981	950,577	129,660	1,660	70	6
1982	1,027,751	139,544	1,725	71	6
1983	1,097,946	149,113	1,768	72	6
1984	1,142,903	155,262	1,786	73	6
1985	1,155,891	157,975	1,801	75	6
1986	1,154,063	157,896	1,762	78	6
1987	1,147,463	156,833	1,767	79	8
1988	1,158,605	157,006	1,771	79	8
1989	1,183,022	158,594	1,792	81	8
1990	1,205,927	160,236	1,821	82	9
1991	1,231,176	162,009	1,827	82	10
1992	1,258,563	167,617	1,771	82	6
1993	1,281,517	170,623	1,800	82	6
1994	1,301,246	173,264	1,831	82	6
1995	1,322,765	176,098	1,864	82	6
1996	1,345,719	179,090	1,899	82	6
1997	1,368,978	182,101	1,934	82	6
1998	1,391,776	185,040	1,967	82	6
1999	1,413,363	187,816	1,999	82	6
2000	1,434,474	190,526	2,030	82	6
2001	1,456,320	193,325	2,063	82	6
2002	1,479,198	196,252	2,096	82	6
2003	1,502,995	199,291	2,131	82	6
2004	1,527,171	202,374	2,166	82	6
2005	1,551,105	205,424	2,201	82	6
2006	1,574,630	208,420	2,235	82	6

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

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TABLE 3.2
HOUSTON LIGHTING AND POWER COMPANY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	9,759,137	8,012,512	25,370,150	96,943	2,646,982	45,885,724	0
1978	10,956,914	8,568,635	27,808,895	103,049	2,838,273	50,275,766	-222,447
1979	11,078,887	8,813,791	29,309,384	106,847	3,051,593	52,360,502	-377,387
1980	12,566,097	9,324,496	29,672,733	91,307	3,143,646	54,798,279	-714,952
1981	12,917,958	9,901,638	30,564,666	92,740	3,403,017	56,880,019	-2,438,595
1982	13,876,081	10,365,640	28,866,303	94,244	3,327,122	56,529,390	-1,710,397
1983	12,910,640	10,000,706	28,944,329	96,465	3,266,412	55,218,552	-94,989
1984	14,423,832	10,944,623	30,693,441	99,341	3,586,916	59,748,153	-286,120
1985	14,981,112	11,490,874	27,415,046	103,808	1,653,429	55,647,269	-216,498
1986	14,627,569	11,437,464	26,192,806	107,039	721,093	53,085,971	540,835
1987	14,701,438	11,188,926	27,441,201	108,177	637,478	54,077,220	1,646,052
1988	15,250,510	11,552,427	28,475,761	108,369	713,962	56,101,029	562,246
1989	15,699,501	11,775,557	28,689,553	109,160	685,831	56,959,602	266,554
1990	16,701,268	12,188,947	29,583,043	110,026	718,626	59,301,910	-170,490
1991	16,978,936	12,501,612	29,555,238	109,875	506,556	59,652,217	-99,431
1992	16,845,410	12,687,440	29,280,433	111,047	96,376	59,020,706	0
1993	17,036,084	12,993,405	30,696,939	111,632	98,146	60,936,206	0
1994	17,252,968	13,311,427	30,174,460	112,187	99,184	60,950,226	0
1995	17,514,658	13,675,307	30,438,434	112,719	95,938	61,837,056	0
1996	17,597,503	13,899,787	31,237,924	113,226	95,652	62,944,092	0
1997	17,762,099	14,116,530	31,716,461	113,711	95,947	63,804,748	0
1998	17,956,849	14,309,630	32,534,281	114,174	97,866	65,012,800	0
1999	18,026,336	14,518,384	33,417,565	114,616	101,074	66,177,975	0
2000	18,221,455	14,788,375	34,395,005	115,038	110,670	67,630,543	0
2001	18,475,414	15,054,592	35,338,282	115,441	118,948	69,102,677	0
2002	18,757,286	15,321,005	36,378,626	115,826	127,940	70,700,683	0
2003	19,046,107	15,570,803	37,411,415	116,193	139,083	72,283,601	0
2004	19,360,587	15,752,073	38,372,474	116,544	154,717	73,756,395	0
2005	19,681,621	15,893,229	39,335,495	116,879	174,474	75,201,698	0
2006	20,021,608	16,072,719	39,924,870	117,199	195,116	76,331,512	0

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

HOUSTON LIGHTING AND POWER COMPANY

TABLE 3.3
HOUSTON LIGHTING & POWER
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	8,645	0	-200	0	8,445	10,170	20.43%
1978	9,362	0	-248	0	9,114	10,828	18.81%
1979	9,602	0	-266	0	9,336	11,193	19.89%
1980	10,535	0	-269	0	10,266	12,244	19.27%
1981	10,819	0	-279	0	10,540	12,544	19.01%
1982	10,710	0	-116	0	10,594	13,044	23.13%
1983	10,978	0	-302	0	10,676	13,396	25.48%
1984	11,196	0	-345	0	10,851	13,200	21.65%
1985	11,137	0	-519	0	10,618	13,813	30.09%
1986	11,270	0	-714	0	10,556	13,284	25.84%
1987	11,318	0	-1,016	0	10,302	13,755	33.52%
1988	11,497	0	-1,075	0	10,422	13,675	31.21%
1989	11,542	0	-1,086	0	10,456	14,464	38.81%
1990	12,216	0	-1,066	0	11,150	14,529	30.30%
1991	11,601	0	-693	0	10,908	14,529	33.20%
1992	12,363	-21	-851	-23	11,468	14,569	27.04%
1993	12,589	-7	-895	-52	11,635	14,624	25.69%
1994	12,814	-262	-725	-84	11,743	14,454	23.09%
1995	13,026	-510	-355	-121	12,040	14,352	19.20%
1996	13,270	-585	-378	-154	12,153	14,587	20.03%
1997	13,529	-688	-386	-183	12,272	14,587	18.86%
1998	13,829	-777	-396	-207	12,449	14,901	19.70%
1999	14,075	-848	-407	-229	12,591	14,901	18.35%
2000	14,401	-923	-417	-249	12,812	15,313	19.52%
2001	14,692	-955	-437	-269	13,031	15,519	19.09%
2002	15,008	-981	-470	-288	13,269	15,931	20.06%
2003	15,323	-1,013	-503	-309	13,498	16,137	19.55%
2004	15,596	-1,024	-537	-328	13,707	16,343	19.23%
2005	15,852	-1,019	-570	-349	13,914	16,668	19.79%
2006	16,080	-1,015	-604	-368	14,093	16,668	18.27%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

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TABLE 3.4
HOUSTON LIGHTING AND POWER COMPANY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	48,081,367	0	0	0	0	0	48,081,367
1978	48,965,614	3,645,000	0	0	0	0	52,610,614
1979	47,784,410	6,446,000	0	0	0	0	54,230,410
1980	47,183,964	9,505,000	0	0	0	0	56,688,964
1981	46,134,453	10,623,000	0	0	0	0	56,757,453
1982	43,523,997	10,575,000	0	0	0	0	54,098,997
1983	36,719,782	14,055,000	0	0	0	0	50,774,782
1984	36,680,313	15,405,000	0	0	0	0	52,085,313
1985	33,379,842	15,819,000	217,000	0	0	0	49,415,842
1986	25,945,285	14,307,000	4,564,000	0	0	0	44,816,285
1987	25,222,288	13,739,000	9,837,000	0	0	0	48,798,288
1988	26,801,415	13,175,000	9,582,000	859,780	0	0	50,418,195
1989	23,473,987	15,298,000	10,032,000	2,881,140	0	0	51,685,127
1990	23,857,358	14,979,000	9,382,000	3,827,642	0	0	52,046,000
1991	23,038,857	15,080,000	9,804,000	4,453,409	0	0	52,376,266
1992	20,761,060	15,124,556	10,021,401	5,628,088	0	0	51,535,105
1993	22,243,063	15,960,989	9,576,397	5,639,542	0	0	53,419,991
1994	21,789,222	16,339,903	10,235,228	5,017,879	0	0	53,382,232
1995	24,162,876	17,093,508	10,243,390	5,681,260	0	0	57,181,034
1996	25,951,148	16,850,033	9,544,176	5,698,270	0	0	58,043,627
1997	26,876,226	16,890,031	10,675,194	5,017,879	0	0	59,459,330
1998	27,684,651	17,585,773	9,905,640	5,681,260	0	0	60,857,324
1999	28,373,392	17,010,190	9,788,760	5,681,260	0	0	60,853,602
2000	28,796,110	17,021,112	10,287,866	5,034,889	0	0	61,139,977
2001	29,368,694	17,584,296	10,060,354	5,681,260	0	0	62,694,604
2002	31,906,564	17,215,007	9,557,514	5,681,260	0	0	64,360,345
2003	33,166,495	17,227,609	10,583,851	5,017,879	0	0	65,995,834
2004	33,526,974	17,795,021	10,467,542	5,698,270	0	0	67,487,807
2005	33,195,192	17,258,385	14,584,368	5,681,260	0	0	70,719,205
2006	34,881,730	17,252,632	15,286,343	5,017,879	0	0	72,438,584

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

HOUSTON LIGHTING AND POWER COMPANY

TABLE 3.5
HOUSTON LIGHTING & POWER
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL				FIRM		FIRM OFF-SYSTEM SALES	RESERVE MARGIN
	GAS/OIL	COAL	LIGNITE	NUCLEAR	PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES		
1977	10,170	0	0	0	0	0	0	10,170
1978	10,168	660	0	0	0	0	0	10,828
1979	9,873	1,320	0	0	0	0	0	11,193
1980	9,873	1,871	0	0	500	0	0	12,244
1981	9,873	1,871	0	0	800	0	0	12,544
1982	9,873	1,871	0	0	1,300	0	0	13,044
1983	9,869	2,327	0	0	1,200	0	0	13,396
1984	9,948	2,327	0	0	700	225	0	13,200
1985	9,948	2,370	0	0	700	795	0	13,813
1986	8,773	2,335	720	0	500	956	0	13,284
1987	8,685	2,335	1,440	0	475	820	0	13,755
1988	9,080	2,335	1,440	0	0	820	0	13,675
1989	9,099	2,335	1,440	770	0	820	0	14,464
1990	9,039	2,335	1,440	770	0	945	0	14,529
1991	9,039	2,335	1,440	770	0	945	0	14,529
1992	9,079	2,335	1,440	770	0	945	0	14,569
1993	9,094	2,375	1,440	770	0	945	0	14,624
1994	9,149	2,375	1,440	770	0	720	0	14,454
1995	9,322	2,375	1,440	770	0	445	0	14,352
1996	9,557	2,375	1,440	770	0	445	0	14,587
1997	9,557	2,375	1,440	770	0	445	0	14,587
1998	9,996	2,375	1,440	770	0	320	0	14,901
1999	9,996	2,375	1,440	770	0	320	0	14,901
2000	10,408	2,375	1,440	770	0	320	0	15,313
2001	10,614	2,375	1,440	770	0	320	0	15,519
2002	11,026	2,375	1,440	770	0	320	0	15,931
2003	11,232	2,375	1,440	770	0	320	0	16,137
2004	11,438	2,375	1,440	770	0	320	0	16,343
2005	11,438	2,375	2,085	770	0	0	0	16,668
2006	11,438	2,375	2,085	770	0	0	0	16,668

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

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CHAPTER FOUR

GULF STATES UTILITIES COMPANY

Gulf States Utilities Company (GSU) is a public utility primarily in the business of generating, purchasing, transmitting, and distributing electricity in portions of southeastern Texas and south central Louisiana. GSU also operates as a retail gas utility in and around Baton Rouge, Louisiana. The utility's service area extends 350 miles westward from Baton Rouge, Louisiana, to a point about 50 miles east of Austin, Texas. The 28,000-square mile service area encompasses the northern suburbs of Houston, Texas; the cities of Conroe, Huntsville, Port Arthur, Orange, and Beaumont, Texas; and the cities of Lake Charles and Baton Rouge, Louisiana. GSU is a member of the Southwest Power Pool.

GSU is an investor-owned utility. Its revenues for the twelve months ended December 31, 1991, totaled \$1,702,234,730, while total assets as of December 31, 1991 were \$6,911,491,933. GSU's capital structure at that date was comprised of 41.1 percent common equity, 12.2 percent preferred and preference stock, and 46.7 percent long-term debt.

GSU has four wholly owned subsidiaries. Prior to July 1987 when the Company sold its oil and gas reserves, Prudential Drilling Company was in the business of exploring, developing, and operating oil and gas properties in Texas and Louisiana. Varibus operates intrastate gas pipelines in Louisiana to serve the GSU generating stations. Varibus also, through a division known as Vari Tech, markets computer-aided engineering and drafting technologies and related computer equipment and services. For the purpose of borrowing funds outside the U.S. and lending the funds to GSU and its subsidiaries, Finance was incorporated under the laws of the Netherland Antilles. GSG&T, Inc. owns Lewis Creek station, a 530-MW gas-fired generating plant which is leased and operated by GSU.

GSU is a summer peaking utility, reporting a 1991 peak demand of 4,922 MW. The Texas portion of that peak was 2,184 MW. Total 1991 system sales were 29,069,347 MWH with 12,853,599 MWH sold in Texas. GSU has 6,372 MW of installed capacity.

In 1991, about 63 percent of the total electricity generated by the utility used natural gas and oil as the primary fuel, with nuclear and coal providing the rest of the energy.

Demand Forecast

GSU uses an end-use approach to arrive at a total sales forecast. For the residential sector, the Residential End-use Energy Planning System (REEPS) enumerates the major household energy-using activities, appliance acquisitions, operating efficiencies, and load patterns to project sales. To project sales, the Commercial End-use Modeling System (CEDMS) factors in square footage of commercial space and the saturation of commercial electrical appliances, including lighting. Industrial electricity use is forecasted using an end-use approach. Major factors that drive the forecast are electricity-use coefficients and production estimates. GSU conducts interviews with its large customers and sends out annual questionnaires to acquire the critical data on production and electricity use patterns. Also, an outside forecast prepared by DRI (Data Resources Inc.) for national chemical production rates and overall economic activity is used as a driver. Trade publications and associations provide another valuable input to this process. The end result of all this activity is MWH sales forecast by Standard Industrial Classification (SIC) codes and jurisdiction.

The Company uses the sales forecast and a load shape by end-use as inputs to the Hourly Electric Load Model (HELM) to distribute the energy forecast over time and arrive at the forecast of peak demand.

Number of Customers

As of December 1991, GSU provided electricity to 255,349 residential customers in Texas as shown in Table 4.1. The historical growth in the number of residential

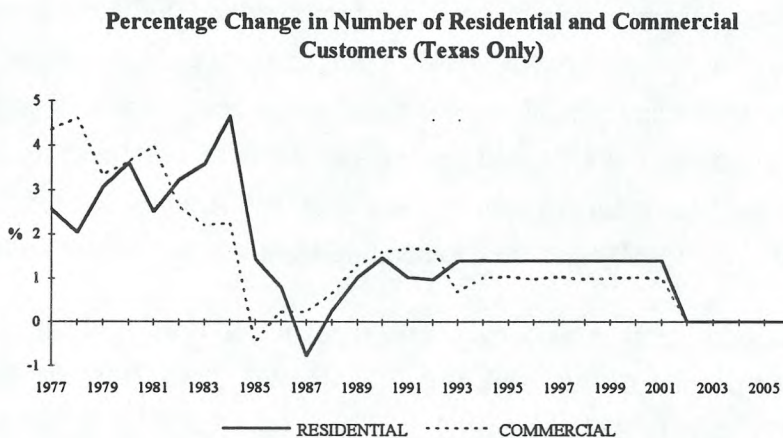


Figure 4.1

GULF STATES UTILITY COMPANY

customers approximates 1.2 percent per year from 1981 to 1991. GSU expects growth in this class of customers to be around 1 percent annually through 2001 (See Figure 4.1). In Texas, the Company served 29,304 commercial customers as of December 1991. Growth experienced from 1981 to 1991 was approximately 1.7 percent per year for the commercial sector, and the company projects growth to continue at approximately 1.4 percent per year.

Sales

The industrial class is the primary electric power customer in the GSU service area, having purchased 13,629,341 MWH, 48.6 percent of the total electricity (excluding wholesale) generated by the Company in 1991. As Figure 4.2 shows, industrial customers

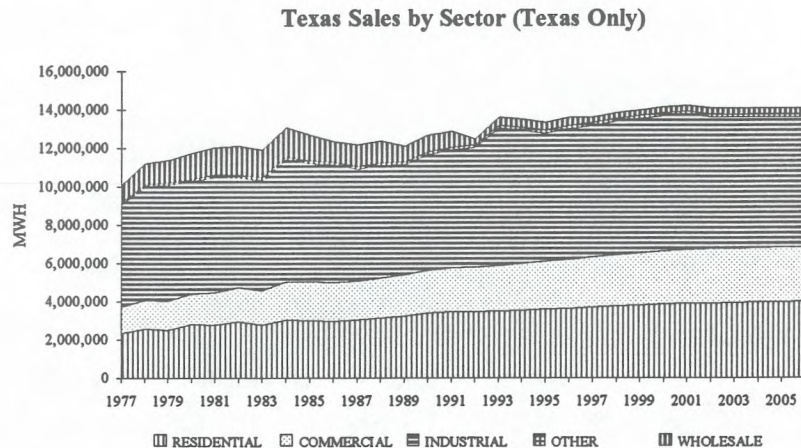


Figure 4.2

in Texas purchased 51 percent of Texas retail sales or 6,122,571 MWH. Industrial sales in Texas remained flat for the decade (1981-91) due to cogeneration replacing purchased power for some large industrial customers but are expected to increase at an average annual rate of 1.4 percent reaching 7,040,606 MWH by 2001.

In 1991, the second largest contributor to total sales was the residential sector. Sales to residential customers comprised 24.7 percent of total system sales (excluding wholesale) and 28.8 percent of Texas sales. In 1991, the residential sector in Texas purchased 3,474,330 MWH of electricity. The Company projects an annual growth rate for sales to the residential sector in Texas of 1.1 percent, down from the 2.3 percent average per year experienced from 1981 through 1991.

Historically, the Texas commercial sector exhibited an average growth rate of 3.1 percent annually. GSU predicts 2.1 percent growth yearly through 2001 in sales to commercial

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customers, increasing its share to 20 percent of sales excluding wholesale and company use.

The remaining retail sales are composed primarily of sales to municipalities for street lighting and other purposes. These sales amounted to 150,220 MWH in 1991, about 1.2 percent of GSU's sales in Texas for that year. GSU projects average growth at 0.7 percent per year.

In 1991, GSU wholesale sales of 808,689 MWH amounted to 6.3 percent of GSU's total 1991 Texas sales. GSU expects significant decline in sales to wholesale customers over the forecast horizon.

Total sales in Texas amounted to 12,853,599 MWH in 1991 and will grow at the rate of approximately 1.0 percent annually through 2001 when, according to projections, the sales will total 14,210,839 MWH.

Peak Demand Over the period 1981 through 1991, GSU's annual peak demand for its total system and the Texas region has essentially remained flat, as shown in Figure 4.3 and Table 4.3. The Company projects growth from 1991 to 2001 to occur at about 1.1 percent annually for the total system peak, and the Texas portion is expected to grow at approximately 0.8 percent. GSU anticipates a peak demand after adjustments of 5,829 MW for its total system by 2001.

The residential sector accounted for 35.7 percent of the Texas coincident peak demand before adjustments in 1991, and the industrial sector accounted for about 36.8 percent. The sector with the highest non-coincident peak in Texas for 1991, the industrial sector, is expected to require 912 MW; the residential sector, 895 MW; and the commercial sector, 465 MW.

Adjustments to Demand GSU has contracted for 91 MW of interruptible load in Texas. The impact of the current set of DSM activities is embedded in the historic data; accordingly, GSU reports no adjustments to peak demand projections for future conservation or load management activity during the next ten years, other than adjustments for interruptible load. Additional DSM projections for the five years beyond the 10-year planning horizon are reported separately.

Supply-Side Plan

Installed Capacity In 1991, GSU operated 17 generation units with an installed capacity of approximately 6,372 MW at the time of the utility's summer peak. Eighty percent of this capacity is fueled by gas. The other 20 percent includes 612 MW of coal-fired capacity and 655 MW of nuclear-powered generating capacity, as seen in Figure 4.5 and Table 4.5. GSU reported an electric production plant balance as of December 31, 1991 of \$4.611 billion less accumulated depreciation of \$1.18 billion, for a book value of \$3.43 billion.

Net System Capacity

In 1991, the net system capacity for the total system was 6,470 MW at the time of the summer peak. Firm purchases for the total system amounted to 98 MW in 1991 at the time of the summer peak.

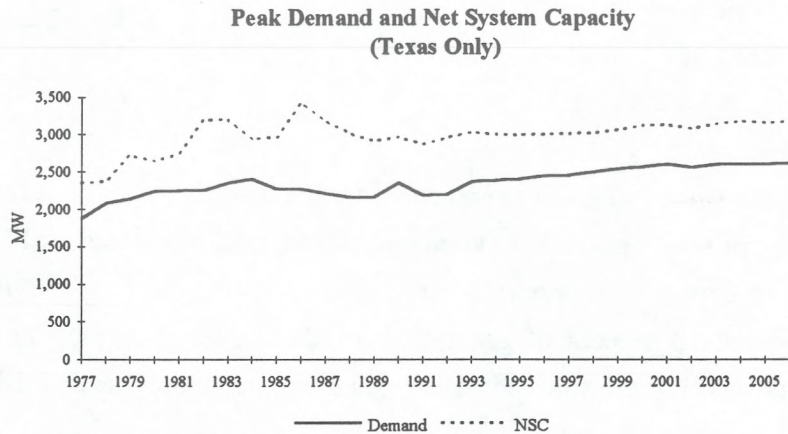


Figure 4.3

GSU projects no firm off-system sales. Firm purchases at the time of the summer peak are projected to increase to 269 MW by 2006. GSU attributed a 31.5 percent reserve margin to the total system in 1991. Even with installed capacity increasing to 7,191 MW and anticipated purchases, the system reserve margin should slowly decline to 21.06 percent in 2006.

Net Generation

Gas was used to generate 16,759,508 MWH, 63 percent of the 26,581,935 MWH produced in 1991 by the total system. Table 4.4 and Figure 4.4 show that the percentage of gas-fueled generation has been falling at an average annual rate of 2

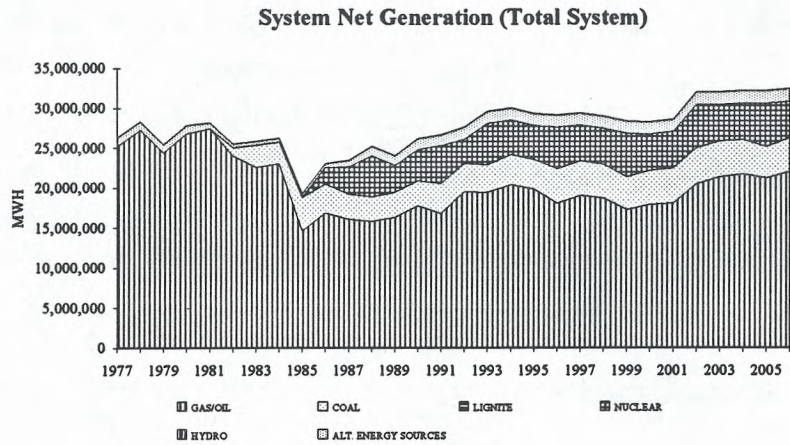


Figure 4.4

percent since 1977 and is projected to stabilize through the forecast period at about two-thirds of total generation. Generation from coal amounted to 14 percent of the 1991 total but is expected to provide more energy in the future. The River Bend nuclear plant provided 18 percent of generation in 1991. Net purchases by GSU were 13 percent of total MWH at the source in 1991 and are expected to increase 18 percent.

System Expansion

The projected increase in installed capacity over the forecast period is due to the return to service of several gas-fired units currently in long-term storage and other modifications to existing plants. GSU plans to add 93 MW in 1992; add 26, 58, and 36 MW

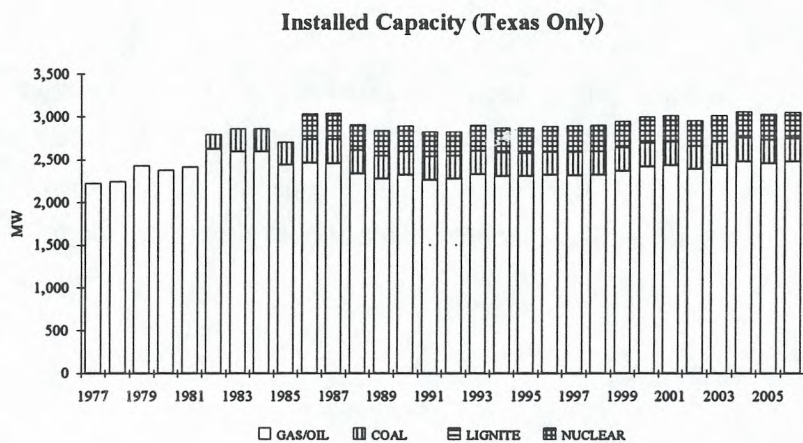


Figure 4.5

GULF STATES UTILITY COMPANY

of capacity in 1999 to the respective existing Sabine, Nelson, and Willow Glen plants; repower 105 MW of Neches, Unit 4; add 22 MW to Willow Glen in 2001; and add 160 MW to Neches again in 2004. In addition, GSU plans to relicense River Bend nuclear plant for adding 33 MW of capacity. GSU plans no other additions or reductions to the generation capacity over the forecast period. Certain GSU power plant sites were initially established for generating units now not planned to be installed over the next fifteen years. However, the potential for adding initially planned capability is limited by financial, water, environmental, and transmission requirements, site layout, and fuel supply. Specific units may also be limited by ambient air quality standards, station water balance, cooling pond temperature, water discharge permit, and solid waste handling and storage. Site specific studies would be needed to determine the best technology and size of any unit additions.

One 230-KV transmission project, totaling 25 miles, and four 138-KV transmission projects, totaling 30 miles, and one 69-KV one-mile line are scheduled to be completed between 1993 and 1997.

Changes Since the 1989 Filing

The 10-year forecast growth rate comparison between the 1989 filing and the 1991 filing shows an increase in the projected growth of peak demand. For the years 1989 to 1999, the 1989 filing showed a growth in Texas peak demand of 1.15 percent and 1.13 percent for the total system. The 1991 filing shows a growth in Texas peak demand of 1.8 percent from 1991 to 2001 and 1.7 percent for the total system. The 1999 forecasted coincident peak for Texas reported in the 1989 filing was 2,459 MW; the 1991 filing shows a 1999 coincident peak of 2,542 MW. The system coincident peak for 1999 reported in the 1989 filing was 5,561 MW; the 1991 filing forecasts a system peak for 1999 of 5,714 MW. Because GSU is forecasting a higher rate of growth in peak demand compared to the 1989 filing, additional capacity is planned. In fact, in the 1989 filing GSU did not plan for any significant additions to capacity.

The 1991 forecast is based on relatively more optimistic assumptions for all sectors compared to 1989. An increase in the base year MWHs and a relatively more optimistic outlook are due to a robust service area economy and higher than expected industrial growth. The "spill over" effect of industrial growth and a relatively diversified economy results in higher consumption levels for both the residential and commercial customer classes.

RESOURCE PLAN FILED WITH PUCT

TABLE 4.1A
GULF STATES UTILITIES COMPANY
NUMBER OF CUSTOMERS - TOTAL
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	391,031	47,352	7,768	1,603	90
1978	407,761	48,892	7,696	1,693	100
1979	423,850	50,807	6,665	1,768	108
1980	438,560	52,731	6,768	1,870	117
1981	455,160	52,955	6,723	1,898	79
1982	465,162	55,265	7,297	1,912	75
1983	475,782	57,446	7,770	2,033	70
1984	485,711	60,372	7,226	2,112	72
1985	485,825	61,712	6,586	2,282	53
1986	484,608	62,059	5,978	2,376	55
1987	484,838	61,861	5,761	2,390	56
1988	486,993	61,958	6,040	2,544	42
1989	492,054	62,469	6,149	2,579	27
1990	498,672	63,044	6,386	2,603	34
1991	505,927	63,522	6,549	2,663	33
1992	510,903	64,158	6,549	2,663	33
1993	515,880	64,918	6,549	2,663	33
1994	520,550	65,688	6,549	2,663	33
1995	525,320	66,466	6,549	2,663	33
1996	529,970	67,254	6,549	2,663	33
1997	534,840	68,052	6,549	2,663	33
1998	539,580	68,859	6,549	2,663	33
1999	544,430	69,675	6,549	2,663	33
2000	549,350	70,503	6,549	2,663	33
2001	554,310	71,340	6,549	2,663	33
2002	554,310	71,340	6,549	2,663	33
2003	554,310	71,340	6,549	2,663	33
2004	554,310	71,340	6,549	2,663	33
2005	554,310	71,340	6,549	2,663	33
2006	554,310	71,340	6,549	2,663	33

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

GULF STATES UTILITY COMPANY

TABLE 4.1B
GULF STATES UTILITIES COMPANY
NUMBER OF CUSTOMERS - TEXAS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	194,190	22,253	4,334	774	51
1978	203,150	22,706	4,138	824	51
1979	209,927	23,403	3,635	865	56
1980	217,533	24,250	3,632	934	56
1981	226,178	24,859	3,648	948	56
1982	232,163	25,662	4,082	966	56
1983	237,258	26,583	4,257	1,041	53
1984	242,572	27,821	3,957	1,094	54
1985	241,457	28,221	3,626	1,214	41
1986	241,977	28,444	3,330	1,298	39
1987	242,520	28,225	3,262	1,319	37
1988	244,116	28,299	3,442	1,441	26
1989	247,235	28,588	3,536	1,468	12
1990	251,168	29,007	3,670	1,530	22
1991	255,349	29,304	3,728	1,575	21
1992	259,576	29,586	3,728	1,575	21
1993	261,350	30,000	3,728	1,575	21
1994	263,980	30,421	3,728	1,575	21
1995	266,700	30,846	3,728	1,575	21
1996	269,280	31,278	3,728	1,575	21
1997	272,060	31,716	3,728	1,575	21
1998	274,700	32,160	3,728	1,575	21
1999	277,430	32,610	3,728	1,575	21
2000	280,220	33,067	3,728	1,575	21
2001	283,020	33,530	3,728	1,575	21
2002	283,020	33,530	3,728	1,575	21
2003	283,020	33,530	3,728	1,575	21
2004	283,020	33,530	3,728	1,575	21
2005	283,020	33,530	3,728	1,575	21
2006	283,020	33,530	3,728	1,575	21

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 4.2A
GULF STATES UTILITIES COMPANY
ANNUAL SALES BY SECTOR - TOTAL SYSTEM (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	4,789,629	3,486,192	13,239,841	3,182,951	1,838,603	26,537,216	-1,603,807
1978	5,198,421	3,738,111	14,489,776	3,213,731	2,251,489	28,891,528	-1,985,508
1979	5,147,436	3,759,289	15,005,270	3,399,477	2,430,478	29,741,950	-5,871,615
1980	5,682,016	3,969,392	14,908,109	3,148,992	2,876,972	30,585,481	-4,507,245
1981	5,717,714	4,178,127	15,116,637	3,109,686	2,574,859	30,697,023	-4,411,795
1982	5,991,578	4,359,739	13,776,639	2,808,451	2,032,096	28,968,503	-5,160,731
1983	5,686,439	4,341,094	14,313,068	2,793,953	1,870,933	29,005,487	-4,987,292
1984	6,209,347	4,745,055	15,981,753	2,860,348	1,897,392	31,693,895	-6,926,244
1985	6,224,555	4,964,417	13,637,482	2,542,782	1,636,026	29,005,262	-11,116,017
1986	6,174,568	4,920,882	12,201,261	2,408,742	1,243,563	26,949,016	-4,862,069
1987	6,208,961	4,911,378	11,827,917	2,456,165	1,215,864	26,620,285	-3,971,882
1988	6,326,088	5,023,754	12,085,214	2,544,003	1,217,533	27,196,592	-2,637,624
1989	6,473,021	5,197,356	12,332,664	2,546,816	916,332	27,466,189	-3,260,096
1990	6,833,920	5,388,448	13,347,171	2,215,005	1,179,955	28,964,499	-2,270,082
1991	6,924,648	5,460,326	13,629,341	2,006,636	1,048,396	29,069,347	-2,146,256
1992	6,888,380	5,536,989	13,810,953	1,990,642	396,848	28,623,812	-1,171,574
1993	6,970,310	5,659,000	15,420,408	2,051,227	511,367	30,612,312	-632,843
1994	7,083,960	5,785,500	15,637,560	2,111,234	515,375	31,133,629	-842,385
1995	7,178,790	5,903,400	14,849,961	2,163,756	522,789	30,618,696	-1,043,143
1996	7,282,550	6,013,100	15,044,959	2,217,991	528,581	31,087,181	-1,708,781
1997	7,400,610	6,138,100	15,173,845	2,264,547	383,531	31,360,633	-1,806,611
1998	7,496,500	6,239,300	15,358,375	2,314,046	388,976	31,797,197	-2,595,512
1999	7,588,280	6,321,400	15,437,377	2,356,966	393,500	32,097,523	-3,590,394
2000	7,674,050	6,439,300	15,508,101	2,400,358	395,648	32,417,457	-4,000,790
2001	7,732,120	6,558,400	15,576,466	2,446,461	401,068	32,714,515	-4,003,678
2002	7,783,299	6,600,018	15,179,286	2,495,608	404,722	32,462,933	-676,640
2003	7,831,925	6,627,026	15,124,043	2,545,785	408,410	32,537,189	-719,915
2004	7,872,818	6,642,331	15,120,634	2,597,013	412,133	32,644,929	-663,767
2005	7,914,880	6,655,561	15,081,580	2,649,315	415,888	32,717,224	-738,346
2006	7,956,880	6,664,820	15,108,414	2,702,715	419,678	32,852,507	-651,931

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

GULF STATES UTILITY COMPANY

TABLE 4.2B
GULF STATES UTILITIES COMPANY
ANNUAL SALES BY SECTOR - TEXAS SYSTEM (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	2,333,212	1,398,751	5,341,201	91,535	898,995	10,063,694	-608,211
1978	2,562,313	1,494,929	5,938,679	98,977	1,119,425	11,214,323	-770,680
1979	2,513,666	1,517,014	6,065,241	103,306	1,170,304	11,369,531	-2,244,557
1980	2,781,238	1,612,190	5,867,206	114,758	1,354,777	11,730,169	-1,728,622
1981	2,778,862	1,697,824	6,023,816	115,095	1,411,648	12,027,245	-1,728,563
1982	2,926,368	1,816,427	5,727,550	115,851	1,532,371	12,118,567	-2,158,919
1983	2,751,044	1,813,822	5,782,414	116,604	1,425,244	11,889,128	-2,044,253
1984	3,030,827	1,987,281	6,398,581	129,313	1,531,584	13,077,586	-2,857,918
1985	2,986,631	2,048,831	6,168,759	127,691	1,334,614	12,666,526	-4,854,337
1986	2,955,654	2,027,337	6,137,405	132,144	1,082,932	12,335,472	-2,225,533
1987	3,033,318	2,042,643	5,831,324	134,909	1,114,941	12,157,135	-1,813,906
1988	3,138,613	2,085,870	5,865,354	135,539	1,129,910	12,355,286	-1,198,260
1989	3,220,486	2,177,647	5,730,475	136,247	824,889	12,089,744	-1,434,991
1990	3,395,055	2,252,892	6,016,077	141,671	855,607	12,661,302	-992,325
1991	3,474,330	2,297,789	6,122,571	150,220	808,689	12,853,599	-949,010
1992	3,458,891	2,331,884	6,229,867	151,192	296,301	12,468,135	-510,321
1993	3,487,170	2,394,000	7,145,585	152,307	413,878	13,592,940	-281,004
1994	3,547,790	2,455,800	6,910,215	153,430	418,430	13,485,665	-364,883
1995	3,594,450	2,512,100	6,658,731	154,562	423,032	13,342,875	-454,576
1996	3,648,190	2,566,700	6,800,536	155,702	427,686	13,598,814	-747,491
1997	3,709,720	2,627,900	6,832,364	156,851	284,015	13,610,850	-784,088
1998	3,761,450	2,675,500	6,952,621	158,008	287,139	13,834,718	-1,129,287
1999	3,815,400	2,723,200	6,989,482	159,174	290,298	13,977,554	-1,563,514
2000	3,874,650	2,772,900	7,017,932	160,349	293,491	14,119,322	-1,742,532
2001	3,890,480	2,821,500	7,040,606	161,534	296,719	14,210,839	-1,739,155
2002	3,913,348	2,835,712	6,840,211	162,955	299,330	14,051,556	-292,883
2003	3,935,275	2,844,657	6,803,455	164,390	301,964	14,049,741	-310,863
2004	3,952,852	2,846,653	6,788,998	165,836	304,622	14,058,961	-285,860
2005	3,970,848	2,847,247	6,767,563	167,296	307,302	14,060,256	-317,305
2006	3,988,883	2,846,759	6,755,695	168,768	310,006	14,070,111	-279,210

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 4.3A
GULF STATES UTILITIES COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	4,657	0	0	0	4,657	5,819	24.95%
1978	5,138	0	0	0	5,138	5,835	13.57%
1979	5,229	0	0	0	5,229	6,657	27.31%
1980	5,604	0	0	0	5,604	6,610	17.95%
1981	5,542	0	0	0	5,542	6,745	21.71%
1982	5,164	0	0	0	5,164	7,298	41.32%
1983	5,348	0	0	0	5,348	7,268	35.90%
1984	5,475	0	0	0	5,475	6,680	22.01%
1985	5,139	0	-83	0	5,056	6,610	30.74%
1986	5,089	0	-83	0	5,006	7,548	50.78%
1987	4,991	-29	-141	0	4,821	6,933	43.81%
1988	4,910	-67	-70	0	4,773	6,666	39.66%
1989	5,015	-43	-82	0	4,890	6,563	34.21%
1990	5,382	-94	-80	0	5,208	6,548	25.73%
1991	5,213	-162	-129	0	4,922	6,470	31.45%
1992	5,221	-55	-124	0	5,042	6,765	34.17%
1993	5,479	-57	-124	0	5,298	6,765	27.69%
1994	5,583	-69	-124	0	5,390	6,754	25.31%
1995	5,637	-87	-124	0	5,426	6,754	24.47%
1996	5,703	-83	-124	0	5,496	6,734	22.53%
1997	5,727	-78	-124	0	5,525	6,767	22.48%
1998	5,805	-73	-124	0	5,608	6,767	20.67%
1999	5,906	-68	-124	0	5,714	6,887	20.53%
2000	5,957	-63	-124	0	5,770	6,992	21.18%
2001	6,026	-58	-139	0	5,829	7,014	20.33%
2002	6,082	-58	-155	-24	5,845	7,031	20.29%
2003	6,107	-58	-171	-48	5,830	7,031	20.60%
2004	6,204	-58	-187	-72	5,887	7,191	22.15%
2005	6,284	-58	-203	-96	5,927	7,191	21.33%
2006	6,337	-58	-219	-120	5,940	7,191	21.06%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

GULF STATES UTILITY COMPANY

TABLE 4.3B
GULF STATES UTILITIES COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	ADJUSTMENTS TO PEAK DEMAND				PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	1,882	0	0	0	1,882	2,352	24.95%
1978	2,088	0	0	0	2,088	2,371	13.57%
1979	2,142	0	0	0	2,142	2,727	27.31%
1980	2,243	0	0	0	2,243	2,646	17.95%
1981	2,256	0	0	0	2,256	2,746	21.71%
1982	2,259	0	0	0	2,259	3,193	41.32%
1983	2,355	0	0	0	2,355	3,200	35.90%
1984	2,408	0	0	0	2,408	2,938	22.01%
1985	2,352	0	-83	0	2,269	2,966	30.74%
1986	2,355	0	-83	0	2,272	3,426	50.78%
1987	2,302	-11	-81	0	2,210	3,178	43.81%
1988	2,250	-38	-54	0	2,158	3,014	39.66%
1989	2,232	13	-75	0	2,170	2,912	34.21%
1990	2,467	-53	-55	0	2,359	2,966	25.73%
1991	2,394	-103	-107	0	2,184	2,871	31.45%
1992	2,305	-9	-91	0	2,205	2,959	34.17%
1993	2,469	-4	-91	0	2,374	3,031	27.69%
1994	2,498	-15	-91	0	2,392	2,997	25.31%
1995	2,515	-18	-91	0	2,406	2,995	24.47%
1996	2,555	-14	-91	0	2,450	3,002	22.53%
1997	2,558	-9	-91	0	2,458	3,011	22.48%
1998	2,598	-4	-91	0	2,503	3,020	20.67%
1999	2,632	1	-91	0	2,542	3,064	20.53%
2000	2,656	6	-91	0	2,571	3,115	21.18%
2001	2,683	11	-91	0	2,603	3,132	20.33%
2002	2,660	11	-99	-12	2,560	3,079	20.29%
2003	2,724	11	-107	-23	2,605	3,142	20.60%
2004	2,742	11	-115	-35	2,603	3,180	22.15%
2005	2,759	11	-123	-47	2,600	3,154	21.33%
2006	2,803	11	-131	-59	2,624	3,177	21.06%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 4.4
GULF STATES UTILITIES COMPANY
NET GENERATION BY FUEL TYPE - TOTAL (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	25,164,903	0	0	0	0	1,130,966	26,295,869
1978	27,221,479	0	0	0	0	1,077,532	28,299,011
1979	24,348,852	0	0	0	0	1,033,144	25,381,996
1980	26,761,398	0	0	0	0	1,013,976	27,775,374
1981	27,409,691	0	0	0	0	706,009	28,115,700
1982	24,000,481	964,360	0	0	0	558,671	25,523,512
1983	22,550,918	2,802,002	0	0	0	493,318	25,846,238
1984	23,010,789	2,719,857	0	0	0	487,421	26,218,067
1985	14,635,323	4,151,334	0	12,246	0	487,111	19,286,014
1986	16,860,276	3,551,220	0	2,132,103	0	465,684	23,009,283
1987	16,026,104	3,167,395	0	3,428,733	0	799,468	23,421,700
1988	15,778,007	3,107,507	0	5,074,287	0	1,186,979	25,146,780
1989	16,293,934	3,116,092	0	3,349,506	0	1,196,128	23,955,660
1990	17,703,589	3,164,171	0	3,914,788	0	1,320,193	26,102,741
1991	16,759,508	3,792,615	0	4,681,041	0	1,348,771	26,581,935
1992	19,514,160	3,531,809	0	2,970,873	0	1,511,000	27,527,842
1993	19,370,699	3,519,738	0	5,158,793	0	1,509,000	29,558,230
1994	20,403,731	3,720,442	0	4,314,839	0	1,509,000	29,948,012
1995	19,794,063	3,701,014	0	4,264,386	0	1,509,000	29,268,463
1996	18,036,513	4,352,230	0	5,176,352	0	1,511,000	29,076,095
1997	19,020,761	4,305,064	0	4,453,346	0	1,509,000	29,288,171
1998	18,723,759	4,194,674	0	4,532,404	0	1,509,000	28,959,837
1999	17,263,291	4,078,025	0	5,424,024	0	1,509,000	28,274,340
2000	17,877,023	4,273,783	0	4,532,406	0	1,511,000	28,194,212
2001	18,030,386	4,452,860	0	4,532,407	0	1,509,000	28,524,653
2002	20,448,891	4,473,978	0	5,424,029	0	1,596,563	31,943,461
2003	21,345,647	4,491,610	0	4,532,407	0	1,596,572	31,966,236
2004	21,671,044	4,313,867	0	4,547,267	0	1,598,802	32,130,980
2005	21,166,986	3,952,914	0	5,423,534	0	1,596,570	32,140,004
2006	21,988,814	4,251,792	0	4,532,409	0	1,596,566	32,369,581

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

GULF STATES UTILITY COMPANY

TABLE 4.5A
GULF STATES UTILITIES COMPANY
NET SYSTEM CAPACITY BY SOURCE - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	5,506	0	0	0	0	313	0	5,819
1978	5,522	0	0	0	0	313	0	5,835
1979	5,944	0	0	0	100	613	0	6,657
1980	5,944	0	0	0	200	466	0	6,610
1981	5,944	0	0	0	453	348	0	6,745
1982	6,010	378	0	0	350	560	0	7,298
1983	5,899	605	0	0	260	504	0	7,268
1984	5,899	605	0	0	0	226	50	6,680
1985	5,429	605	0	0	0	586	10	6,610
1986	5,429	605	0	655	0	872	13	7,548
1987	5,361	612	0	655	0	319	14	6,933
1988	5,161	612	0	655	11	242	15	6,666
1989	5,125	612	0	655	11	181	21	6,563
1990	5,125	612	0	655	11	145	0	6,548
1991	5,105	612	0	655	11	87	0	6,470
1992	5,198	612	0	655	223	77	0	6,765
1993	5,198	612	0	655	223	77	0	6,765
1994	5,198	612	0	655	223	66	0	6,754
1995	5,198	612	0	655	223	66	0	6,754
1996	5,198	612	0	655	223	46	0	6,734
1997	5,198	612	0	688	223	46	0	6,767
1998	5,198	612	0	688	223	46	0	6,767
1999	5,318	612	0	688	223	46	0	6,887
2000	5,423	612	0	688	223	46	0	6,992
2001	5,445	612	0	688	223	46	0	7,014
2002	5,445	612	0	688	223	46	0	7,031
2003	5,445	612	0	688	223	46	0	7,031
2004	5,605	612	0	688	223	46	0	7,191
2005	5,605	612	0	688	223	46	0	7,191
2006	5,605	612	0	688	223	46	0	7,191

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

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TABLE 4.5B
GULF STATES UTILITIES COMPANY
NET SYSTEM CAPACITY BY SOURCE - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	2,225	0	0	0	0	126	0	2,352
1978	2,244	0	0	0	0	127	0	2,371
1979	2,435	0	0	0	41	251	0	2,727
1980	2,379	0	0	0	80	187	0	2,646
1981	2,420	0	0	0	184	142	0	2,746
1982	2,629	165	0	0	153	245	0	3,193
1983	2,598	266	0	0	114	222	0	3,200
1984	2,594	266	0	0	0	99	22	2,938
1985	2,436	272	0	0	0	263	4	2,966
1986	2,464	275	0	297	0	396	6	3,426
1987	2,458	281	0	300	0	146	6	3,178
1988	2,333	277	0	296	5	109	7	3,014
1989	2,274	272	0	291	5	80	9	2,912
1990	2,321	277	0	297	5	66	0	2,966
1991	2,265	272	0	291	5	39	0	2,871
1992	2,273	268	0	286	98	34	0	2,959
1993	2,329	274	0	294	100	35	0	3,031
1994	2,307	272	0	291	99	29	0	2,997
1995	2,305	271	0	290	99	29	0	2,995
1996	2,317	273	0	292	99	21	0	3,002
1997	2,313	272	0	306	99	20	0	3,011
1998	2,320	273	0	307	100	21	0	3,020
1999	2,366	272	0	306	99	20	0	3,064
2000	2,416	273	0	307	99	20	0	3,115
2001	2,432	273	0	307	100	21	0	3,132
2002	2,385	268	0	301	98	20	0	3,079
2003	2,433	273	0	307	100	21	0	3,142
2004	2,478	271	0	304	99	20	0	3,180
2005	2,459	268	0	302	98	20	0	3,154
2006	2,476	270	0	304	99	20	0	3,177

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER FIVE

CENTRAL POWER AND LIGHT COMPANY

Central Power and Light Company (CPL) is a public utility in the business of generating, purchasing, transmitting, and distributing electricity throughout South Texas. The Company serves over one-half million customers in an area of approximately 44,000 square miles with an estimated population of more than 1.8 million. The three largest cities CPL serves are Corpus Christi, Laredo, and McAllen. It also supplies power to five rural cooperatives and two municipalities.

CPL is an investor-owned subsidiary of Central and South West Corporation (CSW) and a member of the Electric Reliability Council of Texas (ERCOT). Its operating revenues in 1990 totaled \$1,098,730,000 with total assets of \$4,427,699,000 as of December 31, 1991. CPL has a capital structure consisting of 46.6 percent common equity, 9.4 percent preferred stock, and 44.0 percent long-term debt. CPL is normally summer-peaking with its annual peak demand usually occurring in August.

The summer peak demand in 1991 reached 3,150 MW adjusted for interruptible load, while total sales in 1991 were 16,195,805 MWH. The Company has installed capacity for generating up to 4,398 MW. In 1991, 54 percent of the total electricity was generated using gas as the primary fuel. Either coal, hydroelectric, or nuclear power was used as the source of energy to generate the remaining electricity requirements.

Demand Forecast

CPL uses a set of econometric models that forecast energy consumption based on a stratification of customers into homogeneous groups. These groups exhibit similar responses to electric prices and general economic conditions. By targeting the modeling process to individual customers with similar characteristics, certain of the end-use aspects related to energy efficiency and conservation effects are implicitly captured. It is important to note that CPL also uses other forecasting approaches which are a combination of load factor models and judgment. This is the case in the development of

projections for the large industrial customers. In general, projections which are based on monthly data are summed to obtain the annual values. Econometric projections are based on specific assumptions about weather, economic conditions, technology, governmental activity, and company activity.

Number of Customers

Table 5.1 shows the number of customers by sector. In 1991, CPL provided electric service to 483,627 residential customers.

This sector showed an annual growth rate of 2.2 percent from 1981 to 1991 and is expected to grow at an annual rate of 2.5 percent through 2001 as shown on Figure 5.1.

CPL had 72,520 customers in the commercial class in 1991. A growth rate of 1.4 percent is projected for this class over the next ten years. This class grew at the rate of 1.6 percent over the 1981-1991 period.

The industrial sector is expected to grow at a 0.6 percent annual growth rate over the 1991-2001 period.

Over the historical period, 1981 through 1991, this class grew at a compound rate of 0.1 percent per year. CPL served approximately 5,499 industrial customers in 1991.

Sales

The annual sales by sector are shown in Table 5.2. In 1981 the residential sector ranked second in contributions to total company sales, with approximately 27.5 percent of the total. Sales to residential customers in 1991 reached 5,476,156 MWH, making it the largest customer class with 33.8 percent of total sales. Over the next decade this sector is projected to grow at an average annual rate of

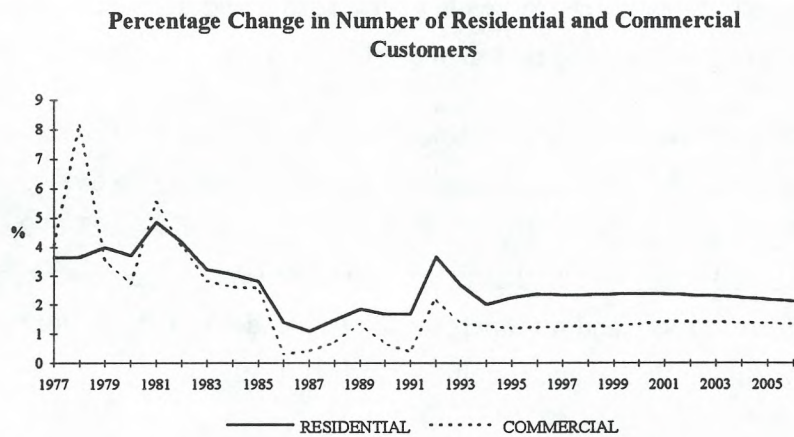


Figure 5.1

CENTRAL POWER AND LIGHT COMPANY

2.8 percent. By 2001, residential will still be the major purchasing sector with 34.3 percent of total sales.

The commercial sector's annual growth rate for 1981-1991 is 3.2 percent. The company projects the same growth rate for the period from 1991 to 2001. The total sales for the commercial sector in 1991 were 4,213,752 MWH, about 26 percent of total sales. This makes the commercial class the third-largest class in contributions to total sales.

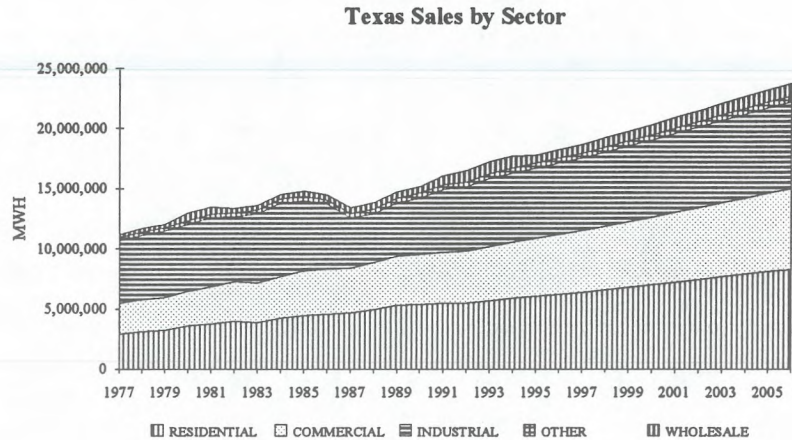


Figure 5.2

The industrial class is the second-largest energy consuming sector. Total industrial sales in 1991 amounted to 5,223,298 MWH which represents 32 percent of total company sales. Although, as Figure 5.2 shows, there has been some decline in the consumption of this sector during the last decade due to large industrial customers turning to self-generation and cogeneration, the company expects a reversal of this trend over the next ten years. CPL is projecting a 2.3 percent annual growth rate through 2001 for this sector. The industrial class is expected to maintain its position as the second-largest contributor to total sales through 2001.

The remaining retail sales belong to the following groups: cotton gins, irrigation, street lighting and municipalities. The combined sales of these groups for 1991 are equal to 526,513 MWH, 3.3 percent of the total. These classes as a group are projected to reduce their growth rate from 2.5 percent over the historical period to 0.9 percent over the next decade (1991 to 2001).

The wholesale sector in 1981 accounted for approximately 4.2 percent of total system sales. By 1991, sales to this sector were 756,086 MWH, 4.7 percent of total system sales.

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Over the next ten years, this sector is expected to grow 1.5 percent accounting for 4.2 percent of total system sales in 2001.

Peak Demand The company experienced a 1.8 percent annual growth in its peak demand after adjustments from 1981 to 1991. Table 5.3 and Figure 5.3 show the annual peak demands for the historical and forecast period. Peak demand increased from 2,623 MW in 1981 to 3,150 MW in 1991. CPL expects a 2.1 percent growth in peak demand over the next ten years. During 1991, the coincident peak of the residential sector accounted for 38.4 percent of the total system peak demand (before adjustments); the commercial sector, 31.3 percent; the industrial sector, 16.4 percent; and the wholesale sector, 4.9 percent. Since 1984, the residential sector consistently has had the highest non-coincident peak. The commercial sector was second, and the industrial sector was third (except 1987 when the industrial sector had the second-highest non-coincident peak).

Demand-Side Adjustments The overall company mission is to provide reliable electric service at the lowest reasonable cost by promoting load factor improvement. To achieve this objective CPL has developed 14 demand-side programs for its customers. Most of these programs offer incentives to the residential and commercial customers, and to new home builders, to benefit from new technologies and building materials. In this way customers can improve and upgrade their cooling and heating equipment and the equipment's thermal integrity. Special attention is paid to the proper sizing of heating, cooling, and lighting equipment. For agricultural and municipal customers, there are programs targeted toward improving overall pumping efficiency. To industrial customers, the company offers energy cost reductions through waste heat recovery systems. There is an interruptible load service in place. This and other programs are a part of CPL's involvement in economic development and location of new industry in the area to increase or maintain cost-effective electricity consumption.

Supply-Side Plan

Installed Capacity In 1991 CPL had the installed capacity to generate up to 4,398 MW of electricity. (See Table 5.5, Installed Capacity by Fuel Type.) Currently, the majority, 70.6 percent, of this capacity is fired using gas. The remainder of the installed capacity is fueled using nuclear (14.3 percent), coal (15.1 percent), or hydroelectric power. As of December 31, 1991, CPL reported the acquisition cost of its production plants as \$3.4 billion with a book value of \$2.7 billion.

Net System Capacity

Net system capacity is obtained by adding firm purchases to installed capacity and subtracting off-system sales without reserves. As shown in Table 5.5, Net System Capacity and Reserve Margins, the net system capacity for CPL was 3,322 MW in 1981, the result of

an installed capacity of 3,523 MW less off-system sales of 201 MW. The utility maintained a 26.7 percent reserve margin in that year. In 1991 CPL reported an installed capacity of 4,398 MW. The utility's reserve margin for 1991 was calculated to be 37.6 percent. The projected installed capacity of 4,453 MW in 2001 combined with the net of sales and purchases for that year yields a net system capacity of 4,484 MW for the system. This net capacity would yield a reserve margin of 15.6 percent for 2001.

Net Generation As shown in Figure 5.4, Net Generation by Fuel Type, the utility began using coal in 1980. This installation of additional capacity which used coal enabled CPL to diversify its fuel mix somewhat from the 1978 composition. In 1988, as part-owner of STP, the utility began using nuclear generation. By 1991, 54 percent of the total electricity generated by the utility used gas as the source

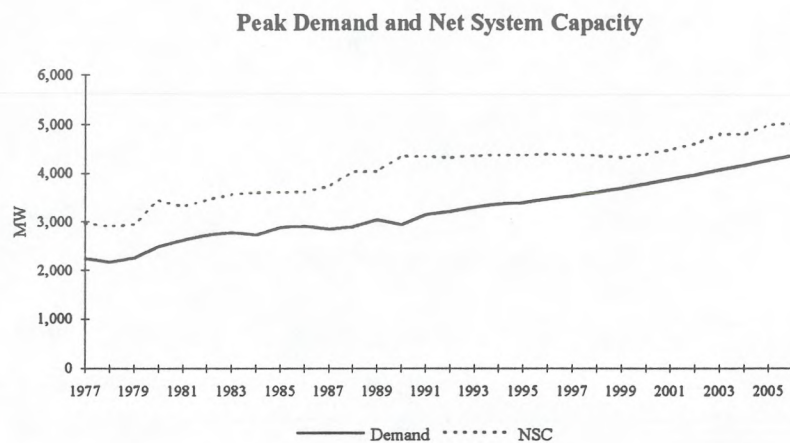


Figure 5.3

of energy. Coal generation contributed 24.7 percent of the total. Hydro-electric-powered generation accounted for 0.3 percent, and nuclear accounted for 21 percent of the total. By 2001 the Company expects to generate 62.0 percent of its electricity using gas, 20.3 percent using coal, 17.4 percent using nuclear energy, and 0.3 percent using hydro.

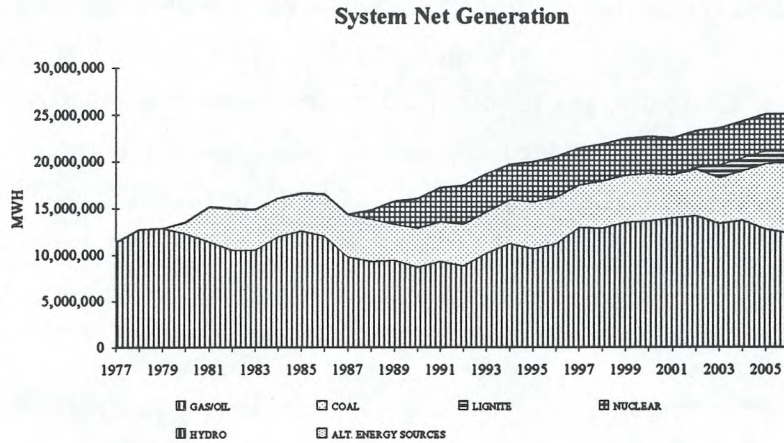


Figure 5.4

System Expansion CPL plans to retire one gas plant, Laredo #1. The utility projects the cessation of commercial operation of this generating station to take place in 2001. This retirement will result in a reduction of 36 MW in the CPL system. CPL also plans to repower Laredo #2 in 2001 to a 123-MW unit, which will result in a 89 MW increase in the CPL system. Additional retirements in 2004 and 2005 will reduce capacity by 361 MW.

In 2002, the company plans to re-power J. L. Bates Unit 1 adding 163 MW. In 2003 the SWEPCO Lignite plant Unit 1 adds 193 MW. Repowering L.C. Hill Unit 1 in 2004 and commercial operation of Coletto Unit

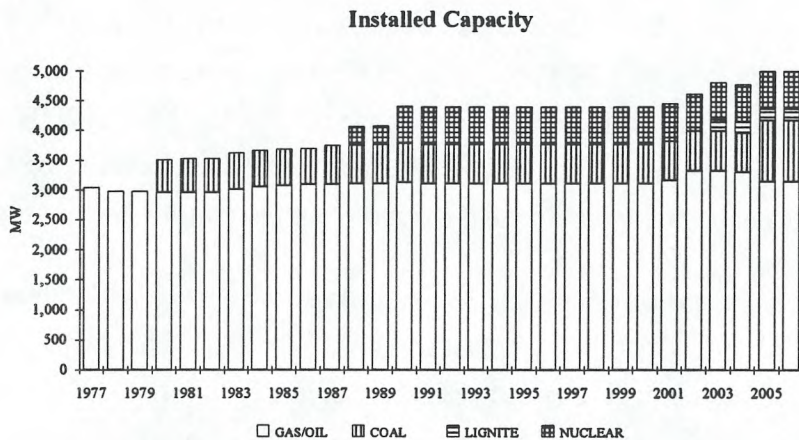


Figure 5.5

CENTRAL POWER AND LIGHT COMPANY

2 in 2005 will add 173 MW and 373 MW respectively. CPL projects net system capacity of 5,016 MW in 2006.

Certain CPL power plant sites were initially designed for generating units not now planned to be installed over the next ten years. The potential for adding initially planned capability is limited by financial, water, environmental and transmission requirements, site layout, and fuel supply. Units may also be limited by ambient air quality standards, station water balance, cooling pond temperature, water discharge permit, and solid waste handling and storage. Site specific studies would be needed to determine the best technology and size of any unit addition.

Included in CPL's planned construction work are three major transmission line projects. The earliest of these projects, the Edinburg-Rio Hondo line, is scheduled to be completed by May of 1993. This line is a 345-KV transmission line that connects two existing 345-KV transmission lines in South Texas. Located in Hidalgo and Cameron Counties, this line consists of 23 miles of upgrade of an existing line and 17 miles of new 345-KV construction. The project cost is estimated at \$28,157,000. The second project, the Lon Hill-Coleta line, is located in Goliad, Bee, Nueces, and San Patricio Counties and will consist of 78 miles of 345-KV line. The total cost of this project will be an estimated \$43,838,600. The third project, a joint-venture with SWEPCO, HL&P, and TU Electric, managed by CSW, is a direct current (DC) transmission tie to the Southwest Power Pool. This project is expected to begin in March 1995 and be completed by March 1998. This project is expected to cost CPL \$39,029,000. These reported transmission line cost estimates include related substation costs. Of the nine transmission projects presently planned within the forecast period, two are more than 50 miles in length.

Changes Since the 1989 Filing In the company's 1989 filing, peak demand was expected to grow at 2.8 percent, while growth is expected to be 2.1 percent in the current filing. The peak demand forecast for 1999 was 3,897 MW in the previous filing and 3,705 MW in this filing, which is 4.9 percent lower. CPL has made several changes to the system expansion plan. The company has postponed the retirement of La Palma from October 1995 to May 2005. The repowering of Laredo 2 has been changed from 1998 to 2001, the repowering of J. L. Bates has been deferred from 1999 to 2002, and the repowering of L.C. Hill has been postponed until 2004. SWEPCO Lignite, which was scheduled for commercial operation in 2004, is now

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scheduled to meet the peak load of 2003. Coletto Creek Unit 2, a coal unit which was scheduled to meet peak load in 2003, is now scheduled for 2005.

CENTRAL POWER AND LIGHT COMPANY

TABLE 5.1
CENTRAL POWER AND LIGHT COMPANY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	330,458	51,022	4,574	3,809	8
1978	342,592	55,198	4,766	3,882	8
1979	356,286	57,158	4,912	3,952	8
1980	369,525	58,728	5,179	4,012	7
1981	387,462	61,972	5,432	4,151	7
1982	403,589	64,479	5,671	4,085	7
1983	416,579	66,310	5,707	4,138	6
1984	429,345	68,043	5,825	4,182	6
1985	441,411	69,799	5,854	4,234	6
1986	447,554	70,017	5,649	4,207	5
1987	452,449	70,310	5,573	4,233	5
1988	459,190	70,798	5,622	4,302	5
1989	467,672	71,753	5,548	4,361	5
1990	475,555	72,243	5,582	4,540	5
1991	483,627	72,520	5,499	4,389	6
1992	501,343	74,119	5,598	4,391	6
1993	514,761	75,116	5,639	4,445	6
1994	525,135	76,071	5,674	4,490	6
1995	536,972	76,977	5,700	4,532	5
1996	549,688	77,915	5,722	4,574	5
1997	562,533	78,889	5,745	4,618	5
1998	575,795	79,878	5,770	4,661	5
1999	589,521	80,886	5,793	4,706	5
2000	603,584	81,962	5,819	4,755	5
2001	618,000	83,121	5,848	4,808	5
2002	632,385	84,282	5,879	4,863	5
2003	646,995	85,460	5,909	4,969	5
2004	661,548	86,634	5,941	5,024	5
2005	675,949	87,807	5,971	6,619	5
2006	690,227	88,973	6,005	5,083	5

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

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TABLE 5.2
CENTRAL POWER AND LIGHT
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	2,907,853	2,516,669	5,250,509	270,398	248,346	11,297,502	-685,000
1978	3,108,554	2,639,511	5,371,493	285,581	274,636	11,797,162	23,000
1979	3,202,731	2,722,915	5,552,954	291,664	264,665	12,145,089	-209,000
1980	3,574,220	2,884,508	5,543,225	311,467	669,228	13,115,110	-726,000
1981	3,735,943	3,085,350	5,760,581	305,546	571,280	13,565,903	349,000
1982	3,988,259	3,277,484	5,399,641	332,890	326,726	13,457,741	156,000
1983	3,863,839	3,267,570	5,802,871	330,814	338,639	13,711,860	-164,000
1984	4,208,804	3,452,333	6,140,895	341,836	379,553	14,663,336	279,000
1985	4,469,561	3,663,813	5,865,826	346,476	416,016	14,881,192	488,000
1986	4,567,793	3,733,842	5,396,536	351,270	429,857	14,604,027	812,000
1987	4,630,264	3,735,681	4,210,705	353,479	459,137	13,503,886	-113,000
1988	4,945,516	3,898,565	4,095,732	370,100	506,442	13,965,548	-4,000
1989	5,278,562	4,085,904	4,441,028	395,302	533,823	14,881,253	-183,000
1990	5,368,613	4,158,843	4,691,079	395,400	544,779	15,279,914	-107,000
1991	5,476,156	4,213,752	5,223,298	396,058	756,086	16,195,805	309,580
1992	5,450,192	4,359,517	5,349,465	383,888	958,148	16,629,955	-148,000
1993	5,662,572	4,514,753	5,647,845	391,810	984,571	17,331,965	-90,000
1994	5,847,905	4,662,955	5,762,590	397,953	1,014,108	17,817,753	391,000
1995	6,019,871	4,811,214	5,854,340	403,461	677,935	17,900,205	532,000
1996	6,194,827	4,960,620	5,943,657	408,628	708,956	18,350,615	549,000
1997	6,361,476	5,113,376	6,033,835	413,576	740,866	18,797,165	1,003,000
1998	6,575,309	5,276,298	6,171,185	419,349	774,107	19,350,757	790,000
1999	6,787,611	5,442,913	6,308,894	426,388	808,630	19,908,918	811,000
2000	6,983,244	5,613,683	6,429,418	433,786	844,076	20,438,592	408,000
2001	7,217,672	5,792,147	6,578,122	441,916	880,438	21,045,818	-402,000
2002	7,428,637	5,972,639	6,705,115	449,795	917,231	21,610,265	-238,000
2003	7,651,722	6,153,921	6,853,203	457,812	954,316	22,209,006	-619,000
2004	7,874,156	6,338,193	6,981,197	465,890	991,593	22,790,347	-501,000
2005	8,087,350	6,519,404	7,116,212	473,789	1,028,574	23,365,964	-401,000
2006	8,285,676	6,700,795	7,222,603	481,473	1,065,187	23,897,807	-1,004,000

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

CENTRAL POWER AND LIGHT COMPANY

TABLE 5.3
CENTRAL POWER AND LIGHT COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	ADJUSTMENTS TO PEAK DEMAND					PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM				
1977	2,247	0	0	0	0	2,247	2,978	32.53%
1978	2,262	0	-88	0	0	2,174	2,907	33.72%
1979	2,390	0	-127	0	0	2,263	2,943	30.05%
1980	2,560	0	-56	0	0	2,504	3,449	37.74%
1981	2,734	0	-111	0	0	2,623	3,322	26.65%
1982	2,825	0	-85	0	0	2,740	3,458	26.20%
1983	2,869	0	-90	0	0	2,779	3,568	28.39%
1984	2,832	0	-100	0	0	2,732	3,604	31.92%
1985	3,022	0	-128	0	0	2,894	3,612	24.81%
1986	2,962	0	-45	0	0	2,917	3,617	24.00%
1987	2,874	0	-25	0	0	2,849	3,730	30.92%
1988	3,006	0	-98	0	0	2,908	4,036	38.79%
1989	3,139	0	-95	0	0	3,044	4,039	32.69%
1990	3,103	0	-157	0	0	2,946	4,347	47.56%
1991	3,338	0	-188	0	0	3,150	4,334	37.59%
1992	3,537	31	-318	-31	0	3,219	4,321	34.23%
1993	3,645	31	-333	-40	0	3,303	4,357	31.91%
1994	3,733	31	-338	-47	0	3,379	4,361	29.06%
1995	3,771	32	-343	-57	0	3,403	4,365	28.27%
1996	3,855	33	-348	-65	0	3,475	4,386	26.22%
1997	3,936	33	-353	-73	0	3,543	4,372	23.40%
1998	4,026	34	-357	-82	0	3,621	4,357	20.33%
1999	4,123	35	-362	-91	0	3,705	4,324	16.71%
2000	4,219	36	-367	-102	0	3,786	4,391	15.98%
2001	4,327	36	-372	-112	0	3,879	4,484	15.60%
2002	4,441	37	-377	-125	0	3,976	4,607	15.87%
2003	4,554	38	-381	-139	0	4,072	4,801	17.90%
2004	4,671	39	-386	-154	0	4,170	4,797	15.04%
2005	4,790	39	-391	-171	0	4,267	4,986	16.85%
2006	4,906	40	-396	-189	0	4,361	5,016	15.02%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 5.4
CENTRAL POWER AND LIGHT
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	11,381,000	0	0	0	32,000	0	11,413,000
1978	12,720,000	0	0	0	51,000	0	12,771,000
1979	12,852,000	0	0	0	51,000	0	12,903,000
1980	12,342,000	1,175,000	0	0	55,000	0	13,572,000
1981	11,440,000	3,705,000	0	0	60,000	0	15,205,000
1982	10,522,000	4,409,000	0	0	55,000	0	14,986,000
1983	10,549,000	4,309,000	0	0	51,000	0	14,909,000
1984	11,982,000	4,075,000	0	0	48,000	0	16,105,000
1985	12,586,000	4,003,000	0	0	59,000	0	16,648,000
1986	12,042,000	4,462,000	0	0	57,000	0	16,561,000
1987	9,810,000	4,484,000	0	0	58,000	0	14,352,000
1988	9,308,000	4,513,000	0	963,000	52,000	0	14,836,000
1989	9,419,000	3,872,000	0	2,469,000	52,000	0	15,812,000
1990	8,693,000	4,179,000	0	3,132,000	60,000	0	16,064,000
1991	9,311,038	4,256,737	0	3,607,678	60,245	0	17,235,698
1992	8,842,000	4,431,000	0	4,108,000	55,000	0	17,436,000
1993	10,204,000	4,385,000	0	4,073,000	55,000	0	18,717,000
1994	11,195,000	4,709,000	0	3,776,000	55,000	0	19,735,000
1995	10,692,000	4,974,000	0	4,280,000	55,000	0	20,001,000
1996	11,198,000	4,967,000	0	4,293,000	55,000	0	20,513,000
1997	12,912,000	4,566,000	0	3,925,000	55,000	0	21,458,000
1998	12,864,000	5,004,000	0	3,925,000	55,000	0	21,848,000
1999	13,462,000	5,038,000	0	3,925,000	55,000	0	22,480,000
2000	13,595,000	5,069,000	0	3,937,000	55,000	0	22,656,000
2001	13,966,000	4,569,000	0	3,925,000	55,000	0	22,515,000
2002	14,156,000	4,947,000	210,000	3,925,000	55,000	0	23,293,000
2003	13,370,000	4,844,000	1,373,000	3,925,000	55,000	0	23,567,000
2004	13,665,000	5,281,000	1,378,000	3,937,000	55,000	0	24,316,000
2005	12,766,000	6,921,000	1,388,000	3,925,000	55,000	0	25,055,000
2006	12,301,000	7,524,000	1,288,000	3,925,000	55,000	0	25,093,000

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

CENTRAL POWER AND LIGHT COMPANY

TABLE 5.5
CENTRAL POWER AND LIGHT COMPANY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	3,044	0	0	0	10	0	76	2,978
1978	2,976	0	0	0	10	0	79	2,907
1979	2,976	0	0	0	10	0	43	2,943
1980	2,954	550	0	0	0	0	55	3,449
1981	2,954	569	0	0	0	0	201	3,322
1982	2,954	569	0	0	0	0	65	3,458
1983	3,010	609	0	0	11	0	68	3,568
1984	3,052	609	0	0	14	0	77	3,604
1985	3,073	609	0	0	14	0	90	3,612
1986	3,093	604	0	0	14	0	100	3,617
1987	3,095	657	0	0	7	0	35	3,730
1988	3,103	653	0	315	0	0	41	4,036
1989	3,109	654	0	315	0	0	45	4,039
1990	3,125	657	0	630	0	0	71	4,347
1991	3,105	657	0	630	0	0	64	4,334
1992	3,105	659	0	630	0	0	79	4,321
1993	3,105	659	0	630	0	0	43	4,357
1994	3,105	659	0	630	0	0	39	4,361
1995	3,105	659	0	630	0	0	35	4,365
1996	3,105	659	0	630	0	0	14	4,386
1997	3,105	659	0	630	0	0	28	4,372
1998	3,105	659	0	630	0	0	43	4,357
1999	3,105	659	0	630	0	0	76	4,324
2000	3,105	659	0	630	14	0	23	4,391
2001	3,158	659	0	630	39	0	8	4,484
2002	3,321	659	0	630	0	0	9	4,607
2003	3,321	659	193	630	0	0	8	4,801
2004	3,291	659	193	630	26	0	8	4,797
2005	3,133	1,032	193	630	0	0	8	4,986
2006	3,133	1,032	193	630	30	0	8	5,016

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
 - 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

CHAPTER SIX

CITY PUBLIC SERVICE OF SAN ANTONIO

City Public Service of San Antonio (CPS) is one of the largest municipal-owned utilities in the United States, providing San Antonio and surrounding areas with electric and natural gas service. CPS provides electric service to a population of over 1.2 million in an area encompassing all of Bexar County and small portions of seven adjoining counties.

The annual system peak demand of CPS normally occurs during the summer months of July or August, or in September. In 1991, the peak demand was 2,799 MW. Total annual energy sales for 1991 were approximately 12,017,832 MWH. CPS has installed capacity to generate up to 3,901 MW, including its 28 percent share of the South Texas Project nuclear plant. Other primary fuel sources used for generation are coal and natural gas, which supply the majority of power for the CPS system.

Demand Forecast

CPS develops long-range forecasts of the number of customers and energy sales by rate class, total system net generation, and peak demand. The basis of these forecasts are economic and population projections for the U.S. and San Antonio metropolitan area developed with the assistance of outside consultants. Econometric models utilizing various economic and demographic variables have been developed by CPS and are employed in the projection of customers and energy usage per customer in the major rate classes. For the residential sector, a household and housing unit allocation model and an appliance saturation and usage model are utilized to project, respectively, the number of customers and energy use per customer in this class. Energy sales for each major rate class are then obtained by multiplying the projection of customers by the projection of use per customer. For the miscellaneous small classes, a time series trend analysis is performed for each. Energy sales by rate class are then aggregated to obtain the total CPS system sales, and an analysis of system losses enables a projection of total net generation for the system. Peak demand is forecasted by utilizing its relationship with load factor and net

generation. Load factor is projected using a trend of historical data, which since the mid-1970's has been positive. CPS has not made explicit adjustments to its forecasts for conservation and demand-side management, but the effects of these are included in the forecast results. Loads from time-of-use and interruptible rates are quantified.

Number of Customers

In 1991, CPS provided electric service to 417,052 residential customers, as shown in Table 6.1. From 1977 to 1991, the number of residential customers grew at an average annual compound growth rate of 3.7 percent, while the

Percentage Change in Number of Residential and Commercial Customers

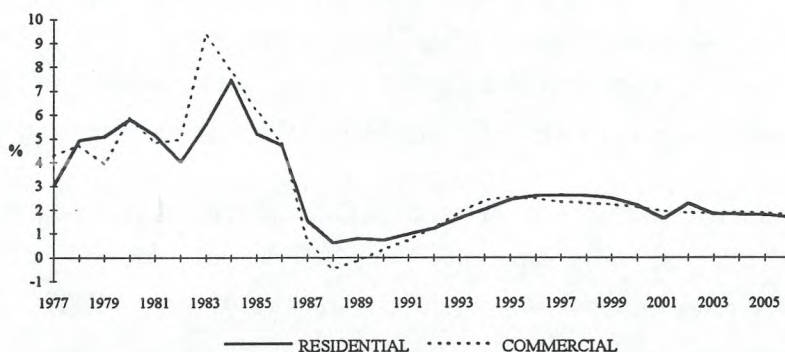


Figure 6.1

projected average growth rate to the year 2006 is 2.0 percent. (See Figure 6.1.) One of the reasons for the rapid historical growth is that a large number of master-metered apartment complexes converted to individual metering during this period. CPS served 46,230 commercial customers and 1,432 industrial customers in 1991. From 1977 to 1991, the number of commercial customers increased at an average rate of 3.8 percent, but industrial customers declined at an average rate of 1.4 percent. The primary reason for the decline in industrial customers was simply a reclassification of some customers from the industrial to the commercial category as certain industrial customers found it more advantageous to be served on the commercial rate. During the next 15 years, the number of commercial and industrial customers are projected to increase at average rates of 2.0 percent and 1.5 percent, respectively.

Sales

As presented in Figure 6.2 and Table 6.2, sales of electricity to the residential sector amounted to 4,823,812 MWH, 40 percent of the energy consumed by all CPS customers in 1991. This makes the residential class the largest of the customer sectors. Residential class sales are projected to grow at an average annual compound rate of 2.9 percent during the next 15 years compared to an

CITY PUBLIC SERVICE OF SAN ANTONIO

actual rate of 5.8 percent since 1977. As in the case of customer growth, the growth of residential energy sales during the last 15 years has been influenced by the conversion of master-metered apartment complexes, previously classified as commercial or industrial, to individual metering under the residential rate. The residential class contribution to total sales is projected to be 34 percent in 2006.

Sales to the commercial class totaled 2,333,529 MWH in 1991. This amounted to 19 percent of total sales, making the commercial class the third largest among major customer sectors. Historical sales to commercial customers have grown at an average rate of 6.5 percent since 1977, while the growth rate over the next 15 years is projected to average 5.0 percent.



Figure 6.2

The industrial class is currently the second-largest customer class in terms of sales. Sales to this class were 4,558,897 MWH in 1991, 38 percent of the total for all customers. Since 1977, sales to the industrial class have increased at an average rate of 2.8 percent, while the average rate projected to the year 2006 is 4.7 percent. As pointed out previously, historical growth rates of the customer classes have been influenced by apartment conversions to individual metering as well as rate shifting by customers between the commercial and industrial classes.

The remaining electric sales are composed of sales for municipalities, street lighting, and other purposes. These combined sales amounted to 301,594 MWH in 1991, 2.5 percent of the total. The historical average growth rate for this combination of customers has been 3.2 percent since 1977, and the growth rate from 1991 to 2006 is projected to be 4.6 percent.

RESOURCE PLAN FILED WITH PUCT

Peak Demand Between 1977 and 1991, annual peak demand on the CPS electric system increased from 1,641 MW to 2,799 MW, an average annual compound rate of 3.9 percent. (See Figure 6.3 and Table 6.3.) During the next 15 years, system peak demand is projected to grow at an average rate of 3.5 percent annually, reaching 4,713 MW in the year 2006.

The most recent data allocating peak demand to the various customer classes is for 1989, a year in which the total system peak was 2,697 MW. (See Figure 6.3 and Table 6.3.) At that time, the residential class coincident peak amounted to 52 percent of the total system, while the commercial and industrial sectors accounted for 19 percent and 28 percent, respectively. In the same year, the sector with the highest non-coincident peak demand was the residential at 1,988 MW. The non-coincident peak of the industrial sector was 933 MW; the commercial sector, 737 MW.

Adjustments to Demand CPS does not make explicit adjustments to its forecast for conservation and demand-side management programs. However, the effects of the NAECA are included in the forecast results through the appliance saturation and use model. CPS also quantifies the loads from time-of-use and interruptible rates.

Supply-Side Plan

Installed Capacity In 1991, CPS had an installed capacity of about 3,901 MW. Of this total, 61 percent is gas-fueled generation; 21 percent, coal; and 18 percent, nuclear.

Net System Capacity

As shown in Figure 6.5 and Table 6.5, the net system capacity for CPS in 1979 was 3,344 MW, which represented a reserve margin of 95.9 percent. This is computed by taking the ratio of the difference of net system capacity less the peak demand after adjustments to the peak demand after adjustments. By 1991, net system capacity had increased to 3,901 MW, growing at an average annual compound rate of 1.3 percent, and the reserve margin had dropped to 39.4 percent. Over the forecast period, CPS is projecting an increase in net system capacity to 5,649 MW in the year 2006, which represents a reserve margin of 19.9 percent and a compound growth rate of 2.5 percent.

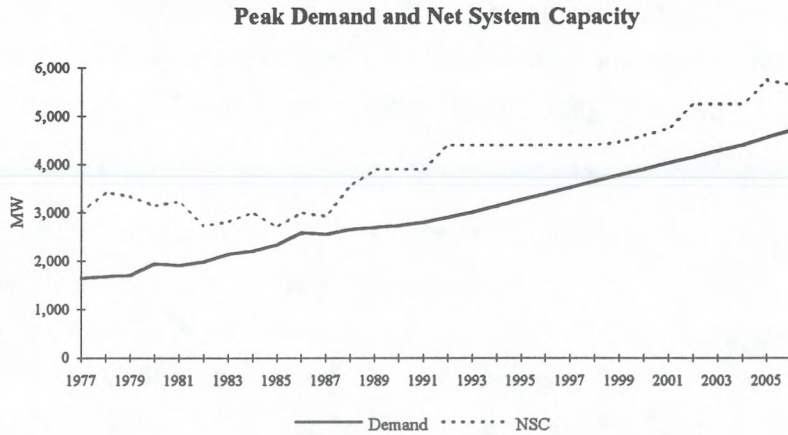


Figure 6.3

Net Generation

As shown in Figure 6.4 and Table 6.4, 34 percent of the net system generation was by gas-fueled units in 1979 while 66 percent was by coal-fueled units. CPS has pursued fuel diversification as a primary goal. With

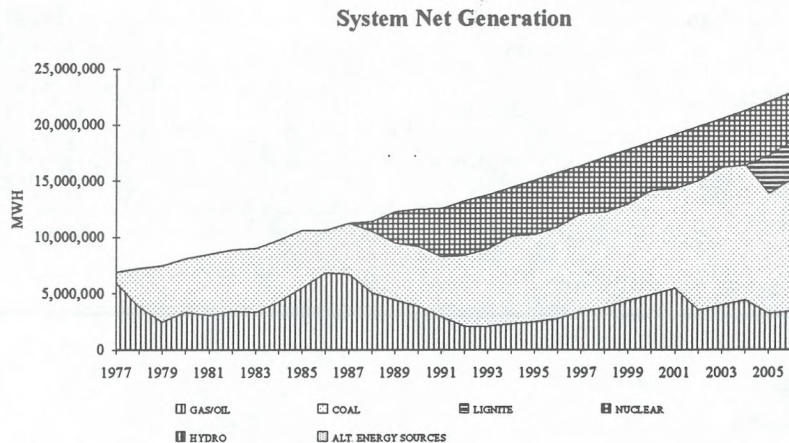


Figure 6.4

the commercial operation of the nuclear-fueled South Texas Project in August 1988 (Unit 1) and June 1989 (Unit 2), the generation fuel mix has become 24 percent gas, 42 percent coal, and 34 percent nuclear in 1991. A continuation of this diversification program is expected to produce a generation fuel mix in the year 2006 of 15 percent gas, 51 percent coal, 15 percent lignite, and 19 percent nuclear to supply a projected total generation of 22,863,400 MWH.

System Expansion At this time, CPS has just completed the construction of a 498-MW generation addition at the Calaveras Lake site. This unit is designated J. K. Spruce Unit 1 and is fueled by Western coal. Commercial operation of this unit began in November 1992. Construction on the J. K. Spruce Unit 1 was begun in the fall of 1988. Additional units scheduled in the resource expansion plan within the time frame of this study include one 70-MW combustion turbine peaking unit in 1999; two 70-MW combustion turbine peaking units in 2000; two 70-MW combustion turbine peaking units in 2001; a 500-MW coal-fired unit at Calaveras Lake (J. K. Spruce Unit 2) in the year 2002; and the first of four units scheduled to be fueled with Texas lignite coming on line in 2005 with added capacity of 500 MW. This schedule brings the total added capacity in this period to 1,848 MW, of which 998 MW is coal, 500 MW is lignite, and 350 MW is gas.

Two 345-KV lines, totaling 37.9 miles, and 0.9 miles of 138-KV line were completed in 1991. Twenty 138-KV transmission projects, totaling 106.3 miles, and six 345-KV transmission projects, totaling 109.5 miles, are scheduled to be completed between 1992 and 2006. These transmission lines will be located in Bexar County.

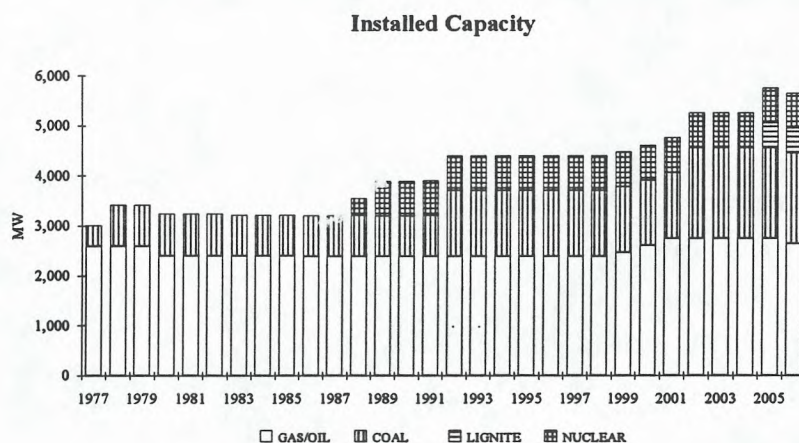


Figure 6.5

CITY PUBLIC SERVICE OF SAN ANTONIO

**Changes Since the
1989 Filing**

There are no major differences between the current forecast produced in 1991 and the one produced in 1989. Both forecasts have taken into account the efficiency standards mandated by the National Appliance Energy Conservation Act of 1987. The 1991 forecast does reflect a somewhat slower recovery of the local economy and slightly lower expectations of employment and income growth during the forecast period than did the 1989 forecast. Consequently, electric sales and peak demand are projected to grow at slightly slower rates in the 1991 forecast. Peak demand in the 1989 filing was projected to be 3,973 MW in 1999 but only 3,788 MW in the 1991 filing. The average annual 10-year growth in peak demand in the 1989 filing was forecast as 4.0 percent, while the current filing includes a growth rate of 3.8 percent.

As a result, the resource plan has been modified. Previously, CPS was planning to add five 70-MW gas combustion turbine units from 1998 to 1999. Now, these units have been pushed back to a 1999-2001 time frame. A similar unit planned for 2002 has been canceled altogether. The 500-MW coal plant has been postponed from 2000 to 2002, and the 500-MW lignite unit has been postponed from 2003 to 2005.

There are no current plans for firm contract sales of off-system power during the forecast period, although shorter duration sales of power on an emergency, economy, or short-term basis are likely to occur from time to time as has been the case in the recent past.

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TABLE 6.1
CITY PUBLIC SERVICE OF SAN ANTONIO
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	249,267	27,469	1,741	6,933	0
1978	261,553	28,769	1,731	7,139	0
1979	274,866	29,896	1,708	7,314	0
1980	290,839	31,648	1,681	7,580	0
1981	305,855	33,175	1,667	7,791	0
1982	318,191	34,826	1,500	8,016	0
1983	336,152	38,084	1,280	8,097	0
1984	361,328	41,074	1,369	8,042	0
1985	380,171	43,617	1,351	7,924	0
1986	398,141	45,702	1,362	7,940	0
1987	404,340	46,027	1,345	7,966	0
1988	406,818	45,805	1,314	8,274	0
1989	410,041	45,742	1,356	8,856	0
1990	412,959	45,895	1,387	9,027	0
1991	417,052	46,230	1,432	9,246	0
1992	422,134	46,802	1,414	9,360	0
1993	429,152	47,680	1,436	9,526	0
1994	437,905	48,816	1,470	9,692	0
1995	448,549	50,047	1,504	9,858	0
1996	460,116	51,273	1,534	10,025	0
1997	472,088	52,458	1,564	10,191	0
1998	484,311	53,649	1,596	10,357	0
1999	496,303	54,832	1,626	10,523	0
2000	507,170	55,989	1,655	10,689	0
2001	515,362	57,077	1,676	10,827	0
2002	527,067	58,144	1,703	11,022	0
2003	536,568	59,209	1,725	11,188	0
2004	546,304	60,332	1,748	11,355	0
2005	556,095	61,446	1,774	11,521	0
2006	565,398	62,534	1,797	11,687	0

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

CITY PUBLIC SERVICE OF SAN ANTONIO

TABLE 6.2
CITY PUBLIC SERVICE OF SAN ANTONIO
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGE WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	2,177,129	969,383	3,094,911	194,400	0	6,435,823	0
1978	2,328,656	1,050,237	3,159,390	202,340	0	6,740,623	0
1979	2,367,590	1,099,862	3,121,970	209,760	0	6,799,182	314,369
1980	2,819,217	1,266,473	3,363,933	222,334	0	7,671,957	78,686
1981	2,852,291	1,343,195	3,477,955	225,218	0	7,898,659	0
1982	3,109,066	1,496,617	3,441,829	236,458	0	8,283,970	236,534
1983	3,092,422	1,636,950	3,272,950	239,657	0	8,241,979	30,819
1984	3,503,724	1,807,795	3,594,688	246,527	0	9,152,734	21,296
1985	3,806,460	2,071,457	3,875,328	254,668	0	10,007,913	253,673
1986	4,027,561	2,113,839	3,956,626	259,259	0	10,357,285	-93,999
1987	4,122,148	2,186,109	3,740,150	263,791	0	10,312,198	-68,013
1988	4,417,510	2,366,473	4,026,379	280,413	0	11,090,775	0
1989	4,682,452	2,365,483	4,352,772	291,110	0	11,691,817	-42,371
1990	4,685,415	2,326,103	4,456,821	297,538	0	11,765,877	-92,282
1991	4,823,812	2,333,529	4,558,897	301,594	0	12,017,832	-19,202
1992	4,934,795	2,425,773	4,779,601	321,795	0	12,461,964	0
1993	5,109,055	2,534,497	5,011,136	335,421	0	12,990,109	0
1994	5,288,893	2,675,971	5,279,262	349,724	0	13,593,850	0
1995	5,463,013	2,834,062	5,565,296	364,743	0	14,227,114	0
1996	5,633,613	2,994,480	5,837,890	380,513	0	14,846,496	0
1997	5,807,910	3,155,767	6,115,299	397,079	0	15,476,055	0
1998	5,990,598	3,321,929	6,401,784	414,481	0	16,128,792	0
1999	6,171,588	3,490,516	6,689,910	432,779	0	16,784,793	0
2000	6,344,252	3,670,416	6,995,242	452,008	0	17,461,918	0
2001	6,510,860	3,842,490	7,279,966	472,227	0	18,105,543	0
2002	6,675,228	4,019,537	7,548,119	493,494	0	18,736,378	0
2003	6,837,869	4,213,940	7,840,404	515,859	0	19,408,072	0
2004	7,000,034	4,419,799	8,142,915	539,399	0	20,102,147	0
2005	7,189,927	4,635,698	8,467,085	564,163	0	20,856,873	0
2006	7,368,950	4,852,473	9,081,359	590,230	0	21,893,012	0

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 6.3
CITY PUBLIC SERVICE OF SAN ANTONIO
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	1,641	0	0	0	1,641	3,006	83.18%
1978	1,688	0	0	0	1,688	3,424	102.84%
1979	1,707	0	0	0	1,707	3,344	95.90%
1980	1,950	0	0	0	1,950	3,146	61.33%
1981	1,911	0	0	0	1,911	3,236	69.34%
1982	1,984	0	0	0	1,984	2,736	37.90%
1983	2,148	0	0	0	2,148	2,810	30.82%
1984	2,210	0	0	0	2,210	3,010	36.20%
1985	2,350	0	0	0	2,350	2,710	15.32%
1986	2,596	0	0	0	2,596	3,000	15.56%
1987	2,551	0	0	0	2,551	2,925	14.66%
1988	2,663	0	0	0	2,663	3,550	33.31%
1989	2,697	0	0	0	2,697	3,895	44.42%
1990	2,741	0	0	0	2,741	3,895	42.10%
1991	2,799	0	0	0	2,799	3,901	39.37%
1992	2,904	0	0	0	2,904	4,399	51.48%
1993	3,020	0	0	0	3,020	4,399	45.66%
1994	3,145	0	0	0	3,145	4,399	39.87%
1995	3,276	0	0	0	3,276	4,399	34.28%
1996	3,391	0	0	0	3,391	4,399	29.73%
1997	3,527	0	0	0	3,527	4,399	24.72%
1998	3,658	0	0	0	3,658	4,399	20.26%
1999	3,788	0	0	0	3,788	4,469	17.98%
2000	3,911	0	0	0	3,911	4,609	17.85%
2001	4,046	0	0	0	4,046	4,749	17.38%
2002	4,167	0	0	0	4,167	5,249	25.97%
2003	4,296	0	0	0	4,296	5,249	22.18%
2004	4,417	0	0	0	4,417	5,249	18.84%
2005	4,574	0	0	0	4,574	5,749	25.69%
2006	4,713	0	0	0	4,713	5,649	19.86%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CITY PUBLIC SERVICE OF SAN ANTONIO

TABLE 6.4
CITY PUBLIC SERVICE OF SAN ANTONIO
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	5,926,100	954,500	0	0	0	0	6,880,600
1978	3,806,300	3,460,800	0	0	0	0	7,267,100
1979	2,500,500	4,953,100	0	0	0	0	7,453,600
1980	3,371,600	4,708,100	0	0	0	0	8,079,700
1981	3,043,718	5,462,006	0	0	0	0	8,505,724
1982	3,459,067	5,454,699	0	0	0	0	8,913,766
1983	3,338,466	5,653,654	0	0	0	0	8,992,120
1984	4,282,036	5,492,090	0	0	0	0	9,774,126
1985	5,516,302	5,091,670	0	0	0	0	10,607,972
1986	6,836,667	3,781,193	0	0	0	0	10,617,860
1987	6,730,171	4,483,059	0	0	0	0	11,213,230
1988	5,091,633	5,406,943	0	888,524	0	0	11,387,100
1989	4,414,563	5,064,224	0	2,796,285	0	0	12,275,072
1990	3,886,425	5,267,195	0	3,356,162	0	0	12,509,782
1991	2,977,000	5,317,100	0	4,273,400	0	0	12,567,500
1992	2,097,800	6,302,400	0	4,815,000	0	0	13,215,200
1993	2,079,500	6,858,000	0	4,835,100	0	0	13,772,600
1994	2,349,000	7,747,600	0	4,319,000	0	0	14,415,600
1995	2,505,200	7,710,900	0	4,870,100	0	0	15,086,200
1996	2,802,500	8,086,100	0	4,849,600	0	0	15,738,200
1997	3,393,500	8,690,300	0	4,319,000	0	0	16,402,800
1998	3,743,700	8,478,300	0	4,870,100	0	0	17,092,100
1999	4,406,500	8,542,200	0	4,835,100	0	0	17,783,800
2000	4,890,100	9,276,000	0	4,333,700	0	0	18,499,800
2001	5,449,700	8,856,000	0	4,870,100	0	0	19,175,800
2002	3,538,400	11,469,500	0	4,835,100	0	0	19,843,000
2003	4,006,600	12,229,100	0	4,319,000	0	0	20,554,700
2004	4,435,400	11,966,600	0	4,884,700	0	0	21,286,700
2005	3,252,500	10,630,300	3,372,900	4,835,100	0	0	22,090,800
2006	3,396,500	11,712,200	3,435,700	4,319,000	0	0	22,863,400

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 6.5
CITY PUBLIC SERVICE OF SAN ANTONIO
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	2,588	418	0	0	0	0	0	3,006
1978	2,588	836	0	0	0	0	0	3,424
1979	2,588	836	0	0	0	0	80	3,344
1980	2,400	836	0	0	0	0	90	3,146
1981	2,400	836	0	0	0	0	0	3,236
1982	2,400	836	0	0	0	0	500	2,736
1983	2,400	810	0	0	0	0	400	2,810
1984	2,400	810	0	0	0	0	200	3,010
1985	2,400	810	0	0	0	0	500	2,710
1986	2,390	810	0	0	0	0	200	3,000
1987	2,390	810	0	0	0	0	275	2,925
1988	2,390	810	0	350	0	0	0	3,550
1989	2,385	810	0	700	0	0	0	3,895
1990	2,385	810	0	700	0	0	0	3,895
1991	2,391	810	0	700	0	0	0	3,901
1992	2,391	1,308	0	700	0	0	0	4,399
1993	2,391	1,308	0	700	0	0	0	4,399
1994	2,391	1,308	0	700	0	0	0	4,399
1995	2,391	1,308	0	700	0	0	0	4,399
1996	2,391	1,308	0	700	0	0	0	4,399
1997	2,391	1,308	0	700	0	0	0	4,399
1998	2,391	1,308	0	700	0	0	0	4,399
1999	2,461	1,308	0	700	0	0	0	4,469
2000	2,601	1,308	0	700	0	0	0	4,609
2001	2,741	1,308	0	700	0	0	0	4,749
2002	2,741	1,808	0	700	0	0	0	5,249
2003	2,741	1,808	0	700	0	0	0	5,249
2004	2,741	1,808	0	700	0	0	0	5,249
2005	2,741	1,808	500	700	0	0	0	5,749
2006	2,641	1,808	500	700	0	0	0	5,649

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER SEVEN

SOUTHWESTERN PUBLIC SERVICE COMPANY

Southwestern Public Service Company (SPS) is a fully integrated, investor-owned, multi-jurisdictional, summer-peaking electric utility serving approximately 354,000 customers. The principal business of SPS is the generation, transmission, distribution, and sale of electric energy. SPS serves a population of approximately one million in a 52,000-square-mile area which includes the Panhandle and South Plains area of Texas, eastern and southeastern New Mexico, the Oklahoma Panhandle, and a small part of southwestern Kansas. Major cities served include Amarillo, Lubbock, and Plainview in Texas; Clovis, Roswell, and Hobbs in New Mexico; Guymon in Oklahoma; and Elkhart in Kansas. Customer density is approximately 6.8 customers per square mile. The major economic activities in the area include petroleum production and the agricultural industry.

Total sales for 1991 were 16,020,011 MWH, up from 15,738,943 in 1990. The system peak was 3,079 MW in 1991 after adjustments for interruptible load. Total FERC jurisdictional sales account for about 30 percent of total sales.

In 1991, Texas retail jurisdictional sales were approximately 60 percent of the total company sales, with Texas residential being 11 percent; commercial, 8 percent; industrial, 38 percent; and municipal, 2 percent of total company sales.

At present, SPS has seven principal generating stations: two coal-fueled; and five gas-fueled stations. The coal-fueled units accounted for about 75 percent of fuel dollars spent and 74 percent of electricity generated in 1991. The average cost of coal paid by the company to generate a KWH increased about 1 percent, while the average cost paid for natural gas to generate a KWH decreased about 20 percent during 1991. As a result the average cost that SPS paid for fuel to generate a KWH decreased 5 percent.

The consolidated revenues for fiscal 1991, which ended August 31, 1991, totaled \$724,825,000. The total capitalization of SPS is \$1,293,085,000 of which 52.1 percent is common stock, 7.7 percent is preferred stock, and 40.2 percent is long-term debt.

RESOURCE PLAN FILED WITH PUCT

SPS is a summer-peaking utility. The 1991 net firm peak of 3,079 MW occurred in August, and the estimated Texas portion of that peak was 2,282 MW after adjustments for interruptible load. The reserve margin for SPS in 1991 was 30.1 percent.

SPS is a member of the Southwest Power Pool (SPP) and is interconnected through a synchronous 230-KV transmission line to Public Service Company of Oklahoma (PSO) from Amarillo to Elk City, Oklahoma, and a synchronous 345-KV transmission line from Lubbock to the Oklaunion power plant. Two high voltage direct current (HVDC) asynchronous ties, rated 200 MW each, interconnect SPS to the Western Systems Coordinating Council. The HVDC terminals are located at Artesia and Clovis, New Mexico, and are connected with El Paso Electric and Texas-New Mexico Power and Public Service Company of New Mexico, respectively. These four major inter-ties have greatly enhanced the efficient use of SPS's electrical resources and facilities as well as the reliability of the system.

Demand Forecast

In formulating its forecasts, SPS employs an Autoregressive Integrated Moving-Average model using historical monthly system energy data obtained from company records. SPS adjusts this forecast to allow for factors such as performance of the economy, major industrial loads, and contract changes.

Number of Customers SPS's forecasts do not include numbers of customers. The company provided electric service to 193,894 residential customers, 31,688 commercial customers, and 2,450 industrial customers in 1991 in Texas. (See Table 7.1.)

SOUTHWESTERN PUBLIC SERVICE COMPANY

Sales

Total company sales of 16,020,011 MWH in calendar 1991 are projected to increase at a compound growth rate of about 1.8 percent from 1991 through 2001, as shown in Figure 7.1.

Of this total 12,515,238 MWH, or 78 percent, are classified as retail.

Wholesale sales of 3,504,773 MWH account for the remaining 22 percent of total company sales. All sales for resale are regulated by the Federal Energy Regulatory Commission (FERC).

In 1991, Texas retail sales of 9,643,943 MWH represented approximately 77 percent of the company retail sales and are projected to increase at a 1.4 percent annual compound rate through 1995.¹ These sales comprise about 60 percent of the total company sales.

Texas residential sales of 1,749,385 MWH in 1991 represent 18.1 percent of Texas jurisdictional (retail) sales, as shown in Table 7.2. The company projects a one percent annual compound growth rate for this sector from 1991 through 1995.

Texas commercial sales of 1,352,892 MWH in 1991 represent 14.0 percent of Texas retail sales. SPS projects a 1.4 percent annual compound growth rate for the Texas commercial sector through 1995.

The industrial sector is the primary consumer of power sold by SPS, with Texas industrial sales of 6,042,022 MWH in 1991 representing about 62.7 percent of Texas retail sales.

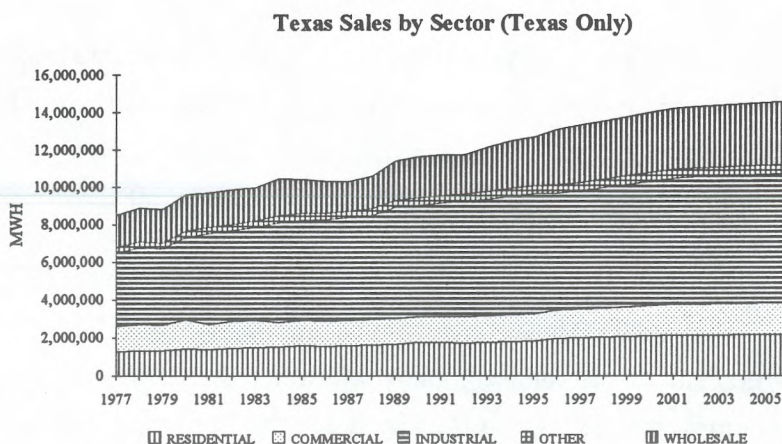


Figure 7.1

¹ SPS does not provide a forecast of sales by class beyond 1995.

RESOURCE PLAN FILED WITH PUCT

SPS projects a 1.5 percent annual compound growth rate for the Texas industrial sector through 1995.

The remaining Texas retail sectors are composed of cotton gins, irrigation, street lighting, municipalities, and guard lights. The sales for this group amounted to 499,644 MWH in 1991 or 5.2 percent of Texas retail sales. The company projects a 1.2 percent annual compound growth rate for these remaining Texas retail sectors as a group.

Sales for resale to customers who are located in the non-ERCOT portions of Texas are FERC-regulated. These sales totaled 2,204,717 MWH in 1991 and represented about 62.9 percent of the total company wholesale sales but only approximately 14 percent of total company sales. This group includes the Texas full-requirements customers and sales to the cities of Floydada, Tulia, Brownfield, and Lubbock.

Peak Demand The company's 1991 system peak of 3,079 MW (after adjustments for interruptible load) occurred in August. The Texas portion of the peak was 2,282 MW. Total system projected firm peak demand reflects a 1.5 percent annual compound growth rate while the Texas portion is 1.6 percent for the 1991-2001 period. (See Figure 7.2 and Table 7.3.)

Demand Side Adjustments The company's primary energy efficiency goal is to increase the efficient utilization of electric facilities and resources by using strategic load growth, valley filling, strategic conservation, and peak clipping. Existing and proposed end-user programs are designed to accomplish this goal. Several of these programs provide incentives to encourage participation, such as programs for new installation and replacement installation of high-efficiency appliances and heat pumps. SPS's demand forecast reflects the impact of interruptible loads.

SUPPLY-SIDE PLAN

SPS's supply-side energy efficiency goals are to improve the heat rate, reduce line losses, and increase plant efficiency and reliability. These goals are being achieved through programs focusing on improving plant performance, along with programs emphasizing the reduction of transmission line losses. In recent years, SPS has been recognized as having one of the lowest heat rates of any utility in the country. Heat rate is a simple measure of the efficiency of converting different types of energy into electrical energy.

Installed Capacity In 1991, SPS had a total system installed capacity of 4,051 MW, with Texas allocated 3,002 MW of this total. Coal is the primary fuel representing 53.0 percent of the total system capacity; gas accounts for 46.1 percent; and other fuels account for less than 1 percent.

Net System Capacity

As shown in Table 7.5, the projected net system capacity for 2001 is 4,115 MW with allocation to Texas being 3,079 MW of the total. SPS policy is to maintain a net capacity margin in accordance with SPP guidelines. In 1991, the SPS reserve margin was 30.1 percent. By year 2001, the reserve margin is projected to decline to 15.1 percent.

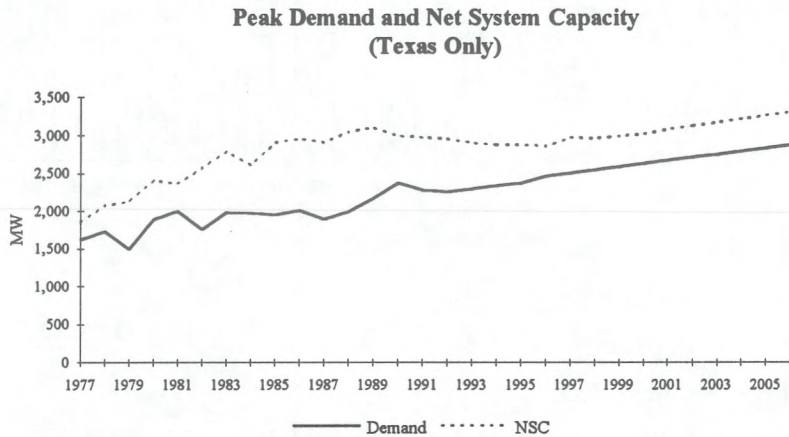


Figure 7.2

Net Generation

In 1991, coal fuel produced 72.9 percent of total system energy requirements with gas and oil fuel supplying 25.6 percent, and "other fuel" 1.5 percent of the total. (See Figure 7.3 and Table

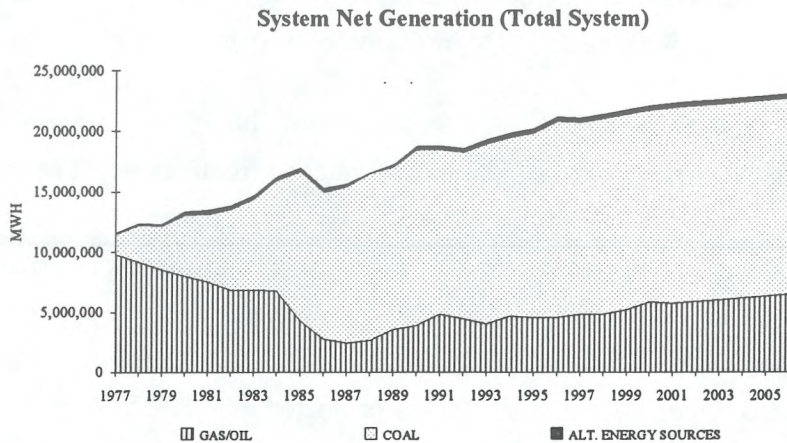


Figure 7.3

7.4.) About 18 small power producers/wind generators are connected with SPS.

System Expansion

A previously retired 10-MW gas turbine unit has been relocated to the Mad-dox Plant in New Mexico and is scheduled to be operational in the spring of 1992. This unit provides the system with black-start capability.

Within the next ten years, SPS plans to refurbish three of its existing units, which adds 48 MW in 1999, 50 MW in 2000, and 25 MW in 2001.

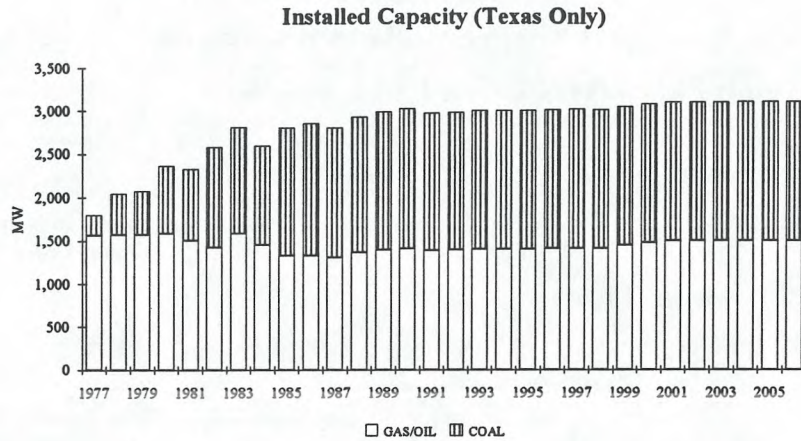


Figure 7.4

SPS completed a new 345-KV transmission line between Tolk Station in Texas and the company's Eddy County interchange near Artesia, New Mexico. The 157-mile line ensures the efficiency and reliability of the electric system as demand for power increases. The in-service date was in November 1991.

Transmission line construction projects planned between 1992 and 1996 include nine 115-KV transmission projects, totaling 89.6 miles, five 230-KV transmission projects totaling 215 miles, and one 345-KV transmission project of 55 miles.

Changes Since the 1989 Filing

A comparison of the 1989 filing and the current one indicates somewhat higher growth rates. The peak demand growth in the previous filing was 1.1 percent for Texas and 1.2 percent for the total system. Peak demand in the current filing is expected to grow at 1.6 percent for Texas and 1.5 percent for the total system. In the 1989 filing, the 1999 peak was expected to be 2,493 MW in Texas and 3,363 MW for the total system; but in the current forecast, peak demand in 1999 is projected as 2,592 MW in Texas and 3,457 MW for the total system. For the SPS resource plan, a 10-MW addition has been postponed from

SOUTHWESTERN PUBLIC SERVICE COMPANY

1990 to 1992. No other capacity additions were planned in the previous filing. However in this forecast period, a 123-MW addition through plant refurbishment is planned.

RESOURCE PLAN FILED WITH PUCT

**TABLE 7.1A
SOUTHWESTERN PUBLIC SERVICE COMPANY
NUMBER OF CUSTOMERS - TOTAL
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS**

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	na	na	na	na	na
1978	220,586	35,208	3,653	24,013	26
1979	225,198	35,944	3,730	24,515	27
1980	236,965	34,220	3,093	22,589	17
1981	243,442	36,303	1,950	23,630	17
1982	248,543	37,211	2,118	24,449	17
1983	268,260	42,594	4,075	27,078	17
1984	272,934	42,842	4,409	27,664	17
1985	274,506	43,289	4,642	27,896	17
1986	272,950	42,947	4,757	28,090	17
1987	272,359	42,837	4,775	28,520	17
1988	272,292	42,824	4,860	29,005	17
1989	272,358	43,232	4,853	29,437	18
1990	273,152	43,394	4,913	29,854	18
1991	274,646	43,805	5,013	30,544	18
1992	274,646	43,805	5,013	30,544	18
1993	274,646	43,805	5,013	30,544	18
1994	274,646	43,805	5,013	30,544	18
1995	274,646	43,805	5,013	30,544	18
1996	274,646	43,805	5,013	30,544	18
1997	274,646	43,805	5,013	30,544	18
1998	274,646	43,805	5,013	30,544	18
1999	274,646	43,805	5,013	30,544	18
2000	274,646	43,805	5,013	30,544	18
2001	274,646	43,805	5,013	30,544	18
2002	274,646	43,805	5,013	30,544	18
2003	274,646	43,805	5,013	30,544	18
2004	274,646	43,805	5,013	30,544	18
2005	274,646	43,805	5,013	30,544	18
2006	274,646	43,805	5,013	30,544	18

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.
- 4) SPS does not forecast the number of customers.

SOURCE: Load Forecast 1991 Filing, Request 3.01

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE 7.1B
SOUTHWESTERN PUBLIC SERVICE COMPANY
NUMBER OF CUSTOMERS - TEXAS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	na	na	na	na	na
1978	169,355	27,415	2,202	17,409	22
1979	172,907	27,990	2,248	17,777	22
1980	178,518	25,772	2,936	16,739	12
1981	183,384	27,729	1,779	17,491	12
1982	187,121	28,435	1,930	18,033	12
1983	189,872	30,625	2,160	18,176	12
1984	193,429	30,764	2,315	18,634	12
1985	194,325	31,062	2,385	18,708	12
1986	194,318	30,959	2,510	18,949	12
1987	194,000	30,927	2,525	19,061	12
1988	194,017	30,966	2,545	19,307	12
1989	193,638	31,281	2,505	19,527	13
1990	193,523	31,344	2,493	19,739	13
1991	193,894	31,688	2,450	20,148	13
1992	193,894	31,688	2,450	20,148	13
1993	193,894	31,688	2,450	20,148	13
1994	193,894	31,688	2,450	20,148	13
1995	193,894	31,688	2,450	20,148	13
1996	193,894	31,688	2,450	20,148	13
1997	193,894	31,688	2,450	20,148	13
1998	193,894	31,688	2,450	20,148	13
1999	193,894	31,688	2,450	20,148	13
2000	193,894	31,688	2,450	20,148	13
2001	193,894	31,688	2,450	20,148	13
2002	193,894	31,688	2,450	20,148	13
2003	193,894	31,688	2,450	20,148	13
2004	193,894	31,688	2,450	20,148	13
2005	193,894	31,688	2,450	20,148	13
2006	193,894	31,688	2,450	20,148	13

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.
- 4) SPS does not forecast the number of customers.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 7.2A
SOUTHWESTERN PUBLIC SERVICE COMPANY
ANNUAL SALES BY SECTOR - TOTAL SYSTEM (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	1,645,699	1,601,723	4,579,762	385,292	2,292,933	10,676,311	20,426
1978	1,702,885	1,657,381	4,738,904	398,680	2,372,610	11,047,300	306,088
1979	1,687,913	1,642,810	4,697,239	395,175	2,351,750	10,950,172	404,828
1980	1,836,174	1,787,109	5,109,830	429,886	2,558,320	11,912,001	370,092
1981	1,777,652	1,639,408	5,572,468	413,787	2,435,814	12,011,202	338,098
1982	1,866,497	1,768,316	5,589,250	421,156	2,485,524	12,309,009	533,285
1983	2,026,907	1,844,784	6,004,023	460,538	2,544,006	13,019,558	567,871
1984	2,119,946	1,745,802	6,607,322	479,982	3,211,529	14,314,423	684,978
1985	2,186,214	1,796,600	6,601,987	482,992	3,076,960	14,298,143	1,484,404
1986	2,162,034	1,785,592	6,562,528	475,536	2,924,941	14,019,776	281,466
1987	2,205,303	1,770,850	6,668,888	477,436	2,768,478	14,008,672	543,028
1988	2,260,953	1,792,558	6,801,282	492,211	2,963,816	14,464,409	1,050,673
1989	2,305,986	1,826,933	7,244,651	507,263	3,265,984	15,314,803	1,814,473
1990	2,404,409	1,835,512	7,353,752	532,348	3,443,881	15,738,943	2,046,497
1991	2,432,921	1,831,955	7,563,277	532,817	3,504,773	16,020,011	1,741,192
1992	2,409,486	1,861,027	7,623,663	542,248	3,360,419	15,942,653	1,570,304
1993	2,449,032	1,882,686	7,751,337	550,289	3,652,107	16,433,511	1,738,204
1994	2,488,860	1,907,143	7,879,868	558,555	3,857,478	16,842,368	1,861,614
1995	2,528,686	1,932,647	8,011,760	567,052	3,927,638	17,120,700	1,968,654
1996	2,620,869	2,008,746	8,298,940	588,270	4,013,445	17,688,732	2,290,414
1997	2,659,563	2,036,345	8,422,737	596,741	4,108,522	17,984,713	1,921,255
1998	2,704,531	2,070,232	8,565,966	606,788	4,173,407	18,284,456	1,898,501
1999	2,750,955	2,106,847	8,712,008	617,306	4,235,785	18,589,233	1,952,213
2000	2,795,689	2,140,563	8,854,067	627,290	4,312,514	18,899,161	1,976,453
2001	2,842,606	2,176,483	9,002,734	637,819	4,382,754	19,214,273	1,828,155
2002	2,857,001	2,187,692	9,048,138	641,066	4,403,702	19,310,344	1,856,162
2003	2,871,062	2,198,334	9,092,767	644,209	4,426,928	19,406,896	1,884,599
2004	2,885,506	2,209,414	9,138,509	647,452	4,448,579	19,503,931	1,913,471
2005	2,899,949	2,220,502	9,184,221	650,695	4,470,740	19,601,450	1,942,785
2006	2,914,409	2,231,548	9,230,035	653,937	4,493,311	19,699,457	1,972,548

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.
- 4) SPS provides a system forecast by sector and a 10-year total system forecast.

SOURCE: Load Forecast 1991 Filing, Request 2.01

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE 7.2B

SOUTHWESTERN PUBLIC SERVICE COMPANY
 ANNUAL SALES BY SECTOR - TEXAS SYSTEM (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	1,272,347	1,325,110	3,886,667	301,815	1,721,593	8,632,528	16,516
1978	1,330,398	1,385,568	4,063,996	315,586	1,800,141	9,026,386	250,094
1979	1,316,273	1,370,857	4,020,849	312,235	1,781,029	8,930,554	330,163
1980	1,435,533	1,495,063	4,385,155	340,525	1,942,398	9,739,701	302,601
1981	1,382,199	1,338,003	4,805,373	324,502	1,833,011	9,810,495	276,151
1982	1,441,773	1,446,682	4,799,030	324,721	1,846,866	9,989,038	432,773
1983	1,497,989	1,431,293	4,940,603	341,604	1,760,195	10,064,518	438,982
1984	1,531,608	1,293,704	5,285,234	357,145	1,962,601	10,536,157	504,179
1985	1,586,629	1,331,817	5,322,178	357,678	1,804,123	10,515,829	1,091,732
1986	1,562,814	1,324,276	5,384,073	351,786	1,696,538	10,390,634	208,606
1987	1,594,405	1,322,084	5,444,701	351,494	1,592,783	10,386,608	402,623
1988	1,633,419	1,330,305	5,514,974	361,484	1,746,241	10,699,549	777,199
1989	1,666,242	1,358,858	5,882,125	371,060	2,095,262	11,483,361	1,360,530
1990	1,741,999	1,358,004	5,922,763	394,948	2,223,356	11,752,266	1,528,119
1991	1,749,385	1,352,892	6,042,022	394,813	2,204,717	11,848,660	1,287,814
1992	1,736,438	1,374,738	6,098,394	400,641	2,107,342	11,817,637	1,164,002
1993	1,764,943	1,390,774	6,200,761	406,601	2,375,924	12,240,630	1,294,715
1994	1,793,656	1,408,943	6,303,724	412,762	2,557,865	12,580,222	1,390,512
1995	1,822,356	1,427,906	6,409,266	419,084	2,604,709	12,788,267	1,470,482
1996	1,957,652	1,500,428	6,198,874	439,407	2,997,833	13,212,557	1,710,819
1997	1,986,555	1,521,043	6,291,344	445,734	3,068,851	13,433,639	1,435,077
1998	2,020,143	1,546,355	6,398,328	453,239	3,117,317	13,657,532	1,418,081
1999	2,054,819	1,573,704	6,507,414	461,096	3,163,910	13,885,184	1,458,201
2000	2,088,233	1,598,888	6,613,525	468,552	3,221,222	14,116,684	1,476,307
2001	2,123,278	1,625,719	6,724,571	476,417	3,273,688	14,352,056	1,365,536
2002	2,134,030	1,634,091	6,758,485	478,843	3,289,335	14,423,817	1,386,456
2003	2,144,533	1,642,041	6,791,821	481,190	3,306,684	14,495,936	1,407,697
2004	2,155,322	1,650,317	6,825,988	483,613	3,322,856	14,568,416	1,429,262
2005	2,166,110	1,658,599	6,860,132	486,035	3,339,409	14,641,258	1,451,159
2006	2,176,911	1,666,849	6,894,353	488,457	3,356,268	14,714,464	1,473,390

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.
- 4) SPS provides a system forecast by sector and a 10-year total system forecast.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

**TABLE 7.3A
SOUTHWESTERN PUBLIC SERVICE COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS**

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	2,154	0	0	0	2,154	2,464	14.41%
1978	2,298	0	-5	0	2,293	2,740	19.49%
1979	1,985	0	-5	0	1,980	2,805	41.65%
1980	2,479	0	-23	0	2,456	3,131	27.47%
1981	2,569	0	-22	0	2,547	3,006	18.01%
1982	2,373	0	-20	0	2,353	3,444	46.38%
1983	2,559	0	-13	0	2,546	3,574	40.39%
1984	2,713	0	-14	0	2,699	3,560	31.88%
1985	2,761	0	-13	0	2,748	4,079	48.42%
1986	2,837	0	-13	0	2,824	4,156	47.15%
1987	2,717	0	-13	0	2,704	4,152	53.55%
1988	2,741	0	-13	0	2,728	4,168	52.79%
1989	2,930	0	-15	0	2,915	4,168	42.99%
1990	3,156	0	-18	0	3,138	3,960	26.20%
1991	3,097	0	-18	0	3,079	4,006	30.11%
1992	3,071	9	-22	-22	3,036	3,981	31.11%
1993	3,123	63	-82	-25	3,079	3,889	26.29%
1994	3,180	63	-82	-31	3,130	3,848	22.95%
1995	3,235	64	-82	-35	3,182	3,848	20.94%
1996	3,292	117	-82	-39	3,288	3,808	15.82%
1997	3,350	120	-82	-44	3,344	3,958	18.35%
1998	3,409	122	-82	-49	3,400	3,946	16.06%
1999	3,469	124	-82	-54	3,457	3,983	15.20%
2000	3,530	126	-82	-60	3,514	4,033	14.76%
2001	3,593	129	-82	-66	3,574	4,115	15.14%
2002	3,647	132	-82	-72	3,625	4,174	15.14%
2003	3,701	135	-82	-78	3,676	4,233	15.14%
2004	3,757	138	-82	-84	3,729	4,293	15.14%
2005	3,813	141	-82	-90	3,782	4,355	15.14%
2006	3,870	144	-82	-96	3,836	4,417	15.14%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) SPS provides a 10-year forecast only.

SOURCE: Load Forecast 1991 Filing, Request 1.01

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE 7.3B
SOUTHWESTERN PUBLIC SERVICE COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

ADJUSTMENTS TO PEAK DEMAND

YEAR	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM	PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
1977	1,623	0	0	0	1,623	1,857	14.41%
1978	1,734	0	0	0	1,734	2,073	19.49%
1979	1,500	0	0	0	1,500	2,125	41.65%
1980	1,913	0	-23	0	1,890	2,409	27.47%
1981	2,023	0	-22	0	2,001	2,361	18.01%
1982	1,776	0	-20	0	1,756	2,570	46.38%
1983	2,001	0	-13	0	1,988	2,791	40.39%
1984	1,989	0	-14	0	1,975	2,605	31.88%
1985	1,968	0	-13	0	1,955	2,902	48.42%
1986	2,022	0	-13	0	2,009	2,956	47.15%
1987	1,905	0	-13	0	1,892	2,905	53.55%
1988	2,005	0	-13	0	1,992	3,044	52.79%
1989	2,187	0	-15	0	2,172	3,106	42.99%
1990	2,387	0	-18	0	2,369	2,990	26.20%
1991	2,300	0	-18	0	2,282	2,969	30.11%
1992	2,288	9	-22	-22	2,253	2,954	31.11%
1993	2,334	63	-73	-25	2,299	2,903	26.29%
1994	2,376	63	-73	-31	2,335	2,871	22.95%
1995	2,418	64	-73	-35	2,374	2,871	20.94%
1996	2,459	117	-73	-39	2,464	2,854	15.82%
1997	2,504	120	-73	-44	2,507	2,967	18.35%
1998	2,547	122	-73	-49	2,547	2,956	16.06%
1999	2,595	124	-73	-54	2,592	2,986	15.20%
2000	2,634	126	-73	-60	2,627	3,015	14.76%
2001	2,684	129	-73	-66	2,674	3,079	15.14%
2002	2,726	132	-73	-72	2,713	3,122	15.10%
2003	2,768	135	-73	-78	2,752	3,169	15.14%
2004	2,811	138	-73	-84	2,792	3,215	15.14%
2005	2,855	141	-73	-90	2,833	3,262	15.14%
2006	2,899	144	-73	-96	2,874	3,310	15.14%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) SPS provides a 10-year forecast only.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 7.4
SOUTHWESTERN PUBLIC SERVICE COMPANY
NET GENERATION BY FUEL TYPE - TOTAL (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	9,776,316	1,696,930	0	0	0	95,904	11,569,150
1978	9,174,482	3,081,090	0	0	0	95,550	12,351,122
1979	8,526,088	3,640,174	0	0	0	118,116	12,284,378
1980	8,000,494	5,097,228	0	0	0	249,810	13,347,532
1981	7,500,734	5,650,155	0	0	0	280,902	13,431,791
1982	6,856,212	6,726,605	0	0	0	247,108	13,829,925
1983	6,824,638	7,577,769	0	0	0	286,795	14,689,202
1984	6,767,722	9,167,014	0	0	0	254,034	16,188,770
1985	4,264,732	12,402,662	0	0	0	299,618	16,967,012
1986	2,724,985	12,233,166	0	0	0	307,501	15,265,652
1987	2,407,612	13,003,547	0	0	0	233,422	15,644,581
1988	2,634,759	13,871,897	0	0	0	0	16,506,656
1989	3,541,216	13,498,720	0	0	0	189,486	17,229,422
1990	3,866,282	14,615,390	0	0	0	278,988	18,760,660
1991	4,813,256	13,678,012	0	0	0	276,105	18,767,373
1992	4,468,647	13,783,400	0	0	0	313,900	18,565,947
1993	4,031,600	14,915,200	0	0	0	313,100	19,259,900
1994	4,629,251	14,858,600	0	0	0	313,100	19,800,951
1995	4,572,291	15,280,900	0	0	0	313,100	20,166,291
1996	4,528,700	16,265,900	0	0	0	313,900	21,108,500
1997	4,824,156	15,877,400	0	0	0	313,100	21,014,656
1998	4,806,800	16,216,400	0	0	0	313,100	21,336,300
1999	5,178,000	16,217,100	0	0	0	313,100	21,708,200
2000	5,803,300	15,931,000	0	0	0	313,900	22,048,200
2001	5,716,500	16,220,000	0	0	0	313,100	22,249,600
2002	5,859,029	16,220,000	0	0	0	313,020	22,392,049
2003	6,005,111	16,220,000	0	0	0	312,940	22,538,051
2004	6,154,836	16,220,000	0	0	0	312,860	22,687,696
2005	6,308,293	16,220,000	0	0	0	312,781	22,841,074
2006	6,465,577	16,220,000	0	0	0	312,701	22,998,278

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) SPS provides a 10-year forecast only.

SOURCE: Load Forecast 1991 Filing, Request 2.01

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE 7.5A
SOUTHWESTERN PUBLIC SERVICE COMPANY
NET SYSTEM CAPACITY BY SOURCE - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR					FIRM		FIRM OFF-SYSTEM SALES	RESERVE MARGIN
	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES		
1977	2,074	317	0	0	66	0	5	2,464
1978	2,074	634	0	0	66	0	46	2,740
1979	2,074	671	0	0	66	0	48	2,805
1980	2,063	1,009	0	0	66	0	49	3,131
1981	1,917	1,044	0	0	66	0	56	3,006
1982	1,911	1,552	0	0	66	0	120	3,444
1983	2,030	1,568	0	0	0	0	59	3,574
1984	1,983	1,568	0	0	0	0	26	3,560
1985	1,866	2,076	0	0	200	0	102	4,079
1986	1,866	2,146	0	0	200	0	95	4,156
1987	1,866	2,146	0	0	200	0	99	4,152
1988	1,866	2,146	0	0	200	0	83	4,168
1989	1,866	2,146	0	0	200	0	83	4,168
1990	1,866	2,146	0	0	0	0	91	3,960
1991	1,866	2,146	0	0	0	0	45	4,006
1992	1,876	2,146	0	0	0	0	81	3,981
1993	1,876	2,146	0	0	0	0	173	3,889
1994	1,876	2,146	0	0	0	0	213	3,848
1995	1,876	2,146	0	0	0	0	213	3,848
1996	1,876	2,146	0	0	0	0	253	3,808
1997	1,876	2,146	0	0	0	0	104	3,958
1998	1,876	2,146	0	0	0	0	115	3,946
1999	1,924	2,146	0	0	0	0	127	3,983
2000	1,974	2,146	0	0	0	0	127	4,033
2001	1,999	2,146	0	0	0	0	69	4,115
2002	1,999	2,146	0	0	0	0	12	4,174
2003	1,999	2,146	0	0	0	49	0	4,233
2004	1,999	2,146	0	0	0	109	0	4,293
2005	1,999	2,146	0	0	0	171	0	4,355
2006	1,999	2,146	0	0	0	233	0	4,417

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) SPS provides a 10-year forecast only.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 7.5B
SOUTHWESTERN PUBLIC SERVICE COMPANY
NET SYSTEM CAPACITY BY SOURCE - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	1,563	239	0	0	50	0	3	1,857
1978	1,569	480	0	0	50	0	35	2,073
1979	1,571	508	0	0	50	0	37	2,125
1980	1,588	776	0	0	51	0	38	2,409
1981	1,506	820	0	0	52	0	44	2,361
1982	1,426	1,158	0	0	49	0	89	2,570
1983	1,585	1,224	0	0	0	0	46	2,791
1984	1,451	1,147	0	0	0	0	19	2,605
1985	1,328	1,477	0	0	142	0	73	2,902
1986	1,327	1,527	0	0	142	0	68	2,956
1987	1,306	1,502	0	0	140	0	69	2,905
1988	1,363	1,567	0	0	146	0	60	3,044
1989	1,390	1,599	0	0	149	0	62	3,106
1990	1,409	1,620	0	0	0	0	69	2,990
1991	1,383	1,591	0	0	0	0	33	2,969
1992	1,392	1,593	0	0	0	0	60	2,954
1993	1,401	1,602	0	0	0	0	129	2,903
1994	1,400	1,601	0	0	0	0	159	2,871
1995	1,400	1,601	0	0	0	0	159	2,871
1996	1,406	1,608	0	0	0	0	190	2,854
1997	1,406	1,609	0	0	0	0	78	2,967
1998	1,405	1,608	0	0	0	0	86	2,956
1999	1,443	1,609	0	0	0	0	95	2,986
2000	1,476	1,604	0	0	0	0	95	3,015
2001	1,496	1,606	0	0	0	0	52	3,079
2002	1,496	1,606	0	0	0	0	9	3,122
2003	1,496	1,607	0	0	0	37	0	3,169
2004	1,497	1,607	0	0	0	82	0	3,215
2005	1,497	1,608	0	0	0	128	0	3,262
2006	1,498	1,608	0	0	0	175	0	3,310

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) SPS provides a 10-year forecast only.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER EIGHT

SOUTHWESTERN ELECTRIC POWER COMPANY

Southwestern Electric Power Company (SWEPCO) is a subsidiary of Central and South West Corporation, Inc., a holding company that controls SWEPCO, CPL, WTU, and Public Service of Oklahoma (PSO). SWEPCO is a public utility engaged in generating, purchasing, transmitting, and distributing electricity in portions of northeastern Texas, northwestern Louisiana, and western Arkansas. The company also owns some transmission facilities in Oklahoma, but serves no customers there. SWEPCO functions as a member of the Southwest Power Pool (SPP).

SWEPCO is an investor-owned utility. Equity accounts for 51 percent of the capital structure while 4 percent is held as preferred stock. As of December 1991, the company's total assets were valued at \$1,851,108,000 and long-term debt comprised 45 percent of its total capital structure. Revenues for the twelve months ending December 1991 totaled \$760,694,000. Aggregate sales in Texas during 1991 are projected at 8,155,376 MWH.

The company's 1991 peak demand, after adjustments, of 3,178 MW occurred in August. The Texas portion of that peak demand amounted to 1,640 MW. The utility's 1991 aggregate sales in Texas were 8,155,376 MWH. SWEPCO has an installed capacity of about 4,464 MW. For 1991, about 62 percent of the total electricity generated by the utility used coal as the primary fuel.

Unless otherwise noted, the following analysis of demand for electricity refers to the portion of the SWEPCO system allocated to Texas rather than the entire system.

Demand Forecast

The demand forecast for the 1992 Joint Facilities Plan was performed using a simple econometric model. The regression was performed on the SWEPCO annual peak load using population, real per capita income, and a temperature variable as independent

variables. The economic data used came from a regional model of the SWEPCO service territory prepared by Central and South West Services, Inc.

Number of Customers

As of December 1991, SWEPCO provided electricity to 124,663 residential customers in Texas. Growth over the last ten years in the number of residential customers approximated 0.8 percent annually. SWEPCO expects growth in the

Percentage Change in Number of Residential and Commercial Customers (Texas Only)

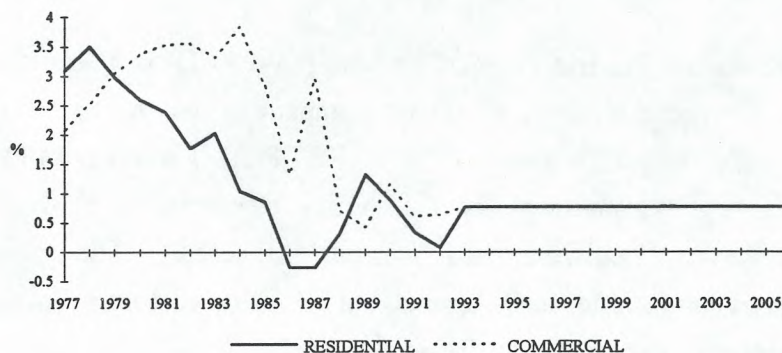


Figure 8.1

number of residential customers to be 0.7 percent per year through 2001. In Texas, the company served 20,935 commercial customers as of December 1991. Growth experienced from 1981 to 1991 was about 2.1 percent annually, but the company projects growth in the number of commercial customers to average 0.8 percent per year. (See Figure 8.1 and Table 8.1B.) Historically, the industrial sector experienced a declining trend through 1989 (2.11 percent annually since 1981). In 1990 and 1991, the number of industrial customers increased by 0.8 percent and 1.0 percent, respectively. The industrial sector had 2,593 customers in 1991, and the company expects that the number of industrial customers will increase by 0.6 percent annually over the next ten years.

Sales

As shown in Table 8.2B, sales to residential customers in 1991 comprised 19 percent of the aggregate sales in Texas. In that year, the residential sector purchased 1,560,113 MWH of electricity. SWEPCO projects an annual compound growth rate for sales to the residential sector of 1.0 percent from 1991 through 2001, down significantly from the 2.2 percent experienced for the years 1981 through 1991, as presented in Figure 8.2.

SOUTHWESTERN ELECTRIC POWER COMPANY

Historically, the commercial sector in Texas exhibited an average compound growth rate of 3.9 percent annually. SWEPCO does not expect this rate to carry over into the future. The company is predicting a 1.7 percent annual growth rate through 2001. Sales to commercial customers

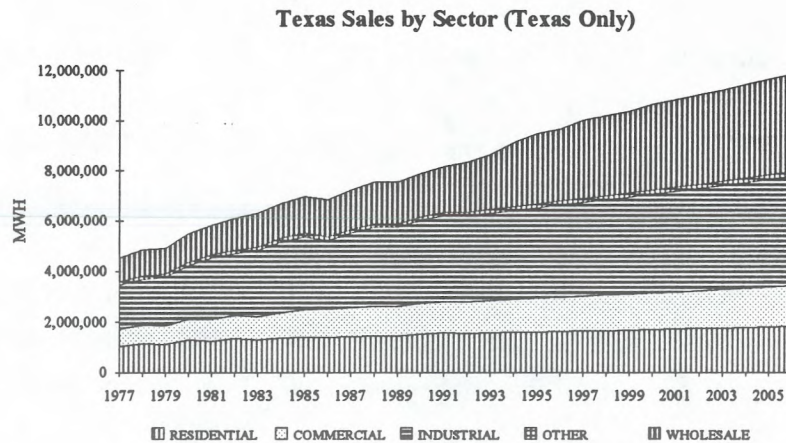


Figure 8.2

in 1991 totaled 1,241,693 MWH, representing 15 percent of the total sales in Texas.

The industrial class is the primary consumer of power in the SWEPCO service area with purchases of 41.7 percent of the total electricity SWEPCO sold in Texas during 1991. Total industrial sales in 1991 were 3,403,078 MWH. During the period 1981 through 1991, sales to this group grew at an annual rate of 3.4 percent. Over the next ten years, a 1.6 percent annual growth rate is expected. SWEPCO anticipates that this class's contribution to total sales will fall to just under 37 percent by 2001.

The remaining retail sales are composed primarily of sales to municipalities for street lighting and other purposes and are expected to represent 1.7 percent of the total 1991 sales in Texas. This group did not experience any significant growth during the past ten years. During the next ten years it is expected that this segment will grow annually at a rate of 2.0 percent.

Sales to wholesale customers represent the second largest segment in the SWEPCO Texas service area with 22.3 percent of the total sales in 1991. The 10-year annual growth rate for this category has been 4.6 percent and is expected to be 6.8 percent for the ten years ending in 2001. By 2001 it is predicted this category will account for nearly one-third of the SWEPCO Texas sales.

RESOURCE PLAN FILED WITH PUCT

Peak Demand Over the period from 1981 through 1991 SWEPCO experienced 1.6 percent annual growth in peak demand for the total system, increasing from 2,723 MW in 1981 to 3,178 MW in 1991 (See Figure 8.3 and Table 8.3.) The peak demand in Texas rose from 1,312 MW in 1981 to 1,640 MW in 1991, representing a 2.3 percent annual growth rate for the Texas portion of the system. Peak demand fell 2.3 percent from 1990 to 1991 for the total system and 0.1 percent for the Texas portion of the system, but is projected to increase 6.5 percent from 3,178 MW to 3,385 MW for the total system and 4.3 percent from 1,640 MW to 1,711 MW for the Texas portion in 1992. Peak demand growth is expected to continue from 1992 to 2006 at about 2 percent for the total system and 2.3 percent for the Texas portion of the system. SWEPCO anticipates a peak demand of 4,440 MW for the total system and 2,366 MW for the Texas portion by 2006.

The coincident peak of the residential sector accounted for 28.4 percent of the Texas system peak demand in 1991; the industrial sector, 28.4 percent; the commercial sector, 17.4 percent; and the wholesale sector, 24.8 percent. The sector with the highest non-coincident peak was the residential sector with 945 MW in 1991. The residential sector was followed by the industrial sector at 646 MW. In 1991, the wholesale sector reached a non-coincident peak of 391; and the commercial sector, 385 MW.

Adjustments to Demand SWEPCO's goals are to promote the efficient use of electricity to all customer classes, to encourage customer action to accomplish cost-effective conservation measures, and to offer further advice or assistance on specific energy needs identified by customers and allies. In an effort to achieve these goals, the company offers passive and active demand-side management programs to its customers. One passive program provides advice and assistance to improve energy use in residential dwellings through improved thermal standards, high-efficiency heating and cooling systems, and high efficiency water heating equipment. The other passive program promotes the replacement of inefficient existing heating and cooling systems with high-efficiency heat pumps. In addition, SWEPCO also offers an interruptible load program. The company's peak demand forecast was adjusted for the effects of the passive demand-side management programs mentioned above. The peak forecast was not adjusted for the effect of interruptible load as it is assumed to be embedded in the historical system data. The peak forecast was also adjusted for the effects of the National Appliance Energy Conservation Act (NAECA).

Supply-Side Plan

SWEPCO has 16 current and planned projects to improve the efficiency of its generation. Four projects focus on improvements in transmission and distribution plant and equipment efficiencies.

From 1991 to 2006, SWEPCO anticipates purchasing 10,800 MWH annually from two cogenerators that are currently connected to the system.

Installed Capacity In 1991, SWEPCO had an installed capacity of about 4,464 MW. About 41 percent of this capacity is fueled by coal; an equal percentage, by gas. The remainder of the installed capacity is fueled by lignite.

SWEPCO reported a production plant balance at year-end 1991 of about \$1.32 billion less accumulated depreciation of \$0.45 billion for a book value of about \$0.87 billion.

Net System Capacity

As shown in Figure 8.3 and Table 8.5, the net system capacity for the total system was 3,177 MW, with 1,531 MW attributed to Texas in 1981. SWEPCO maintained a 16.7 percent reserve margin in that year. By

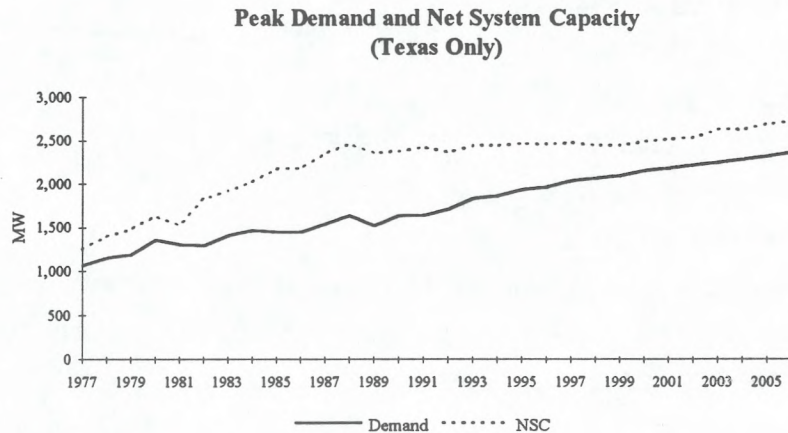


Figure 8.3

1991, net capacity had grown to 4,701 MW for the total system and 2,426 MW attributable to the Texas portion of the system, depicting annual growth rates of 4.0 percent and 4.7 percent respectively. The utility's reserve margin for 1991 was 47.9 percent. The company expects its reserve margin to decline at an average rate of 7.4 percent each year, resulting in a system-wide reserve margin of 15.1 percent for 2006, when the net system capacity for the total system is expected to be 5,108 MW.

Net Generation

In 1981, SWEPCO generated 53 percent of its electricity using gas or oil, as presented in Figure 8.4 and Table 8.4. The utility had begun to use coal as early as 1977 and began using lignite in 1985. Generation using coal accounted for 47 percent of the system total in 1981. By 1991, coal accounted for 62 percent of net generation. Lignite generation contributed 28 percent of the total. Generation using gas or oil was comparatively low, down to only 10 percent.

Over the forecast period from 1991 to 2006, it is the intention of SWEPCO to maintain fairly constant levels of generation using coal and lignite. Any projected increase in the total net generation will be allocated to generation using gas, until the addition of future units. By 2006 the

company expects to generate 46.7 percent of its electricity using coal, 25.6 percent using gas, and 27.8 percent using lignite. SWEPCO projects total net generation to be 22,042,000 MWH in 2006 for the total system.

System Expansion

At this time, the Company plans to augment its system with additional generating capacity in the year 2001. Presently, these plans are to repower the Company's Wilkes #2 unit yielding an increase in capability of 87 MW. The company plans to repower the Wilkes #3 unit in 2002, also yielding an increase of 87 MW; to participate with other Central and Southwest companies in a lignite unit at Walker County yielding a 227-MW capacity increase in 2003; also to participate in a coal unit in 2005 yielding 112 MW; and to add two natural gas units in 2006 yielding 364 MW.

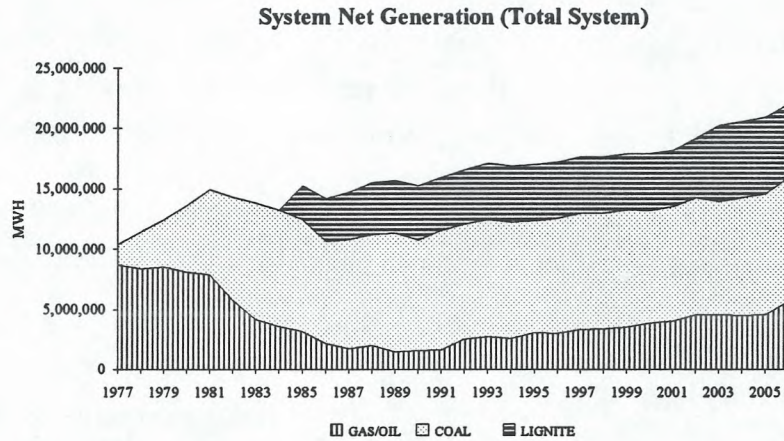


Figure 8.4

SOUTHWESTERN ELECTRIC POWER COMPANY

Planned retirements include: a 56-MW reduction in capacity in 2001 due to the retirement of the Company's Lieberman 1 and Lieberman 2; a 74-MW reduction in 2002 due to Knox Lee 2 and Knox Lee 3; a 50-MW reduction in 2003 due to the retirement of Lone

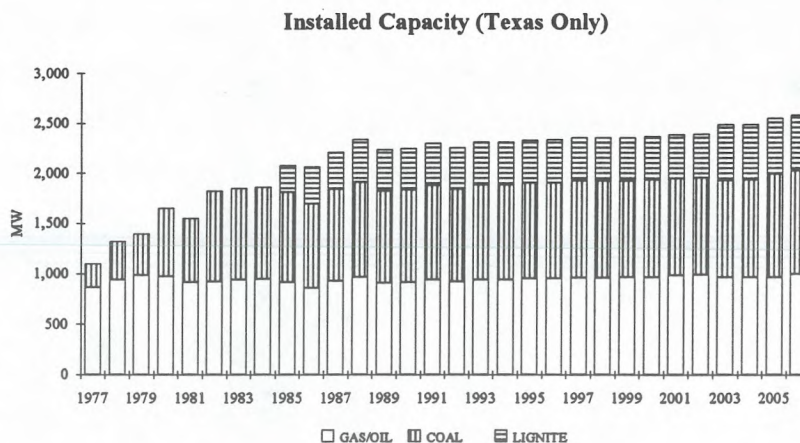


Figure 8.5

Star 1; a 220-MW reduction in 2006 due to the retirement of Lieberman 3 and 4; and an 83-MW reduction also in 2006 due to the retirement of Knox Lee 4. Development of any additional generating units may be limited by financial, transmission, water, and environmental requirements, site layout, and fuel supply. Specific site studies will be required to determine the best technologies and sizes.

The 43.6-mile Carthage-Logansport 138-KV line and the 23.8-mile Knox Lee-Overton 138-KV line were completed in 1991, as were two 69-KV lines totaling 10.5 miles. Transmission projects scheduled to be completed between 1992 and 2001 are: two 345-KV transmission projects, totaling 54 miles; twelve 138-KV transmission projects, totaling more than 225 miles; and 13 69-KV transmission projects, totaling approximately 130 miles.

Changes Since the 1989 Filing

There are several differences between the forecast represented in the 1991 filing and the one from December 1989. A comparison of the two peak load forecasts after adjustments shows a decrease in the growth rate of peak demand in Texas from 3.2 percent in the previous forecast to 2.9 percent in the current forecast. For the total system, the growth in peak demand declined from 3.2 percent to 2.6 percent. Although the growth rate is lower in the current forecast, the actual peak demand forecasted in this filing is higher. In the 1989 filing, the 1999 Texas peak demand was expected to be 1,925 MW, but this filing includes a 1999 peak of 2,100 MW.

RESOURCE PLAN FILED WITH PUCT

SWEPCO's resource plans have also changed since the last forecast. In the 1989 filing, the Company planned to repower Wilkes Unit 2 and 3 in 2000; instead, Unit 2 will be repowered in 2001 and Unit 3 in 2002. A SWEPCO combustion turbine unit previously scheduled for commercial operation in 2001 for 135 MW has been postponed to 2006 with 146 MW. Coieto, a 124-MW coal unit planned for 2002, has been delayed until 2005 and represents an addition of 112 MW. The SWEPCO lignite plant is still scheduled for operation in 2003 but has been changed from an addition of 212 MW to 227 MW.

SOUTHWESTERN ELECTRIC POWER COMPANY

TABLE 8.1A
SOUTHWESTERN ELECTRIC POWER COMPANY
NUMBER OF CUSTOMERS - TOTAL
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL						
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE	
1977	267,069	33,553	6,841	2,000		14
1978	274,935	33,986	6,979	2,055		9
1979	281,709	34,910	7,064	2,137		10
1980	286,861	35,780	7,259	2,193		10
1981	293,146	36,925	7,108	2,327		10
1982	298,079	37,869	6,983	2,386		10
1983	304,457	39,151	6,792	2,390		11
1984	310,912	40,645	6,592	2,436		11
1985	313,336	42,061	6,561	2,443		11
1986	313,951	42,724	6,197	2,507		12
1987	314,265	43,483	6,090	2,555		12
1988	314,910	43,670	5,850	2,586		10
1989	316,819	43,955	5,727	2,610		9
1990	318,794	44,328	5,702	2,639		9
1991	321,248	44,573	5,657	2,621		9
1992	322,925	44,854	5,703	2,666		9
1993	324,841	45,154	5,732	2,681		9
1994	326,775	45,455	5,760	2,698		9
1995	328,727	45,760	5,789	2,630		12
1996	330,697	46,069	5,818	2,731		12
1997	332,684	46,380	5,848	2,747		12
1998	334,694	46,694	5,877	2,765		12
1999	336,719	47,011	5,908	2,780		12
2000	338,763	47,330	5,938	2,798		12
2001	340,828	47,654	5,967	2,815		12
2002	342,913	47,980	5,982	2,832		12
2003	345,016	48,309	6,030	2,850		12
2004	347,139	48,640	6,062	2,869		12
2005	349,282	48,976	6,093	2,886		12
2006	351,447	49,314	6,124	2,904		12

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 8.1B
SOUTHWESTERN ELECTRIC POWER COMPANY
NUMBER OF CUSTOMERS - TEXAS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	102,811	15,098	2,832	718	6
1978	106,412	15,479	2,863	739	6
1979	109,590	15,948	2,951	779	6
1980	112,433	16,486	3,021	814	6
1981	115,114	17,068	3,019	820	6
1982	117,149	17,675	3,009	849	6
1983	119,530	18,262	2,927	840	6
1984	120,767	18,960	2,726	845	6
1985	121,799	19,498	2,688	837	6
1986	121,481	19,757	2,576	851	7
1987	121,162	20,340	2,576	851	7
1988	121,551	20,486	2,553	865	7
1989	123,153	20,573	2,546	870	7
1990	124,249	20,808	2,567	878	7
1991	124,663	20,935	2,593	891	7
1992	124,761	21,067	2,570	874	7
1993	125,716	21,229	2,590	880	7
1994	126,678	21,391	2,610	888	7
1995	127,646	21,555	2,630	894	10
1996	128,622	21,720	2,651	901	10
1997	129,606	21,886	2,672	907	10
1998	130,598	22,054	2,693	915	10
1999	131,599	22,223	2,714	921	10
2000	132,604	22,392	2,735	929	10
2001	133,619	22,565	2,757	936	10
2002	134,641	22,738	2,779	942	10
2003	135,671	22,911	2,801	950	10
2004	136,709	23,087	2,823	957	10
2005	137,756	23,264	2,845	963	10
2006	138,810	23,442	2,868	971	10

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

SOUTHWESTERN ELECTRIC POWER COMPANY

TABLE 8.2A
SOUTHWESTERN ELECTRIC POWER COMPANY
ANNUAL SALES BY SECTOR - TOTAL (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	2,697,444	1,789,406	3,311,770	265,707	1,943,572	10,008,493	-468,843
1978	2,897,967	1,902,912	3,463,476	273,725	1,828,800	10,367,308	315,845
1979	2,782,229	1,908,504	3,622,249	284,539	1,394,968	9,993,189	1,594,155
1980	3,217,160	2,053,027	3,859,622	299,036	1,590,303	11,019,403	1,656,440
1981	3,070,574	2,103,505	4,260,750	303,352	1,610,527	11,349,611	2,691,733
1982	3,224,665	2,258,114	4,340,691	321,025	1,726,849	11,872,280	1,541,157
1983	3,149,545	2,316,591	4,531,631	328,303	1,962,324	12,289,662	614,255
1984	3,325,459	2,485,768	4,811,913	347,619	2,030,192	13,002,529	-531,840
1985	3,475,814	2,646,621	4,998,877	357,112	2,133,785	13,613,642	974,641
1986	3,477,613	2,712,304	4,795,842	354,992	2,160,655	13,502,642	254,378
1987	3,549,134	2,761,099	5,081,988	352,456	2,284,314	14,030,339	124,625
1988	3,596,920	2,840,123	5,325,643	348,657	2,228,298	14,341,019	549,252
1989	3,562,588	2,899,442	5,362,397	352,597	2,161,046	14,338,070	791,972
1990	3,776,303	3,006,373	5,583,317	366,318	2,191,613	14,923,924	-59,146
1991	3,840,944	3,056,299	5,779,059	369,748	2,305,369	15,351,419	102,238
1992	3,867,466	3,127,304	5,808,511	380,678	2,381,950	15,565,909	416,170
1993	3,927,412	3,202,359	5,942,107	388,539	2,569,082	16,029,499	416,170
1994	3,980,432	3,261,603	6,043,123	396,487	2,979,174	16,660,819	-464,830
1995	4,032,178	3,317,050	6,139,813	404,471	3,230,933	17,124,445	-821,830
1996	4,080,564	3,375,098	6,256,469	412,693	3,313,268	17,438,092	-985,830
1997	4,123,410	3,432,475	6,375,342	421,006	3,575,143	17,927,376	-1,054,830
1998	4,166,706	3,482,246	6,486,910	429,518	3,662,022	18,227,402	-1,383,830
1999	4,212,540	3,534,480	6,600,431	438,179	3,751,192	18,536,822	-1,435,830
2000	4,260,984	3,591,032	6,722,539	445,566	3,925,748	18,945,869	-1,902,830
2001	4,314,246	3,648,489	6,846,906	452,905	3,999,353	19,261,899	-1,948,830
2002	4,366,017	3,706,865	6,970,150	460,514	4,088,106	19,591,652	-1,296,830
2003	4,420,592	3,766,175	7,092,128	468,240	4,178,256	19,925,391	-597,830
2004	4,480,270	3,830,200	7,223,332	476,142	4,272,010	20,281,954	-672,830
2005	4,540,754	3,895,313	7,353,352	484,167	4,364,988	20,638,574	-695,830
2006	4,606,595	3,959,586	7,482,036	492,873	4,463,563	21,004,653	54,170

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 8.2B
SOUTHWESTERN ELECTRIC POWER COMPANY
ANNUAL SALES BY SECTOR - TEXAS (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	1,050,391	672,806	1,742,866	103,973	948,598	4,518,634	-211,673
1978	1,146,702	737,924	1,807,155	122,652	1,032,719	4,847,152	147,671
1979	1,109,626	752,224	1,897,235	129,060	1,006,440	4,894,585	780,805
1980	1,291,989	816,185	2,102,380	137,461	1,146,955	5,494,970	826,006
1981	1,252,037	844,648	2,425,697	134,900	1,163,153	5,820,435	1,380,405
1982	1,333,505	923,360	2,438,641	139,463	1,260,551	6,095,520	791,268
1983	1,282,086	938,109	2,604,046	140,489	1,336,898	6,301,628	314,964
1984	1,360,784	1,010,823	2,780,381	153,222	1,374,725	6,679,935	-273,228
1985	1,404,669	1,071,901	2,884,412	154,402	1,455,966	6,971,350	499,100
1986	1,405,523	1,100,872	2,716,673	150,341	1,477,068	6,850,477	129,057
1987	1,428,336	1,123,193	2,955,912	146,261	1,574,429	7,228,131	64,204
1988	1,452,651	1,162,223	3,127,844	132,332	1,672,149	7,547,199	289,053
1989	1,445,421	1,176,385	3,119,813	129,658	1,670,155	7,541,432	416,556
1990	1,526,975	1,221,891	3,273,876	135,119	1,726,317	7,884,178	-31,246
1991	1,560,113	1,241,693	3,403,078	135,278	1,815,214	8,155,376	54,314
1992	1,541,397	1,257,862	3,389,656	138,724	2,001,172	8,328,811	222,679
1993	1,565,289	1,288,051	3,461,292	142,120	2,176,129	8,632,881	224,133
1994	1,586,420	1,311,880	3,520,133	145,056	2,573,631	9,137,120	-254,922
1995	1,607,044	1,334,182	3,576,455	147,977	2,812,368	9,478,026	-454,866
1996	1,626,328	1,357,530	3,644,407	150,985	2,881,234	9,660,484	-546,137
1997	1,643,404	1,380,608	3,713,651	154,026	3,129,175	10,020,864	-589,618
1998	1,660,660	1,400,627	3,778,640	157,140	3,201,641	10,198,708	-774,289
1999	1,678,927	1,421,637	3,844,766	160,309	3,275,901	10,381,540	-804,136
2000	1,698,235	1,444,383	3,915,895	163,011	3,435,030	10,656,554	-1,070,292
2001	1,719,463	1,467,493	3,988,339	165,696	3,492,673	10,833,664	-1,096,100
2002	1,740,096	1,490,973	4,060,129	168,480	3,567,056	11,026,734	-729,892
2003	1,761,847	1,514,829	4,131,181	171,307	3,643,154	11,222,318	-336,708
2004	1,785,632	1,540,581	4,207,607	174,198	3,722,472	11,430,490	-379,193
2005	1,809,738	1,566,771	4,283,344	177,134	3,800,617	11,637,604	-392,362
2006	1,835,980	1,592,622	4,358,303	180,319	3,883,953	11,851,177	30,564

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

SOUTHWESTERN ELECTRIC POWER COMPANY

TABLE 8.3A
SOUTHWESTERN ELECTRIC POWER COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

ADJUSTMENTS TO PEAK DEMAND

YEAR	ADJUSTMENTS TO PEAK DEMAND				PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	2,404	0	0	0	2,404	2,815	17.10%
1978	2,381	0	0	0	2,381	2,897	21.67%
1979	2,291	0	0	0	2,291	2,849	24.36%
1980	2,652	0	0	0	2,652	3,177	19.80%
1981	2,723	0	0	0	2,723	3,177	16.67%
1982	2,668	0	0	0	2,668	3,755	40.74%
1983	2,849	0	0	0	2,849	3,884	36.33%
1984	2,948	0	0	0	2,948	4,067	37.96%
1985	2,943	0	0	0	2,943	4,429	50.49%
1986	3,140	0	0	0	3,140	4,735	50.80%
1987	3,085	0	0	0	3,085	4,713	52.77%
1988	3,153	0	0	0	3,153	4,740	50.33%
1989	3,045	0	0	0	3,045	4,711	54.71%
1990	3,252	0	0	0	3,252	4,706	44.71%
1991	3,200	0	-22	0	3,178	4,701	47.93%
1992	3,459	-13	-61	-1	3,385	4,682	38.32%
1993	3,628	-26	-61	-1	3,540	4,717	33.25%
1994	3,701	-39	-61	-2	3,600	4,722	31.17%
1995	3,819	-51	-61	-2	3,705	4,715	27.26%
1996	3,887	-63	-61	-3	3,760	4,697	24.92%
1997	4,000	-75	-61	-4	3,860	4,689	21.48%
1998	4,068	-87	-61	-4	3,915	4,632	18.31%
1999	4,135	-99	-61	-5	3,970	4,620	16.37%
2000	4,232	-110	-61	-6	4,055	4,683	15.49%
2001	4,299	-121	-61	-7	4,110	4,738	15.28%
2002	4,376	-132	-61	-8	4,175	4,766	14.16%
2003	4,447	-143	-61	-9	4,235	4,943	16.72%
2004	4,518	-153	-61	-9	4,295	4,933	14.85%
2005	4,603	-168	-61	-9	4,365	5,055	15.81%
2006	4,683	-172	-61	-9	4,440	5,108	15.05%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Data includes power supplied to NTEC.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 8.3B
SOUTHWESTERN ELECTRIC POWER COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	1,072	0	0	0	1,072	1,255	17.10%
1978	1,153	0	0	0	1,153	1,403	21.67%
1979	1,191	0	0	0	1,191	1,481	24.36%
1980	1,363	0	0	0	1,363	1,633	19.80%
1981	1,312	0	0	0	1,312	1,531	16.67%
1982	1,298	0	0	0	1,298	1,827	40.74%
1983	1,410	0	0	0	1,410	1,922	36.33%
1984	1,469	0	0	0	1,469	2,027	37.96%
1985	1,446	0	0	0	1,446	2,176	50.49%
1986	1,447	0	0	0	1,447	2,182	50.80%
1987	1,542	0	0	0	1,542	2,356	52.77%
1988	1,640	0	0	0	1,640	2,465	50.33%
1989	1,524	0	0	0	1,524	2,358	54.71%
1990	1,641	0	0	0	1,641	2,375	44.71%
1991	1,640	0	0	0	1,640	2,426	47.93%
1992	1,774	-5	-58	0	1,711	2,367	38.32%
1993	1,902	-10	-58	0	1,834	2,444	33.25%
1994	1,938	-14	-58	0	1,865	2,446	31.17%
1995	2,015	-19	-58	-1	1,937	2,465	27.26%
1996	2,051	-24	-58	-1	1,968	2,458	24.92%
1997	2,126	-28	-58	-1	2,038	2,476	21.48%
1998	2,161	-32	-58	-1	2,069	2,448	18.31%
1999	2,197	-37	-58	-2	2,100	2,444	16.37%
2000	2,257	-41	-58	-2	2,155	2,489	15.49%
2001	2,290	-45	-58	-2	2,184	2,518	15.28%
2002	2,330	-49	-58	-3	2,220	2,534	14.16%
2003	2,368	-53	-58	-3	2,253	2,630	16.72%
2004	2,406	-57	-58	-3	2,287	2,627	14.85%
2005	2,448	-61	-58	-4	2,325	2,693	15.81%
2006	2,493	-64	-58	-4	2,366	2,722	15.05%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Data includes power supplied to NTEC.

SOURCE: Load Forecast 1991 Filing, Request 1.01

SOUTHWESTERN ELECTRIC POWER COMPANY

TABLE 8.4
SOUTHWESTERN ELECTRIC POWER COMPANY
NET GENERATION BY FUEL TYPE - TOTAL (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	8,677,981	1,687,795	0	0	0	0	10,365,776
1978	8,373,009	3,085,997	0	0	0	0	11,459,006
1979	8,505,642	3,931,511	0	0	0	0	12,437,153
1980	8,121,077	5,471,200	0	0	0	0	13,592,277
1981	7,882,335	7,080,907	0	0	0	0	14,963,242
1982	5,772,342	8,517,681	0	0	0	0	14,290,023
1983	4,180,826	9,655,306	0	0	0	0	13,836,132
1984	3,578,304	9,652,406	0	0	0	0	13,230,710
1985	3,143,248	9,284,293	2,818,058	0	0	0	15,245,599
1986	2,160,992	8,458,638	3,600,452	0	0	0	14,220,082
1987	1,727,969	9,055,351	3,946,572	0	0	0	14,729,892
1988	2,008,982	9,230,983	4,261,586	0	0	0	15,501,551
1989	1,466,744	9,841,872	4,386,677	0	0	0	15,695,293
1990	1,573,685	9,161,625	4,519,009	0	0	0	15,254,319
1991	1,626,800	9,899,561	4,412,914	0	0	0	15,939,275
1992	2,535,000	9,559,000	4,512,000	0	0	0	16,606,000
1993	2,742,000	9,692,000	4,666,000	0	0	0	17,100,000
1994	2,609,000	9,607,000	4,676,000	0	0	0	16,892,000
1995	3,082,000	9,233,000	4,714,000	0	0	0	17,029,000
1996	2,996,000	9,529,000	4,674,000	0	0	0	17,199,000
1997	3,307,000	9,669,000	4,676,000	0	0	0	17,652,000
1998	3,381,000	9,572,000	4,690,000	0	0	0	17,643,000
1999	3,525,000	9,720,000	4,676,000	0	0	0	17,921,000
2000	3,876,000	9,302,000	4,712,000	0	0	0	17,890,000
2001	4,009,000	9,497,000	4,675,000	0	0	0	18,181,000
2002	4,564,000	9,696,000	4,924,000	0	0	0	19,184,000
2003	4,526,000	9,408,000	6,305,000	0	0	0	20,239,000
2004	4,503,000	9,745,000	6,296,000	0	0	0	20,544,000
2005	4,573,000	9,981,000	6,347,000	0	0	0	20,901,000
2006	5,634,000	10,287,000	6,121,000	0	0	0	22,042,000

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 8.5A
SOUTHWESTERN ELECTRIC POWER COMPANY
NET SYSTEM CAPACITY BY SOURCE - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	1,943	528	0	0	344	0	0	2,815
1978	1,943	792	0	0	262	0	100	2,897
1979	1,895	792	0	0	262	0	100	2,849
1980	1,895	1,320	0	0	162	0	200	3,177
1981	1,895	1,320	0	0	322	0	360	3,177
1982	1,895	1,848	0	0	362	0	350	3,755
1983	1,895	1,848	0	0	401	0	260	3,884
1984	1,895	1,848	0	0	324	0	0	4,067
1985	1,859	1,824	550	0	260	0	64	4,429
1986	1,859	1,824	807	0	293	0	48	4,735
1987	1,859	1,824	747	0	283	0	0	4,713
1988	1,859	1,824	816	0	263	0	22	4,740
1989	1,819	1,824	821	0	263	0	16	4,711
1990	1,819	1,824	821	0	263	0	21	4,706
1991	1,819	1,824	821	0	263	0	26	4,701
1992	1,819	1,824	821	0	279	0	61	4,682
1993	1,819	1,824	821	0	279	0	26	4,717
1994	1,819	1,824	821	0	279	0	21	4,722
1995	1,819	1,824	821	0	279	0	28	4,715
1996	1,819	1,824	821	0	279	0	46	4,697
1997	1,819	1,824	821	0	279	0	54	4,689
1998	1,819	1,824	821	0	279	0	111	4,632
1999	1,819	1,824	821	0	279	0	123	4,620
2000	1,819	1,824	821	0	279	0	60	4,683
2001	1,850	1,824	821	0	279	0	36	4,738
2002	1,863	1,824	821	0	279	0	21	4,766
2003	1,813	1,824	1,048	0	279	0	21	4,943
2004	1,813	1,824	1,048	0	279	0	31	4,933
2005	1,813	1,936	1,048	0	279	0	21	5,055
2006	1,874	1,936	1,048	0	279	0	29	5,108

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

SOUTHWESTERN ELECTRIC POWER COMPANY

TABLE 8.5B
SOUTHWESTERN ELECTRIC POWER COMPANY
NET SYSTEM CAPACITY BY SOURCE - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	866	235	0	0	153	0	0	1,255
1978	941	384	0	0	127	0	48	1,403
1979	985	412	0	0	136	0	52	1,481
1980	974	678	0	0	83	0	103	1,633
1981	913	636	0	0	155	0	173	1,531
1982	922	899	0	0	176	0	170	1,827
1983	938	915	0	0	198	0	129	1,922
1984	944	921	0	0	161	0	0	2,027
1985	913	896	270	0	128	0	31	2,176
1986	857	841	372	0	135	0	22	2,182
1987	929	912	373	0	141	0	0	2,356
1988	967	949	424	0	137	0	11	2,465
1989	910	913	411	0	132	0	8	2,358
1990	918	920	414	0	133	0	11	2,375
1991	939	941	424	0	136	0	13	2,426
1992	919	922	415	0	141	0	31	2,367
1993	942	945	425	0	145	0	13	2,444
1994	942	945	425	0	145	0	11	2,446
1995	951	954	429	0	146	0	15	2,465
1996	952	955	430	0	146	0	24	2,458
1997	960	963	433	0	147	0	29	2,476
1998	961	964	434	0	147	0	59	2,448
1999	962	965	434	0	148	0	65	2,444
2000	967	969	436	0	148	0	32	2,489
2001	983	969	436	0	148	0	19	2,518
2002	991	970	437	0	148	0	11	2,534
2003	965	970	558	0	148	0	11	2,630
2004	965	971	558	0	149	0	17	2,627
2005	966	1,031	558	0	149	0	11	2,693
2006	999	1,032	558	0	149	0	15	2,722

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

CHAPTER NINE

LOWER COLORADO RIVER AUTHORITY

The Lower Colorado River Authority (LCRA) is a governmental agency created by the Legislature of the State of Texas in 1934. The Board of Directors of the LCRA is composed of 15 Directors: twelve from the counties of Blanco, Burnet, Llano, Travis, Bastrop, Fayette, Colorado, Wharton, San Saba, and Matagorda, the ten-county area which forms the LCRA boundaries; and three at-large Directors from counties outside the boundaries which are served with electric power and energy by the LCRA. The directors are appointed by the Governor of Texas with the advice and consent of the Texas Senate.

LCRA reported a 1991 summer peak demand of approximately 1,601 MW. Total annual sales amounted to 7,448,589 MWH, of which 2 percent was sold to retail customers and 98 percent to wholesale customers. Total installed capacity totals 2,266 MW, produced from 20 units.

The LCRA functions to store, control, conserve, protect, and distribute the waters of the Colorado River in Texas for useful purposes, and to generate, transmit, and sell electric power and energy. The LCRA generates both thermoelectric and hydroelectric power and energy for sale to customers at retail (2 percent of LCRA's total sales) and wholesale (98 percent of LCRA's total sales) in all or part of a 41-county area of Central Texas. LCRA power and energy is sold at wholesale to 33 municipalities, 11 rural electric cooperatives, and certain private utility companies; and at retail to 64 customers in unincorporated areas.

The LCRA system consists of generators, transformers, substation and transmission line equipment, distribution lines and meters, together with the normal facilities necessary to conduct business as a utility. LCRA operates six dams and reservoirs on the Colorado River with 13 hydroelectric generation units. The net dependable hydroelectric capacity in 1991 was 241 MW.

Demand Forecast

The LCRA demand forecast consists of three separate components, the Service Area Economic Forecast, the Rate Class Sales Model, and the Load Temperature Model. The Service Area Economic Model, developed by Data Resources, Inc. (DRI), relates the economic performance of six geographic regions of the LCRA service area with that of the national economy using econometric techniques. DRI's base-case forecast of the national economy serves as a basis for the base-case scenario for the service area. This model serves to generate input for the Rate Class Sales Model. The Rate Class Sales Model calculates annual sales from the output of the Service Area Economic Model, the price of electricity and fuels, appliance saturation, and weather conditions. Regression analysis is used to calculate the relative influence of the inputs. The Load Temperature Model distributes the annual generation requirements from the Rate Class Sales Model across the forecast months. EPRI's HELM model allocates energy across the days of the month according to the average daily temperatures assigned to each day. Daily demand is determined by regression equations that relate average daily temperatures and system load shape. The LCRA updated its load forecast in the spring of 1991.

Number of Customers In 1991, LCRA provided electric service to 64 retail customers, of which 15 are industrial, and 44 wholesale customers. Table 9.1 provides information on the number of customers. The historical data for the period from 1981 through 1991 shows growth in retail customers through 1985 followed by declines. These declines are a result of the sale of LCRA's distribution systems in Kerr, San Saba, and Hays Counties. LCRA projects a stable mix of 15 industrial customers and 44 wholesale customers through the forecast period.

Sales

Miscellaneous retail sales are not projected separately and historical data are no longer recorded for forecast purposes. LCRA also sells power off-system, but makes

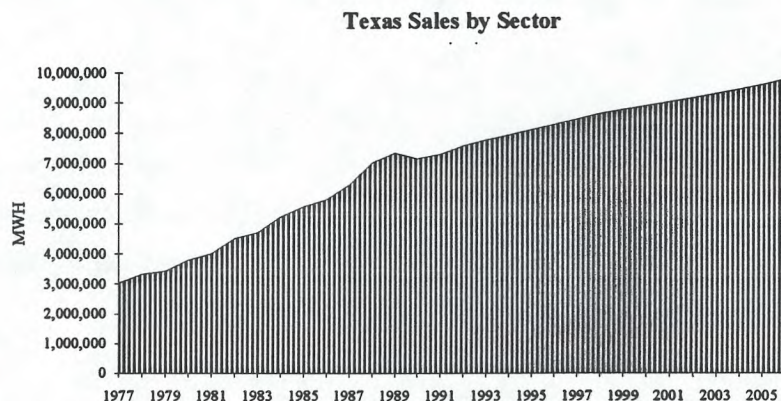


Figure 9.1

LOWER COLORADO RIVER AUTHORITY

no projection of the non-firm off-system sales. Industrial sales are expected to decline from 135,110 MWH in 1991 to 125,877 MWH in 1992 and remain at this level through the forecast period, as shown in Table 9.2. Wholesale sales are expected to increase continually from 1991 to 2006. The annual rate of growth of sales to the wholesale class is expected to be 2.3 percent through 2001, down from a rate of 6.2 percent over the period from 1981 to 1991. A 1.6 percent annual rate is shown for the 2001-2006 period. The annual growth rate for total system sales is expected to be 2 percent for the 1991-2006 period. (See Figure 9.1.)

Peak Demand Over the period from 1981 through 1991, LCRA experienced a 4 percent growth in summer and winter peak demand. (See Figure 9.2 and Table 9.3.) The utility expects growth through 2001 to occur at about 1.7 percent annually in the summer peak, leading to a peak demand of 1,891 MW in 2001; and a 1.6 percent annual rate of growth in the winter peak, leading to a peak demand of 1,941 MW in 2001.

Whereas peak load for Texas utilities has traditionally occurred during the summer, LCRA expects to be a consistent winter-peaking utility since the peak has occurred in the winter months in the last four years. For example, the 1991 winter peak was 1,693 MW and the summer peak was 1,601 MW.

Adjustments to Demand LCRA currently offers two end-user load management programs and four end-user energy conservation programs. The load management programs include an air conditioner cycling and a water heater cycling program. Both are designed to reduce consumption at the time of the system peak. The energy conservation programs reduce both peak demand and energy requirements and consist of residential and commercial audit and weatherization programs, a cooling efficiency program, and a residential new construction program.

LCRA adjusts forecasts to recognize the anticipated impact of these demand side management programs (DSM) through the Integrated Resource Planning (IRP) Process. Each DSM program is modeled according to its anticipated costs and impact on the LCRA forecast of monthly peak demands and energy requirements. The IRP process evaluates all the DSM programs in combination with supply-side options. The results of the IRP process include a recommended amount of cost-effective DSM resources and their impact on the load forecast.

Supply-Side Plan

Installed Capacity In 1991, LCRA operated 20 generating units with a total capacity of 2,266 MW. Four gas units make up 45 percent of the net installed capacity, three coal units provide 44 percent, and 13 hydroelectric units total 11 percent, as illustrated in Figure 9.4. While hydroelectric generation is a very efficient means of producing electricity, there are competing uses for the available water, and generation is also dependent on rainfall.

Net System Capacity

Net system capacity of 2,266 MW is projected to increase by 88 MW in 1998, and remain at 2,354 MW through the forecast period. (See Table 9.5.) The LCRA had a winter reserve margin of 37.0 percent in 1991 that is projected to decline to 21.3 percent in 2001.

Peak Demand and Net System Capacity

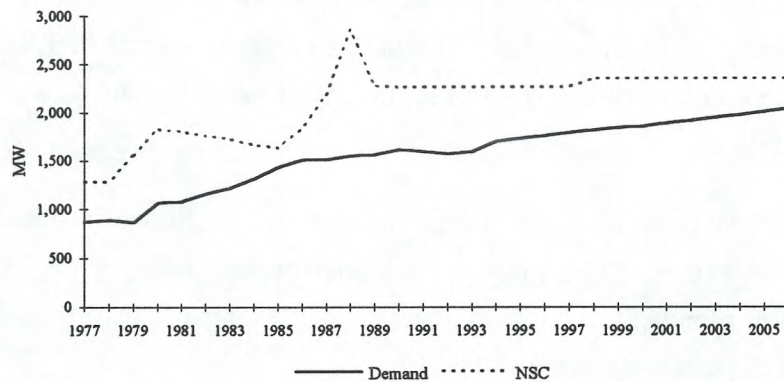


Figure 9.2

Net Generation

About 76 percent of LCRA's power was generated by coal in 1991. Of the remaining electricity generated, 21 percent was fired using gas and 3 percent hydroelectric. The utility was totally

System Net Generation

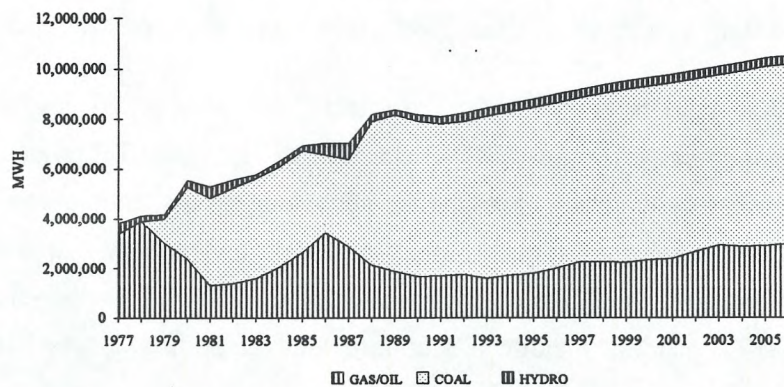


Figure 9.3

LOWER COLORADO RIVER AUTHORITY

reliant on hydroelectric and gas generation in 1978. Projections for 2001 show net generation by coal/lignite at 72 percent, gas at 24 percent, and hydroelectric at 4 percent. According to LCRA projections, total system net generation is expected to show an average annual growth rate of 1.8 percent from 1991-2006. (See Figure 9.3 and Table 9.4.)

System Expansion

LCRA added a third unit to the Fayette complex in 1988. Originally planned as a 400-MW lignite unit, the unit now burns primarily subbituminous coal and has been rerated to 415 MW. Through 1997, the Authority plans no further capacity

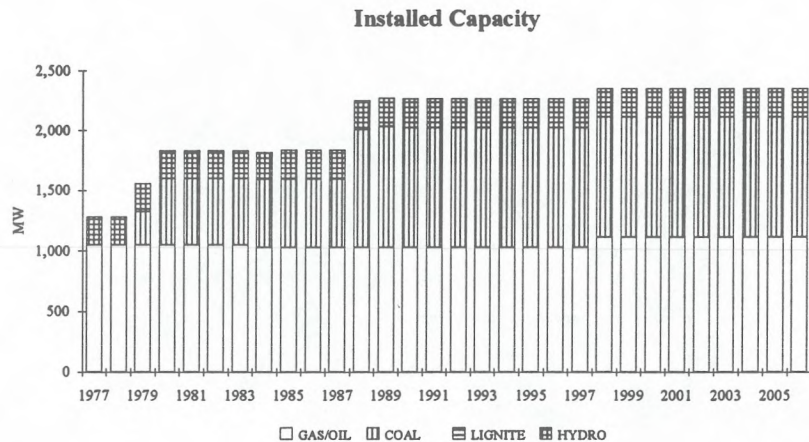


Figure 9.4

additions. But during the 1998-2006 period, at least 88 MW of additional capacity may need to be added.

The LCRA has begun a joint operations and planning process with LCRA's wholesale customers. The process has been outlined in the LCRA's Transmission Facilities Lease Agreement and the LCRA's Line Extension Policy. The purpose is to more effectively meet LCRA's customers' needs for reliable electric service through joint planning of projects.

The LCRA transmission system 10-year plan includes 40 miles of 69-KV construction: the 19.4 mile Colorado Substation-Nada line completed in 1992 and the 21-mile Fayetteville-Salem line to be completed in 1996. In addition, 61 miles of 138-KV line, including the 27-mile Wolfe Lane-Buda Area line, the 21-mile McNeil-Gabriel line, and several other lines are planned for completion by 1996. There are no projects involving 345-KV construction. Total estimated cost of the transmission projects amount to approximately \$24,000,000.

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**Changes Since the
1989 Filing**

A comparison of the 1989 filing and the 1991 filing indicates a decrease in the 10-year annual average growth rate in summer peak demand from 2.8 percent in the previous filing to 1.7 percent in this filing. The 1999 summer peak demand was forecast as 2,074 MW in the 1989 filing. The current filing projects a 1999 summer peak of 1,844 MW. No capacity additions were planned in the last forecast.

LOWER COLORADO RIVER AUTHORITY

TABLE 9.1
LOWER COLORADO RIVER AUTHORITY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	N/A	N/A	19	N/A	41
1978	N/A	N/A	21	N/A	41
1979	N/A	N/A	19	N/A	41
1980	N/A	N/A	29	N/A	41
1981	N/A	N/A	27	N/A	41
1982	N/A	N/A	28	N/A	41
1983	N/A	N/A	31	N/A	41
1984	N/A	N/A	32	N/A	41
1985	N/A	N/A	32	N/A	41
1986	N/A	N/A	24	N/A	42
1987	N/A	N/A	16	N/A	43
1988	N/A	N/A	16	N/A	44
1989	N/A	N/A	15	N/A	44
1990	N/A	N/A	15	N/A	44
1991	N/A	N/A	15	N/A	44
1992	N/A	N/A	15	N/A	44
1993	N/A	N/A	15	N/A	44
1994	N/A	N/A	15	N/A	44
1995	N/A	N/A	15	N/A	44
1996	N/A	N/A	15	N/A	44
1997	N/A	N/A	15	N/A	44
1998	N/A	N/A	15	N/A	44
1999	N/A	N/A	15	N/A	44
2000	N/A	N/A	15	N/A	44
2001	N/A	N/A	15	N/A	44
2002	N/A	N/A	15	N/A	44
2003	N/A	N/A	15	N/A	44
2004	N/A	N/A	15	N/A	44
2005	N/A	N/A	15	N/A	44
2006	N/A	N/A	15	N/A	44

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 9.2
LOWER COLORADO RIVER AUTHORITY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	N/A	N/A	199,699	319,378	3,031,121	3,550,198	12,366
1978	N/A	N/A	185,155	342,898	3,319,021	3,847,074	-23,931
1979	N/A	N/A	177,639	335,292	3,432,638	3,945,569	-99,798
1980	N/A	N/A	178,484	375,078	3,790,218	4,343,780	769,185
1981	N/A	N/A	165,951	378,318	4,001,571	4,545,840	317,699
1982	N/A	N/A	155,980	418,918	4,514,095	5,088,993	7,280
1983	N/A	N/A	161,709	426,853	4,700,975	5,289,537	31,536
1984	N/A	N/A	176,389	480,762	5,234,537	5,891,688	69,886
1985	N/A	N/A	210,669	503,635	5,563,140	6,277,444	153,509
1986	N/A	N/A	187,493	499,182	5,803,247	6,489,922	93,363
1987	N/A	N/A	161,622	342,830	6,285,656	6,790,108	-128,423
1988	N/A	N/A	167,087	14,568	7,039,424	7,221,079	639,739
1989	N/A	N/A	143,126	1,734	7,356,933	7,501,793	477,768
1990	N/A	N/A	123,287	1,035	7,170,353	7,294,675	477,414
1991	N/A	N/A	135,110	1,099	7,312,380	7,448,589	175,000
1992	N/A	N/A	125,877	N/A	7,588,034	7,713,911	0
1993	N/A	N/A	125,877	N/A	7,769,560	7,895,437	0
1994	N/A	N/A	125,877	N/A	7,938,921	8,064,798	0
1995	N/A	N/A	125,877	N/A	8,109,219	8,235,096	0
1996	N/A	N/A	125,877	N/A	8,287,002	8,412,879	0
1997	N/A	N/A	125,877	N/A	8,458,235	8,584,112	0
1998	N/A	N/A	125,877	N/A	8,636,018	8,761,895	0
1999	N/A	N/A	125,877	N/A	8,781,987	8,907,864	0
2000	N/A	N/A	125,877	N/A	8,899,885	9,025,762	0
2001	N/A	N/A	125,877	N/A	9,020,591	9,146,468	0
2002	N/A	N/A	125,877	N/A	9,153,460	9,279,337	0
2003	N/A	N/A	125,877	N/A	9,295,686	9,421,563	0
2004	N/A	N/A	125,877	N/A	9,444,463	9,570,340	0
2005	N/A	N/A	125,877	N/A	9,603,532	9,729,409	0
2006	N/A	N/A	125,877	N/A	9,791,617	9,917,494	0

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

LOWER COLORADO RIVER AUTHORITY

TABLE 9.3
LOWER COLORADO RIVER AUTHORITY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	ADJUSTMENTS TO PEAK DEMAND				PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	869	N/A	N/A	N/A	869	1,280	47.38%
1978	888	N/A	N/A	N/A	888	1,280	44.13%
1979	868	N/A	N/A	N/A	868	1,555	79.25%
1980	1,067	N/A	N/A	N/A	1,067	1,830	71.59%
1981	1,078	N/A	N/A	N/A	1,078	1,805	67.50%
1982	1,158	N/A	N/A	N/A	1,158	1,760	51.95%
1983	1,221	N/A	N/A	N/A	1,221	1,730	41.68%
1984	1,314	N/A	N/A	N/A	1,314	1,668	26.91%
1985	1,434	N/A	N/A	N/A	1,434	1,636	14.07%
1986	1,515	N/A	N/A	N/A	1,515	1,836	21.21%
1987	1,514	N/A	N/A	N/A	1,514	2,186	44.43%
1988	1,555	N/A	N/A	N/A	1,555	2,854	83.54%
1989	1,568	N/A	N/A	N/A	1,568	2,274	45.03%
1990	1,615	N/A	N/A	N/A	1,615	2,266	40.31%
1991	1,601	N/A	N/A	N/A	1,601	2,266	41.54%
1992	1,685	N/A	-94	-20	1,571	2,266	44.24%
1993	1,723	N/A	-99	-25	1,599	2,266	41.71%
1994	1,760	N/A	-24	-31	1,705	2,266	32.94%
1995	1,799	N/A	-29	-36	1,734	2,266	30.72%
1996	1,839	N/A	-33	-41	1,765	2,266	28.42%
1997	1,878	N/A	-38	-46	1,794	2,266	26.35%
1998	1,918	N/A	-42	-52	1,824	2,354	29.09%
1999	1,948	N/A	-47	-57	1,844	2,354	27.69%
2000	1,976	N/A	-50	-63	1,863	2,354	26.39%
2001	2,004	N/A	-50	-63	1,891	2,354	24.52%
2002	2,032	N/A	-50	-63	1,919	2,354	22.70%
2003	2,062	N/A	-50	-63	1,949	2,354	20.81%
2004	2,093	N/A	-50	-63	1,980	2,354	18.92%
2005	2,126	N/A	-50	-63	2,013	2,354	16.97%
2006	2,159	N/A	-50	-63	2,046	2,354	15.05%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Values reported are for summer peak. LCRA is a winter-peaking utility.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 9.4
LOWER COLORADO RIVER AUTHORITY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	3,384,148	0	0	0	432,243	0	3,816,391
1978	3,890,644	0	0	0	236,928	0	4,127,572
1979	3,035,113	943,487	0	0	183,813	0	4,162,413
1980	2,388,789	2,859,416	0	0	293,212	0	5,541,417
1981	1,319,590	3,518,870	0	0	441,175	0	5,279,635
1982	1,393,114	3,842,892	0	0	325,040	0	5,561,046
1983	1,609,648	4,015,752	0	0	154,793	0	5,780,193
1984	2,029,403	4,035,290	0	0	243,342	0	6,308,035
1985	2,651,802	4,076,143	0	0	213,589	0	6,941,534
1986	3,436,762	3,110,879	0	0	491,469	0	7,039,110
1987	2,871,556	3,506,875	0	0	671,642	0	7,050,073
1988	2,120,018	5,788,998	0	0	278,039	0	8,187,055
1989	1,865,844	6,287,884	0	0	213,064	0	8,366,792
1990	1,669,444	6,229,159	0	0	274,121	0	8,172,724
1991	1,700,000	6,100,000	0	0	275,000	0	8,075,000
1992	1,750,000	6,155,300	0	0	338,700	0	8,244,000
1993	1,587,900	6,511,400	0	0	338,700	0	8,438,000
1994	1,714,400	6,565,900	0	0	338,700	0	8,619,000
1995	1,805,800	6,656,500	0	0	338,700	0	8,801,000
1996	2,015,100	6,637,200	0	0	338,700	0	8,991,000
1997	2,253,800	6,581,500	0	0	338,700	0	9,174,000
1998	2,256,400	6,768,900	0	0	338,700	0	9,364,000
1999	2,230,200	6,951,100	0	0	338,700	0	9,520,000
2000	2,343,600	6,963,700	0	0	338,700	0	9,646,000
2001	2,388,100	7,048,200	0	0	338,700	0	9,775,000
2002	2,663,500	6,914,800	0	0	338,700	0	9,917,000
2003	2,907,900	6,822,400	0	0	338,700	0	10,069,000
2004	2,862,200	7,027,100	0	0	338,700	0	10,228,000
2005	2,907,400	7,151,900	0	0	338,700	0	10,398,000
2006	2,966,000	7,175,300	0	0	338,700	0	10,480,000

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

LOWER COLORADO RIVER AUTHORITY

TABLE 9.5
LOWER COLORADO RIVER AUTHORITY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	1,050	0	0	0	0	0	0	1,280
1978	1,050	0	0	0	0	0	0	1,280
1979	1,050	275	0	0	0	0	0	1,555
1980	1,050	550	0	0	0	0	0	1,830
1981	1,050	550	0	0	0	0	25	1,805
1982	1,050	550	0	0	0	0	70	1,760
1983	1,050	550	0	0	0	0	100	1,730
1984	1,025	570	0	0	0	0	150	1,668
1985	1,025	570	0	0	0	0	200	1,636
1986	1,025	570	0	0	0	0	0	1,836
1987	1,025	570	0	0	350	0	0	2,186
1988	1,025	983	0	0	605	0	0	2,854
1989	1,025	1,008	0	0	0	0	0	2,274
1990	1,025	1,000	0	0	0	0	0	2,266
1991	1,025	1,000	0	0	0	0	0	2,266
1992	1,025	1,000	0	0	0	0	0	2,266
1993	1,025	1,000	0	0	0	0	0	2,266
1994	1,025	1,000	0	0	0	0	0	2,266
1995	1,025	1,000	0	0	0	0	0	2,266
1996	1,025	1,000	0	0	0	0	0	2,266
1997	1,025	1,000	0	0	0	0	0	2,266
1998	1,113	1,000	0	0	0	0	0	2,354
1999	1,113	1,000	0	0	0	0	0	2,354
2000	1,113	1,000	0	0	0	0	0	2,354
2001	1,113	1,000	0	0	0	0	0	2,354
2002	1,113	1,000	0	0	0	0	0	2,354
2003	1,113	1,000	0	0	0	0	0	2,354
2004	1,113	1,000	0	0	0	0	0	2,354
2005	1,113	1,000	0	0	0	0	0	2,354
2006	1,113	1,000	0	0	0	0	0	2,354

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

CHAPTER TEN

CITY OF AUSTIN ELECTRIC UTILITY

The City of Austin Electric Utility (COA), a municipally-owned utility, renders electrical service in Travis County and in a small portion of Williamson County. Most of its 421-square-mile certified service area is served solely by the City of Austin Electric Utility Department. About 10 square miles in the northeast corner of the area is dually certified, and customers there can elect to receive electricity from either the COA or TU Electric. The pattern in the past shows that residential customers choose COA service and commercial customers choose TU Electric.

COA reported a 1991 peak demand after adjustments of 1,457 MW, down slightly from the previous year. Total system sales rose to 6,540,258 MWH. Installed capacity totals 2,436 MW. Net generation in 1991 exhibited a fuel mix of 49 percent coal, 32 percent nuclear, and 19 percent gas.

Demand Forecast

The COA forecast employs end-use/econometric energy models to project long-term electric sales to customers. The modeling considers a forecast range in its planning process in recognition of the uncertainties in load forecasting. The forecast ranges of system peak and energy consumption are based on historical information, recent per customer or per building patterns of energy use, various forecast scenarios about the future of Austin and the national economy, and varying impacts of COA demand-side management (DSM) programs. The forecast ranges include assumptions about the change in number of customers, the amount of commercial floor space, and DSM program-participation levels. The system energy projections provide the inputs to the Hourly Electric Load Model (HELM). In HELM, hourly load shapes for appliances and building types are used to distribute the annual energy forecasts to demand over time. The projections of maximum system demand are modeled to occur between 3 p.m. and 6 p.m. on a weekday in August of each year.

Number of Customers

In 1991, COA provided electric service to 242,995 residential customers. As shown in Figure 10.1, the historical data for the period from 1981 through 1991 reflect an average annual growth rate of 4.4 percent for this class of customers. COA expects a 2.9 percent annual growth rate through 2001 and a 3.4 percent rate from 2001 to 2006.

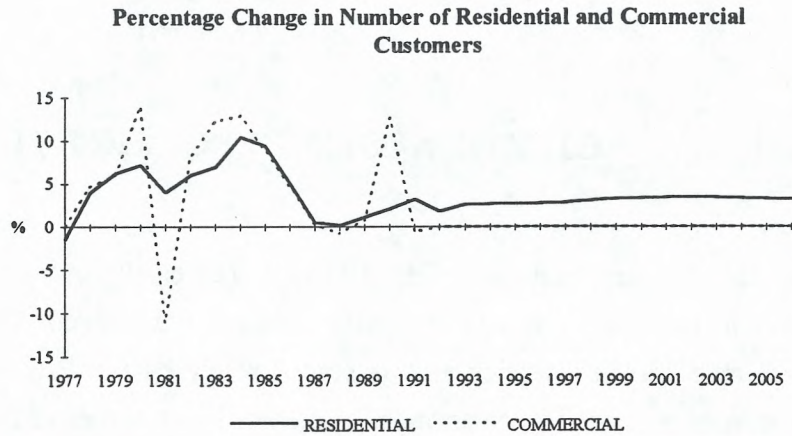


Figure 10.1

The utility served 30,234 commercial customers in 1991. (See Table 10.1.) The utility also served 14 industrial customers in 1991. All other retail sales were to 207 customers.

Sales

System sales in 1991 amounted to 6,540,258 MWH. According to COA's projection of system sales shown in Figure 10.2, growth will slow from the 6.3 percent annual rate demonstrated over the past decade to 3.1 percent per year from 1991

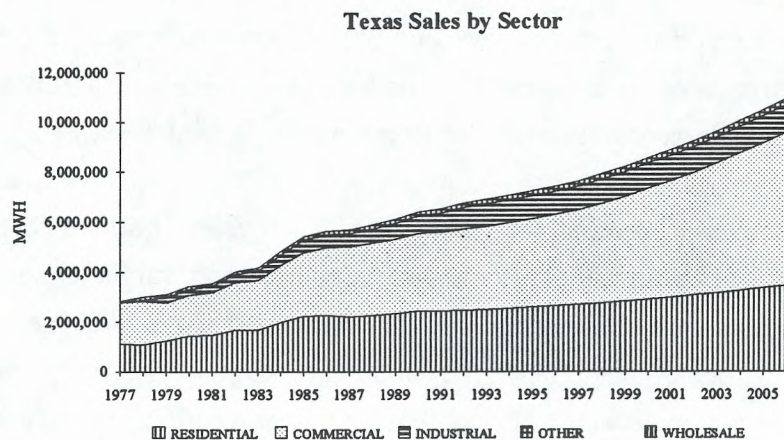


Figure 10.2

CITY OF AUSTIN ELECTRIC UTILITY

through 2001 and 4.2 percent annually from 2001-2006. Sales are expected to total 10,936,600 MWH in 2006.

The residential sector purchased 2,445,089 MWH in 1991, after ten years of growth at 5.3 percent per year. A growth rate of 2.0 percent results in projected sales of 2,978,430 MWH in 2001 to residential customers. Sales of 3,148,035 MWH in 1991 to the commercial sector make that group the largest consumer class in the COA service area. Projected growth in commercial sales occurs at the annual rate of 4.0 percent through 2001, enough to keep the commercial sector at about 52 percent of total sales in that year.

Industrial sales are projected to increase to 1,029,617 MWH in 2001 from 769,946 MWH in 1991, reflecting a growth rate of 3.0 percent. COA also sold 165,788 MWH off the system in 1991 and projects off-system sales of 167,175 MWH in each year between 1992 and 1996.

Peak Demand Peak demand in 1991 reached 1,457 MW for the COA system as shown in Table 10.3. Over the period from 1981 through 1991, COA experienced 5.1 percent annual growth in peak demand. (See Figure 10.3.) The utility expects growth through 2001 to occur at about 2.9 percent annually and from 2001 to 2006 at about 3.7 percent annually.

Adjustments to Demand The utility is pursuing two major types of demand-side management programs. One type is aimed at reducing demand and the other at using alternative or nontraditional sources of generation. Programs involving alternative generation strategies will not affect the forecast of energy and demand but are being considered as part of Austin's long-range generation planning.

COA reported a 16-MW reduction in 1991 peak demand due to conservation and load management practices for total estimated DSM savings of over 120 MW since the city began implementing programs in 1982. The utility expects its conservation and load management activities to save an additional 17 MW of capacity in 1992, and cumulative savings are expected to reach 227 MW in 2001 and 350 MW by 2006.

Supply-Side Plan

Installed Capacity In 1991, COA generated from 12 units with a total capacity of 2,435 MW. Gas plants make up 60 percent of the installed capacity; coal about 24 percent; nuclear, 16 percent; and the photovoltaic plant PV300, just over 0.02 percent.

Net System Capacity

COA sold 25 MW off system on a firm basis in 1991 and has a firm contract to sell 25 MW through 1996. Net system capacity and peak demand are shown in Figure 10.3 where the distance between the two curves represents the reserve margin.

Peak Demand and Net System Capacity

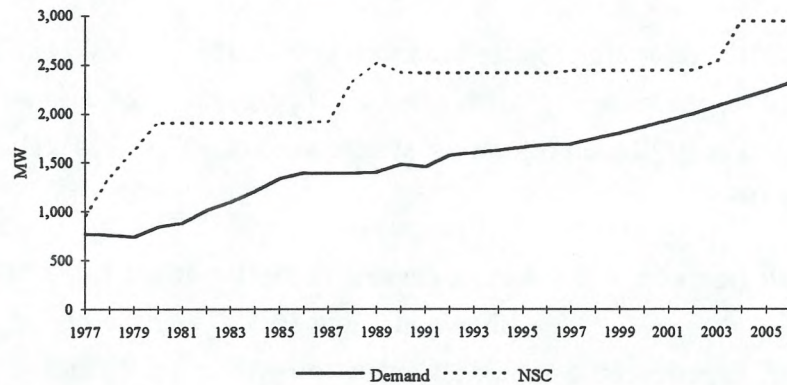


Figure 10.3

Net Generation

Figure 10.4, illustrating net generation by fuel type, shows that the utility was totally reliant on gas generation in 1977. In 1991, gas generation provided only 19.4 percent of the mix, nuclear power accounted for 32.1 percent, and

System Net Generation

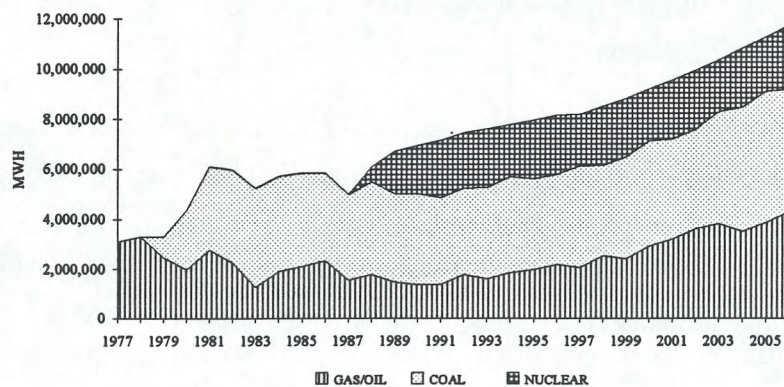


Figure 10.4

percent, and coal 48.5 percent.

System Expansion

Over the period through 2006, net generating capabilities will grow by 20.5 percent, if planned capacity expansion of 500 MW occurs. One 100-MW gas unit and one 400-MW coal unit are scheduled to be added in 2003 and 2004, respectively.

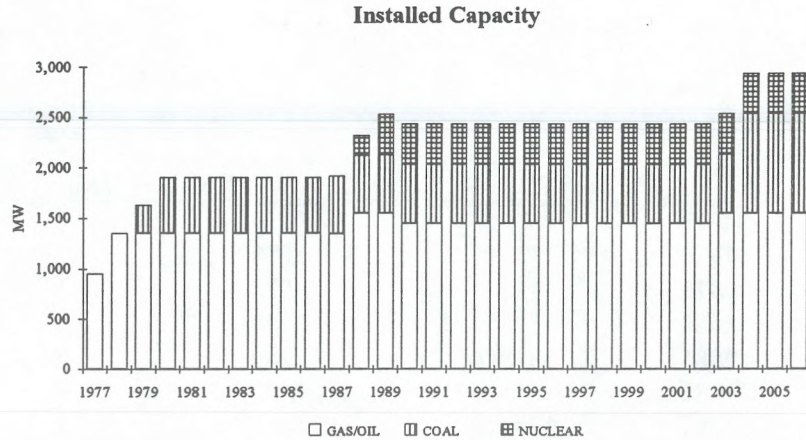


Figure 10.5

Twelve 138-KV transmission projects, totaling 101 miles, and one 69-KV transmission project of 2 miles, are scheduled to be completed between 1993 and 1999. Plans for an additional 18-mile 138-KV line have not been scheduled. These transmission lines will be located in Travis or Caldwell Counties.

Changes Since the 1989 Filing

Two years ago, with a 10-year projection of 3.8 percent in average annual growth of demand, COA was planning to add one 400-MW coal unit in 1999 and another 400-MW coal unit in 2002. Demand in 1999 was then projected as 2,049 MW. In the current filing, demand in 1999 is projected to be 1,804 MW. In the current plan, the expected demand growth is 2.9 percent with planned capacity additions of a 100-MW gas-fired unit in 2003 and a 400-MW coal unit in 2004.

RESOURCE PLAN FILED WITH PUCT

TABLE 10.1
CITY OF AUSTIN ELECTRIC UTILITY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	127,753	15,358	0	0	0
1978	132,907	16,070	5	0	0
1979	141,131	17,022	5	0	0
1980	151,293	19,398	5	0	0
1981	157,400	17,259	6	0	0
1982	166,855	18,662	7	0	0
1983	178,464	20,938	7	0	0
1984	196,987	23,636	7	0	0
1985	215,429	25,711	9	0	0
1986	226,321	26,903	10	0	0
1987	227,603	26,977	9	0	0
1988	227,938	26,783	10	0	0
1989	230,585	26,991	12	0	0
1990	235,441	30,396	12	0	0
1991	242,995	30,234	14	0	0
1992	247,469	NA	NA	NA	0
1993	253,904	NA	NA	NA	0
1994	260,632	NA	NA	NA	0
1995	267,669	NA	NA	NA	0
1996	275,030	NA	NA	NA	0
1997	282,731	NA	NA	NA	0
1998	291,342	NA	NA	NA	0
1999	300,828	NA	NA	NA	0
2000	310,976	NA	NA	NA	0
2001	321,710	NA	NA	NA	0
2002	332,784	NA	NA	NA	0
2003	344,268	NA	NA	NA	0
2004	355,840	NA	NA	NA	0
2005	367,629	NA	NA	NA	0
2006	379,428	NA	NA	NA	0

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.
- 4) The utility did not provide a forecast of commercial, industrial, or other retail customers. However, staff used 1991 figures for the forecast period to estimate statewide forecast number of customers.

SOURCE: Load Forecast 1991 Filing, Request 3.01

CITY OF AUSTIN ELECTRIC UTILITY

TABLE 10.2
CITY OF AUSTIN ELECTRIC UTILITY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	1,119,799	1,674,703	0	31,669	0	2,826,171	-1,360
1978	1,079,226	1,743,315	51,607	118,542	0	2,992,690	3,086
1979	1,236,205	1,524,843	213,057	113,961	0	3,088,066	20,709
1980	1,446,574	1,614,383	238,398	117,593	0	3,416,948	709,932
1981	1,459,135	1,713,895	261,823	109,653	0	3,544,506	2,275,654
1982	1,669,244	1,904,238	335,274	119,227	0	4,027,983	1,617,560
1983	1,679,062	1,980,415	386,704	120,060	0	4,166,241	672,446
1984	1,993,770	2,266,753	415,308	141,370	0	4,817,201	564,363
1985	2,223,769	2,564,702	494,010	144,631	0	5,427,112	10,756
1986	2,260,650	2,725,168	507,571	150,186	0	5,643,575	-171,395
1987	2,214,423	2,803,179	516,167	158,652	0	5,692,421	-1,133,419
1988	2,259,286	2,908,961	564,267	171,227	0	5,903,741	-240,171
1989	2,344,835	2,977,135	626,318	168,992	0	6,117,280	96,026
1990	2,425,494	3,120,994	698,055	172,004	0	6,416,547	92,000
1991	2,445,089	3,148,035	769,946	177,188	0	6,540,258	177,558
1992	2,463,162	3,253,574	876,677	179,760	0	6,773,172	166,275
1993	2,498,984	3,329,527	897,101	184,947	0	6,910,559	166,575
1994	2,539,316	3,432,094	912,087	189,165	0	7,072,662	166,275
1995	2,581,622	3,538,626	925,104	193,711	0	7,239,062	166,075
1996	2,633,853	3,660,116	939,609	197,982	0	7,431,560	165,475
1997	2,680,257	3,790,478	953,949	204,496	0	7,629,181	-1,300
1998	2,743,823	3,988,052	984,197	206,702	0	7,922,774	-3,400
1999	2,816,815	4,193,568	999,007	212,388	0	8,221,779	-2,600
2000	2,900,672	4,435,002	1,017,525	217,878	0	8,571,078	-4,300
2001	2,978,430	4,665,115	1,029,617	223,129	0	8,896,290	-6,700
2002	3,067,239	4,922,928	1,042,223	228,004	0	9,260,394	-10,900
2003	3,158,873	5,202,041	1,053,207	233,074	0	9,647,195	-3,600
2004	3,258,951	5,511,119	1,071,190	238,434	0	10,079,694	-800
2005	3,349,073	5,804,928	1,079,960	244,038	0	10,477,999	-900
2006	3,446,083	6,146,172	1,093,474	250,870	0	10,936,600	-1,300

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 10.3
CITY OF AUSTIN ELECTRIC UTILITY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	774	0	0	0	774	956	23.51%
1978	763	0	0	0	763	1,356	77.72%
1979	743	0	0	0	743	1,631	119.52%
1980	849	0	0	0	849	1,906	124.50%
1981	888	0	0	0	888	1,906	114.64%
1982	1,013	0	0	0	1,013	1,906	88.15%
1983	1,101	0	0	0	1,101	1,906	73.12%
1984	1,210	0	0	0	1,210	1,906	57.52%
1985	1,339	0	0	0	1,339	1,906	42.35%
1986	1,402	0	0	0	1,402	1,906	35.95%
1987	1,391	0	0	0	1,391	1,920	38.05%
1988	1,394	0	0	0	1,394	2,320	66.42%
1989	1,408	0	0	0	1,408	2,518	78.85%
1990	1,483	0	0	0	1,483	2,421	63.24%
1991	1,457	0	0	0	1,457	2,411	65.45%
1992	1,608	0	-4	-29	1,576	2,411	52.96%
1993	1,648	0	-6	-39	1,601	2,411	50.57%
1994	1,693	0	-8	-59	1,628	2,411	48.07%
1995	1,741	0	-11	-72	1,657	2,411	45.48%
1996	1,789	0	-15	-90	1,684	2,411	43.15%
1997	1,831	0	-19	-108	1,691	2,436	44.03%
1998	1,913	0	-24	-127	1,749	2,436	39.26%
1999	1,993	0	-29	-147	1,804	2,436	35.01%
2000	2,081	0	-34	-169	1,867	2,436	30.46%
2001	2,172	0	-39	-188	1,933	2,436	26.00%
2002	2,267	0	-45	-206	2,001	2,436	21.72%
2003	2,360	0	-47	-229	2,073	2,536	22.32%
2004	2,465	0	-49	-255	2,152	2,936	36.41%
2005	2,567	0	-50	-276	2,232	2,936	31.52%
2006	2,677	0	-51	-299	2,320	2,936	26.53%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CITY OF AUSTIN ELECTRIC UTILITY

TABLE 10.4
CITY OF AUSTIN ELECTRIC UTILITY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	3,103,327	0	0	0	0	0	3,103,327
1978	3,297,351	0	0	0	0	0	3,297,351
1979	2,449,769	854,775	0	0	0	0	3,304,544
1980	1,978,225	2,377,470	0	0	0	0	4,355,695
1981	2,776,201	3,337,504	0	0	0	0	6,113,705
1982	2,257,848	3,726,491	0	0	0	0	5,984,339
1983	1,275,770	3,956,367	0	0	0	0	5,232,137
1984	1,904,598	3,811,856	0	0	0	0	5,716,454
1985	2,106,727	3,749,813	0	0	0	0	5,856,540
1986	2,327,861	3,525,635	0	0	0	0	5,853,496
1987	1,558,425	3,431,827	0	0	0	339	4,990,591
1988	1,779,882	3,717,228	0	608,932	0	481	6,106,523
1989	1,469,265	3,550,441	0	1,678,935	0	445	6,699,086
1990	1,376,923	3,625,177	0	1,942,920	0	619	6,945,639
1991	1,381,304	3,460,150	0	2,293,690	0	904	7,136,048
1992	1,771,100	3,476,400	0	2,212,900	0	944	7,461,344
1993	1,594,300	3,669,700	0	2,339,300	0	961	7,604,261
1994	1,849,200	3,855,100	0	2,072,700	0	961	7,777,961
1995	1,991,400	3,618,800	0	2,345,200	0	961	7,956,361
1996	2,179,900	3,625,300	0	2,354,300	0	961	8,160,461
1997	2,052,200	4,068,400	0	2,074,200	0	961	8,195,761
1998	2,537,700	3,618,400	0	2,351,800	0	961	8,508,861
1999	2,421,200	4,050,500	0	2,357,200	0	961	8,829,861
2000	2,925,300	4,193,500	0	2,081,400	0	961	9,201,161
2001	3,206,500	3,988,000	0	2,357,800	0	961	9,553,261
2002	3,606,800	3,974,600	0	2,358,200	0	961	9,940,561
2003	3,807,300	4,475,600	0	2,078,000	0	961	10,361,861
2004	3,496,100	4,964,400	0	2,364,900	0	961	10,826,361
2005	3,853,300	5,244,700	0	2,159,600	0	961	11,258,561
2006	4,306,800	4,861,300	0	2,581,700	0	961	11,750,761

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 10.5
CITY OF AUSTIN ELECTRIC UTILITY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	956	0	0	0	0	0	N/A	956
1978	1,356	0	0	0	0	0	N/A	1,356
1979	1,356	275	0	0	0	0	N/A	1,631
1980	1,356	550	0	0	0	0	N/A	1,906
1981	1,356	550	0	0	0	0	N/A	1,906
1982	1,356	550	0	0	0	0	N/A	1,906
1983	1,356	550	0	0	0	0	N/A	1,906
1984	1,356	550	0	0	0	0	N/A	1,906
1985	1,356	550	0	0	0	0	N/A	1,906
1986	1,356	550	0	0	0	0	N/A	1,906
1987	1,350	570	0	0	0	0	N/A	1,920
1988	1,550	570	0	200	0	0	N/A	2,320
1989	1,550	578	0	400	0	0	10	2,518
1990	1,450	585	0	400	0	0	15	2,421
1991	1,450	585	0	400	0	0	25	2,411
1992	1,450	585	0	400	0	0	25	2,411
1993	1,450	585	0	400	0	0	25	2,411
1994	1,450	585	0	400	0	0	25	2,411
1995	1,450	585	0	400	0	0	25	2,411
1996	1,450	585	0	400	0	0	25	2,411
1997	1,450	585	0	400	0	0	N/A	2,436
1998	1,450	585	0	400	0	0	N/A	2,436
1999	1,450	585	0	400	0	0	N/A	2,436
2000	1,450	585	0	400	0	0	N/A	2,436
2001	1,450	585	0	400	0	0	N/A	2,436
2002	1,450	585	0	400	0	0	N/A	2,436
2003	1,550	585	0	400	0	0	N/A	2,536
2004	1,550	985	0	400	0	0	N/A	2,936
2005	1,550	985	0	400	0	0	N/A	2,936
2006	1,550	985	0	400	0	0	N/A	2,936

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER ELEVEN

WEST TEXAS UTILITIES COMPANY

West Texas Utilities Company is a public utility engaged in generating, purchasing, transmitting, and distributing electricity. The utility's service area covers an estimated 53,000 square miles in North Central and West Texas. The two largest cities served by the utility are Abilene and San Angelo. WTU is a subsidiary of the Central and South West Corporation and a member of ERCOT.

WTU is an investor-owned utility. Its revenues for 1991 totaled \$318,966,000 while total assets as of December 31, 1991, were \$734,053,000. The company's capital structure consisted of 51.6 percent common equity, 5.1 percent preferred stock, and 43.3 percent long-term debt.

WTU is a summer-peaking utility. The annual peak demand usually occurs during the months of either July or August. Peak demand after adjustments was 1,146 MW in June of 1990 and 1,097 MW in July of 1991. The 1991 aggregate sales were 5,671,825 MWH. WTU possesses the installed capacity to generate up to 1,384 MW. In 1991 about 60 percent of the total electricity generated by the utility used gas or oil as the primary fuel. The remaining electricity was generated utilizing coal as the source of energy.

Demand Forecast

WTU utilizes econometric methods in its modular system of forecasting peak demand and energy sales. A complex model of the regional economy in the WTU service territory is developed to describe some items that measure regional economic activity. These data, along with projected state economic data obtained from the Wharton Econometric Forecasting Associates are used to project the economic indicator variables used in both the peak demand and energy sales forecasts. A regression equation for peak demand is derived using standard statistical regression techniques. The forecasted values of the regional economic indicators, along with certain other price and weather variables, are

used to obtain the forecasted peak demands. The energy forecast is accomplished by a complex set of regression equations that model the economic effects on various customer types through a four-stage process using standard statistical regression techniques and these same basic forecasted economic indicators.

Number of Customers

WTU provided electric service to 140,840 residential customers in 1991 as presented in Table 11.1. The historical data for the period from 1981-1991 reflect an average annual growth rate of 1.0 percent. (See Figure 11.1.)

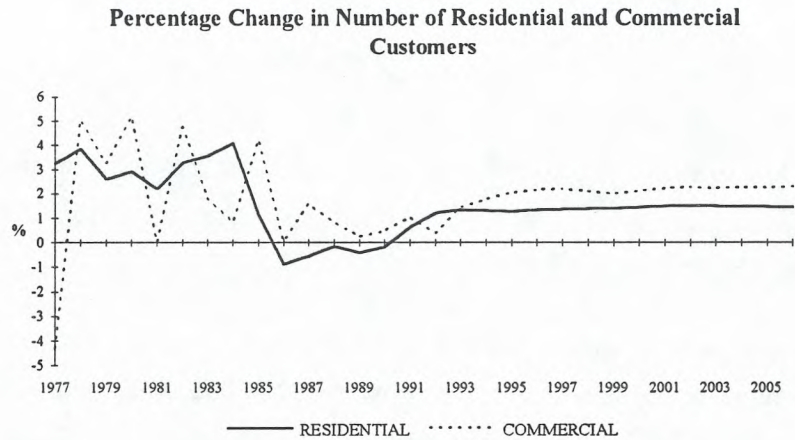


Figure 11.1

WTU expects a 1.4 percent annual growth rate into 2001, and 1.5 percent growth for the 2001 to 2006 period. WTU served 25,143 commercial customers in 1991. The utility projects an increase in the growth rate from 1.6 percent annually for the period from 1981 to 1991 to 1.8 percent over the next ten years. Over the last decade, the industrial class grew at an average compound rate of approximately 2.9 percent. The growth rate is expected to increase to 3.7 percent for the period from 1991 to 2001, but this rate will fall to 2.5 percent from 2001 to 2006. Currently, WTU serves 6,323 industrial customers.

Sales Total system sales grew at a compound rate of 2.2 percent annually from 1981 to 1991. Projections indicate growth of 2.0 percent through 2001 and 1.8 percent from 2001 to 2006. The second-largest contributor to total sales in 1981 was the residential sector. In that year, sales to residential customers comprised 24 percent of aggregate sales. In 1991, the residential sector purchased 1,367,003 MWH. (See Table 11.2.) Currently, this class maintains the position of second-largest customer class, purchasing 24.1 percent of total sales. The utility has projected an average annual growth rate for this sector of 2.5 percent through 2001, increasing its

WEST TEXAS UTILITIES COMPANY

share of total sales to 25 percent. (See Figure 11.2.) This is somewhat more than the 2.3 percent growth rate experienced over the last decade.

From 1981 to 1991 the commercial sector exhibited a growth rate of 2.0 percent annually. WTU expects this rate to increase to 3.0 percent through 2001. Sales to commercial customers totaled 1,035,791 MWH in 1991. This represents 18.3 percent of total sales making

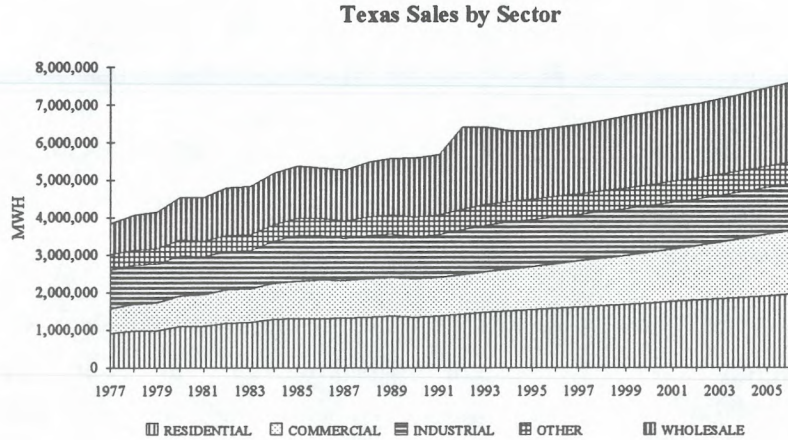


Figure 11.2

this the fourth-largest customer class. Industrial sales in 1991 amounted to 1,134,183 MWH. The industrial sector has shown a growth rate of 1.1 percent since 1981 and is the third-largest sector, purchasing 20 percent of total electricity generated by the company in 1991. The utility expects a growth rate of 1.0 percent through 2001.

The remaining retail sales are composed of sales to cotton gins, sales for irrigation, and sales to municipalities for street lighting and other purposes. These combined sales amounted to 535,095 MWH, 9.4 percent of total sales in 1991. The growth rate for this combined group of classes is expected to decrease from the 2.8 percent over the past ten years to 0.3 percent through 2001.

In 1981 the wholesale sector accounted for 26.1 percent of total sales. By 1991, sales to this sector had grown at an average rate of 3.0 percent per year to 1,599,753 MWH, 28.2 percent of total sales. Over the next decade, the wholesale sector will grow at an average annual rate of 2.1 percent. However, this decline in growth is not sufficient to alter its standing as the major purchasing sector with 28.4 percent of total sales.

RESOURCE PLAN FILED WITH PUCT

Peak Demand Over the period from 1981 through 1991 WTU experienced 1.3 percent annual growth in peak demand for its system. Peak demand rose from 974 MW in that year to 1,097 MW in 1991. The utility expects growth from 1991 to 2001 to occur at about 2.3 percent annually. WTU anticipates a peak demand after adjustments of 1,373 MW for its system by 2001. Figure 11.3 and Table 11.3 provide additional information on peak demand.

Of the 1991 system peak of 1,097 MW, the residential sector accounted for 34.8 percent of the total system peak demand; the commercial sector, 30.0 percent; the wholesale sector, 21.2 percent; and the industrial sector, 12.4 percent.

Adjustments to Demand WTU's goals include reducing peak demand and increasing the use of off-peak energy. The majority of the utility's six end-user programs are aimed at residential and commercial customers. These programs offer economic incentives to customers who install efficient heating and cooling equipment. By offering incentives to its commercial customers, the utility encourages the installation of heat recovery systems for air conditioning units, heat pumps, and electric water heaters with solar assistance.

In 1991, WTU reported 28.3 MW reduction in peak demand due to its conservation and load management activities. By 2001, the utility projects a total reduction of 47.5 MW as a result of its energy efficiency programs.

Supply Side Plan

Installed Capacity In 1991, WTU had the installed capacity to generate up to 1,384 MW of electricity. The majority of this capacity (73.6 percent) is fired using natural gas/oil. The remainder of the installed capacity is fueled using coal. In 1991, WTU reported a production plant balance of approximately \$411 million historical cost with a book value of \$285 million.

Net System Capacity

Installed capacity plus the net of firm sales and purchases yields net system capacity. In 1981, the net system capacity for WTU was 1,096 MW with 1,054 MW being contributed by the utility's installed capacity and 42 MW

from firm purchases. A current installed capacity of 1,384 MW combined with the 12 MW purchased resulted in a net capacity of 1,396 MW in 1991. (See Figure 11.3 and Table 11.5.) The utility's reserve margin for 1991 was calculated to be 27.3 percent. WTU is projecting a slight increase in its net system capacity over the forecast period. The company expects installed capacity to be 1,552 MW in 2001 and purchases of 27 MW, resulting in a net system capacity of 1,579 MW for the system. This net capacity would yield a reserve margin of 15.0 percent for 2001.

Peak Demand and Net System Capacity

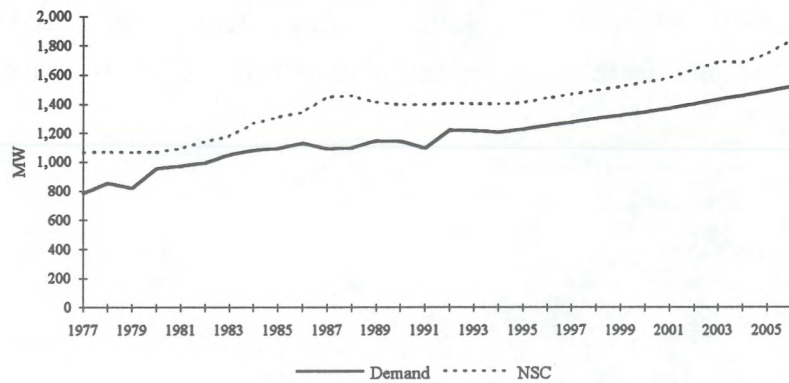


Figure 11.3

Net Generation

In 1981, WTU generated 99.7 percent of its electricity using gas. The remaining electricity was generated using oil. Beginning in 1986, WTU was able to diversify its fuel somewhat from the 1981 composition by installing

System Net Generation

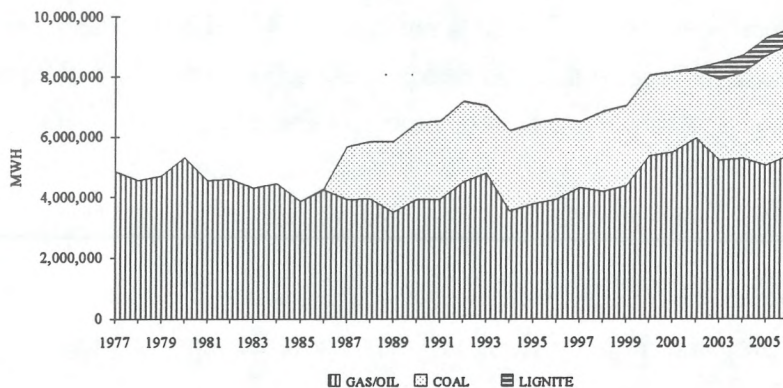


Figure 11.4

additional coal-fired capacity. By 1991, 60.1 percent of the total electricity generated by the utility used natural gas or oil as the source of energy. Coal generation contributed 39.9 percent of the total as illustrated in Figure 11.4. By 2001 the company expects to generate 67.3 percent of its electricity using natural gas or oil and 32.7 percent using coal. WTU projects its total net generation to be 8,152,000 MWH, excluding purchased power, by 2001.

System Expansion

WTU added 364 MW of capacity to its system in December 1986. This figure represents approximately 54.7 percent of the Oklaunion Coal plant in Wilbarger, Texas.

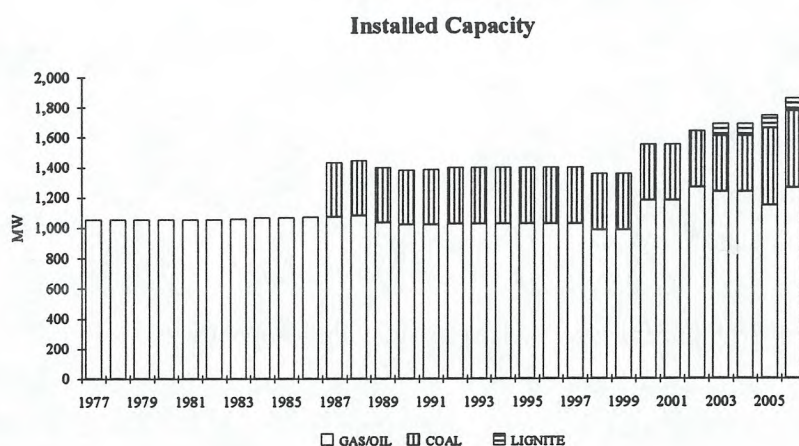


Figure 11.5

The company's resource plans include additions of 114 MW in 2000, 2002, and 2006 for Units 1, 2 and 3 of WTU CC; 82 MW in 2003 for SWEPCO Lignite; 140 MW in 2005 for Coletto; and repowering Rio Pecos 5 for 122 MW in 2000.

WTU currently has plans to retire nine gas plants. Three plants are scheduled to be retired in December 1997. The units are Abilene 4, Lake Pauline 1, and Fort Stockton 2. Two plants, Rio Pecos 4 and Rio Pecos 5, are scheduled to be retired in October of 1999. Lake Pauline 2 is scheduled for retirement in December 2001, with Paint Creek 1 in December 2002. Paint Creek 2 and Paint Creek 3 are scheduled for retirement in December 2004. These retirements will result in a total reduction of 230 MW in the WTU system.

Included in WTU's planned construction work through 2001 are 12 major transmission line projects. Four of these projects are to be completed in the four-year period through 1995.

WEST TEXAS UTILITIES COMPANY

Construction of 35.6 miles of the 138-KV Barilla-TU Electric tie in Ward, Pecos, and Reeves County was completed in August 1992. The estimated total cost of the project was \$3,295,467. In 1994, WTU plans to complete 3.8 miles of the Bronto Tap 138-KV line in Coke and Runnels County. Total cost is expected to be \$1,792,000. Also in 1994, WTU plans to build the 59.3-mile Menard-Sonora 138-KV line in Menard, Schleicher, and Sutton Counties. The estimated cost of the project is \$4,847,000. In 1995, WTU plans to build 2.6 miles of 138-KV line in Callahan County. Total cost is expected to be \$1,011,000. The eight lines scheduled for construction between 1996 and 2001 will result in a total 87.1 additional miles of 345-KV line, 106.7 additional miles of 138-KV line, and 104.4 miles of 69-KV line. These projects are located in various counties in the WTU service area. The combined cost of these eight projects is an estimated \$43,643,000.

Changes Since the 1989 Filing

The company's 1989 filing projected growth of 2.0 percent annually over the 10-year forecast period, while the 1991 filing estimates growth of 2.3 percent. The previous filing projected 1999 peak demand of 1,379 MW, whereas the 1991 filing expects peak demand in 1999 to be 1,323 MW. There have been several changes to WTU's resource plan since the 1989 filing. The repowering of Rio Pecos 5 has been postponed from 1997 to 2000, and Rio Pecos 6 is no longer included in the resource plan. Instead of 135-MW combustion turbine in 2000, WTU is planning three 114- MW units scheduled respectively for 2000, 2002, and 2006. The 71-MW Coletto Creek Unit 2 not only has been postponed from 2003 to 2005 but is now planning for 140 MW, and the PSO 65-MW coal unit is no longer in the plan. SWEPCO Lignite has been advanced to 2003 from beyond 2004.

RESOURCE PLAN FILED WITH PUCT

TABLE 11.1
WEST TEXAS UTILITIES COMPANY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	113,332	18,860	3,577	4,284	129
1978	117,710	19,807	3,674	4,491	132
1979	120,762	20,455	4,021	4,636	133
1980	124,275	21,509	4,405	4,780	129
1981	127,020	21,515	4,731	4,564	126
1982	131,164	22,541	4,799	4,571	126
1983	135,841	22,953	5,380	4,724	128
1984	141,405	23,144	6,135	4,877	121
1985	142,993	24,112	6,399	5,026	120
1986	141,750	24,126	6,410	5,179	124
1987	140,997	24,506	6,378	5,427	121
1988	140,794	24,710	6,394	5,547	121
1989	140,212	24,769	6,338	5,850	123
1990	139,953	24,884	6,328	5,913	124
1991	140,840	25,143	6,323	6,092	118
1992	142,530	25,240	7,160	5,010	120
1993	144,430	25,600	7,240	5,010	120
1994	146,330	26,050	7,520	5,020	120
1995	148,180	26,580	7,760	5,050	120
1996	150,150	27,150	8,000	5,090	120
1997	152,220	27,740	8,230	5,130	120
1998	154,330	28,320	8,450	5,180	120
1999	156,470	28,880	8,660	5,230	120
2000	158,730	29,490	8,880	5,280	120
2001	161,120	30,140	9,110	5,340	120
2002	163,530	30,820	9,350	5,390	120
2003	165,960	31,500	9,590	5,440	120
2004	168,410	32,210	9,820	5,500	120
2005	170,880	32,930	10,060	5,550	120
2006	173,370	33,680	10,290	5,610	120

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

WEST TEXAS UTILITIES COMPANY

TABLE 11.2
WEST TEXAS UTILITIES COMPANY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	907,778	664,808	1,035,219	408,205	835,543	3,851,553	672,554
1978	978,809	707,532	1,063,797	378,820	933,363	4,062,321	101,797
1979	985,026	746,493	1,023,736	417,805	980,373	4,153,433	173,168
1980	1,103,256	814,301	1,057,543	422,968	1,151,784	4,549,852	329,195
1981	1,093,200	847,941	1,017,668	405,799	1,186,576	4,551,184	-384,120
1982	1,181,209	895,033	1,030,711	421,663	1,260,822	4,789,438	-550,110
1983	1,199,784	902,503	1,017,121	424,981	1,287,762	4,832,151	-988,734
1984	1,292,764	960,213	1,115,396	437,326	1,383,167	5,188,866	-1,155,796
1985	1,309,510	998,130	1,211,351	461,905	1,387,680	5,368,576	-2,017,258
1986	1,299,347	1,033,157	1,192,412	457,585	1,343,154	5,325,655	-1,439,407
1987	1,317,664	1,010,896	1,116,477	470,042	1,359,539	5,274,618	-80,721
1988	1,341,011	1,025,654	1,165,137	489,968	1,451,013	5,472,783	-48,500
1989	1,365,295	1,038,361	1,162,611	502,252	1,512,608	5,581,127	-220,107
1990	1,338,174	1,028,476	1,125,975	518,495	1,575,956	5,587,076	434,384
1991	1,367,003	1,035,791	1,134,183	535,095	1,599,753	5,671,825	315,204
1992	1,413,900	1,053,500	1,214,600	545,400	2,180,300	6,407,700	223,500
1993	1,472,400	1,084,400	1,246,200	551,000	2,053,100	6,407,100	80,300
1994	1,512,400	1,117,800	1,247,600	547,500	1,876,400	6,301,700	-655,500
1995	1,546,700	1,152,000	1,248,400	545,600	1,809,700	6,302,400	-412,200
1996	1,579,800	1,187,100	1,249,100	544,900	1,825,400	6,386,300	-355,400
1997	1,613,300	1,226,300	1,250,100	545,300	1,847,200	6,482,200	-549,900
1998	1,647,400	1,266,200	1,251,000	546,400	1,873,300	6,584,300	-331,000
1999	1,681,200	1,304,900	1,251,900	548,300	1,902,100	6,688,400	-240,800
2000	1,716,200	1,346,600	1,252,900	550,800	1,933,400	6,799,900	654,100
2001	1,752,900	1,396,700	1,254,000	553,700	1,967,300	6,924,600	612,600
2002	1,790,300	1,452,100	1,254,900	556,900	1,963,900	7,018,100	643,100
2003	1,828,000	1,509,700	1,256,100	560,500	1,999,400	7,153,700	694,700
2004	1,865,300	1,569,700	1,257,200	564,200	2,035,800	7,292,200	774,400
2005	1,903,400	1,632,500	1,258,200	568,100	2,073,000	7,435,200	1,188,000
2006	1,941,700	1,698,500	1,259,400	572,100	2,111,200	7,582,900	1,313,700

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

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TABLE 11.3
WEST TEXAS UTILITIES COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	785	0	0	0	785	1,066	35.80%
1978	857	0	0	0	857	1,067	24.50%
1979	819	0	0	0	819	1,066	30.16%
1980	954	0	0	0	954	1,067	11.84%
1981	974	0	0	0	974	1,096	12.53%
1982	994	0	0	0	994	1,142	14.89%
1983	1,051	0	0	0	1,051	1,178	12.13%
1984	1,085	0	0	0	1,085	1,265	16.64%
1985	1,097	0	0	0	1,097	1,311	19.49%
1986	1,131	0	0	0	1,131	1,344	18.80%
1987	1,092	0	0	0	1,092	1,448	32.57%
1988	1,100	0	0	0	1,100	1,457	32.45%
1989	1,148	0	0	0	1,148	1,413	23.05%
1990	1,146	0	0	0	1,146	1,396	21.84%
1991	1,097	0	0	0	1,097	1,396	27.25%
1992	1,256	-4	0	-30	1,221	1,404	14.99%
1993	1,256	-6	0	-32	1,218	1,401	15.02%
1994	1,246	-8	0	-34	1,204	1,399	16.20%
1995	1,273	-10	0	-36	1,227	1,411	15.00%
1996	1,302	-12	0	-37	1,252	1,441	15.10%
1997	1,330	-14	0	-40	1,276	1,467	14.97%
1998	1,358	-16	0	-42	1,300	1,495	15.00%
1999	1,385	-18	0	-44	1,323	1,521	14.97%
2000	1,412	-20	0	-45	1,346	1,550	15.16%
2001	1,443	-23	0	-47	1,373	1,579	15.00%
2002	1,476	-25	0	-50	1,402	1,638	16.83%
2003	1,511	-26	0	-52	1,432	1,688	17.88%
2004	1,544	-29	0	-55	1,461	1,686	15.40%
2005	1,577	-30	0	-57	1,490	1,741	16.85%
2006	1,610	-32	0	-59	1,520	1,837	20.86%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

WEST TEXAS UTILITIES COMPANY

TABLE 11.4
WEST TEXAS UTILITIES COMPANY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	4,860,150	0	0	0	0	0	4,860,150
1978	4,543,701	0	0	0	0	0	4,543,701
1979	4,709,147	0	0	0	0	0	4,709,147
1980	5,312,776	0	0	0	0	0	5,312,776
1981	4,563,349	0	0	0	0	0	4,563,349
1982	4,595,604	0	0	0	0	0	4,595,604
1983	4,308,771	0	0	0	0	0	4,308,771
1984	4,445,229	0	0	0	0	0	4,445,229
1985	3,844,859	0	0	0	0	0	3,844,859
1986	4,233,330	52,872	0	0	0	0	4,286,202
1987	3,916,959	1,750,301	0	0	0	0	5,667,260
1988	3,932,128	1,911,587	0	0	0	0	5,843,715
1989	3,493,670	2,345,418	0	0	0	0	5,839,088
1990	3,915,633	2,543,127	0	0	0	0	6,458,760
1991	3,927,544	2,604,400	0	0	0	0	6,531,944
1992	4,486,000	2,692,000	0	0	0	0	7,178,000
1993	4,797,000	2,239,000	0	0	0	0	7,036,000
1994	3,534,000	2,665,000	0	0	0	0	6,199,000
1995	3,777,000	2,670,000	0	0	0	0	6,447,000
1996	3,919,000	2,678,000	0	0	0	0	6,597,000
1997	4,292,000	2,215,000	0	0	0	0	6,507,000
1998	4,165,000	2,672,000	0	0	0	0	6,837,000
1999	4,360,000	2,681,000	0	0	0	0	7,041,000
2000	5,361,000	2,697,000	0	0	0	0	8,058,000
2001	5,487,000	2,665,000	0	0	0	0	8,152,000
2002	5,952,000	2,244,000	89,000	0	0	0	8,285,000
2003	5,211,000	2,691,000	583,000	0	0	0	8,485,000
2004	5,284,000	2,847,000	585,000	0	0	0	8,716,000
2005	5,051,000	3,645,000	590,000	0	0	0	9,286,000
2006	5,352,000	3,698,000	522,000	0	0	0	9,572,000

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 11.5
WEST TEXAS UTILITIES COMPANY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	1,054	0	0	0	12	0	0	1,066
1978	1,054	0	0	0	13	0	0	1,067
1979	1,054	0	0	0	12	0	0	1,066
1980	1,054	0	0	0	13	0	0	1,067
1981	1,054	0	0	0	42	0	0	1,096
1982	1,054	0	0	0	88	0	0	1,142
1983	1,059	0	0	0	119	0	0	1,178
1984	1,067	0	0	0	198	0	0	1,265
1985	1,068	0	0	0	243	0	0	1,311
1986	1,070	0	0	0	274	0	0	1,344
1987	1,070	364	0	0	14	0	0	1,448
1988	1,079	364	0	0	14	0	0	1,457
1989	1,035	364	0	0	14	0	0	1,413
1990	1,019	364	0	0	13	0	0	1,396
1991	1,020	364	0	0	12	0	0	1,396
1992	1,024	375	0	0	5	0	0	1,404
1993	1,024	375	0	0	2	0	0	1,401
1994	1,024	375	0	0	0	0	0	1,399
1995	1,024	375	0	0	12	0	0	1,411
1996	1,024	375	0	0	42	0	0	1,441
1997	1,024	375	0	0	68	0	0	1,467
1998	982	375	0	0	138	0	0	1,495
1999	982	375	0	0	164	0	0	1,521
2000	1,177	375	0	0	0	0	2	1,550
2001	1,177	375	0	0	27	0	0	1,579
2002	1,264	375	0	0	0	0	1	1,638
2003	1,231	375	82	0	0	0	0	1,688
2004	1,231	375	82	0	0	0	2	1,686
2005	1,144	515	82	0	0	0	0	1,741
2006	1,258	515	82	0	0	0	18	1,837

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER TWELVE

EL PASO ELECTRIC COMPANY

El Paso Electric Company (EPE), a public utility, generates, transmits and distributes electric energy, serving the County of El Paso and portions of Culberson and Hudspeth Counties in the State of Texas. EPE serves portions of Dona Ana, Sierra, Otero and Luna Counties in the State of New Mexico. EPE has transmission line interconnections in Arizona and New Mexico and to the Republic of Mexico and provides electrical energy to Rio Grande Electric Cooperative, Inc., to Texas-New Mexico Power Company, to Imperial Irrigation District in California, and to Mexico. EPE operates as a member of Western Systems Coordinating Council.

EPE is an investor-owned utility. Equity accounts for 29 percent of its capital structure while 7 percent is held as preferred stock. As of December 1990, the company's total assets were valued at \$1,901,928,000, and long-term debt comprised 64 percent of its total liabilities. Revenues for 1990 totaled \$445,309,000. On January 8, 1992 the company filed a petition for reorganization under Chapter 11 of the U.S. Bankruptcy Code. EPE is currently soliciting acceptance of the plan, with a confirmation hearing scheduled for February 3, 1993. This plan could embody substantial restructuring of the company's obligations and equity, could include or be preceded by a merger or other combination involving all or a portion of the company or its assets, and may involve modifications to the company's rates.

EPE reported a 1991 total system peak demand of 936 MW and 757 MW for its Texas operations. Texas sales for 1991 of 3,762,675 MWH amount to 80 percent of all EPE system sales of 4,711,963 MWH.

Demand Forecast

EPE applies econometric methods to develop approximately 80 percent of its sales forecast, and judgmental and survey estimates for the remainder. Estimates of the basic native system load, consisting of the service area in Texas and New Mexico, begin with

development of the estimates of sales for each customer class and then adding the wholesale customer, Rio Grande Electric Cooperative (RGEC). Estimates for company use and unaccounted-for-losses are combined with customer class and RGEC to obtain net-energy-output-to-lines. By applying a projected load factor to this figure, a basic system peak is developed. Extraordinary loads are then added along with off-system sales and losses to obtain the total peak demand. EPE continues to develop and improve models for segmented residential sales forecasts and appliance efficiency forecasts.

Except where noted, the following analysis of demand for electricity examines data for the Texas portion of the total EPE system.

Number of Customers

EPE provided electric service to 173,881 residential customers in 1991 as shown in Table 12.1. The historical data for the period from 1981 through 1991 reflect an average annual growth rate of 2.7 percent for this class of

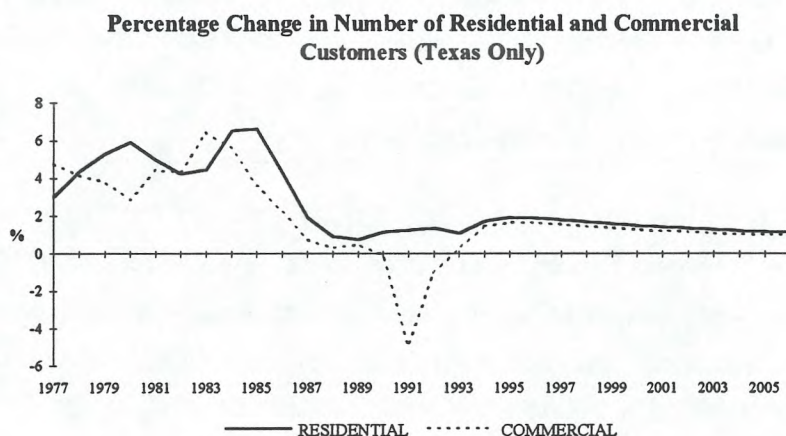


Figure 12.1

customers. EPE expects a 2.4 percent annual growth rate through 2001. (See Figure 12.1.) The company served 16,618 small commercial/industrial customers in 1991. The historical growth rate for the small commercial/industrial sector in Texas averaged 3.0 percent per annum over the period from 1981 through 1991. EPE anticipates an average annual growth rate in this sector of 2.7 percent between 1991 and 2001. The industrial sector includes 41 customers in 1991. The company expects an annual average industrial customer growth of 0.7 percent between 1991 and 2001. In 1991, EPE served 2,269 other retail customers (primarily municipalities), and two wholesale customers. Overall, Texas other retail customer growth is expected to be 1.1 percent over the 1991-2001 period.

Sales

In terms of energy sales, the small commercial/ industrial sector provides the biggest market for EPE as reflected in Figure 12.2. Sales to these customers amounted to 1,240,158 MWH, 33 percent of total system sales in Texas. (See Table

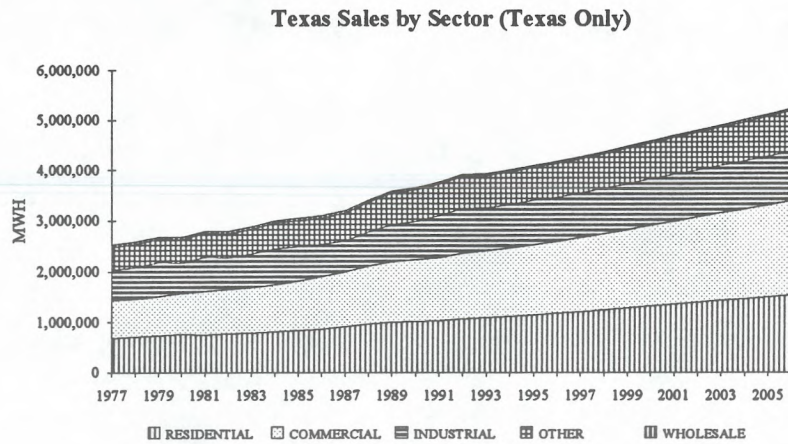


Figure 12.2

12.2.) Steady growth in sales over the past 10 years averaged 3.8 percent annually and is projected to increase by 2.8 percent per year through 2001, when this sector will comprise 35 percent of total Texas sales.

The slower growing large commercial/industrial sector in the EPE Texas service area will experience a 1.1 percent annual sales growth over the forecast period, according to company expectations. In 1991, this group purchased 832,671 MWH, about 22 percent of total sales in Texas. By the year 2001 the industrial sector will account for 20 percent of total sales, or 926,673 MWH.

Residential sales grew fairly steadily in Texas over the past 10 years, at an average compound rate of 3.2 percent per year to reach 1,032,163 MWH in 1991. EPE projects continued growth in the residential sector at 2.8 percent per year through 2001.

The remaining retail sales are composed primarily of sales to municipalities for street lighting and other purposes. These sales amounted to 621,827 MWH in 1991, 17 percent of the total Texas sales for that year. Growth of 1.7 percent is expected through 2001.

EPE projects sales within the wholesale sector to increase at a rate of only 1.5 percent per annum through 2001 from 35,856 MWH in 1991 to 41,418 MWH in 2001. No off-system sales to Texas utilities are anticipated.

RESOURCE PLAN FILED WITH PUCT

Total retail and wholesale sales amounted to 3,762,675 MWH in 1991. Growth in the total sales averaged 3.0 percent from 1981 to 1991. The company expects sales to grow at an average annual rate of about 2.2 percent through 2001, reaching 4,693,340 MWH in that year.

Peak Demand Over the period from 1981 through 1991, EPE experienced an annualized 2.7 percent growth rate of peak demand in Texas, achieving 757 MW in 1991. The company expects growth through 2001 to occur at about 2.4 percent annually. EPE anticipates a Texas peak demand, after adjustments, of 960 MW in 2001. Figure 12.3 and Table 12.3 provide additional information on peak demand.

The coincident peak of the residential sector accounted for 30.1 percent of the 1991 Texas peak demand while the commercial and industrial sectors represented 54.4 percent.

The 1991 commercial non-coincident peak demand of 296 MW represents the greatest load of any Texas sector, compared to 285 MW for non-coincident residential peak demand.

Adjustments to Demand DSM moves the scope of traditional electric utility planning away from forecasting the electric energy and capacity growth and then planning for the building of the most economical generation units to meet it. DSM focuses on managing activities on both sides of the meter. DSM integrates identifying customer energy needs and usage patterns with developing cost-effective programs to create changes in the usage patterns to allow the customer's needs to be met and overall costs to the utility to be lower. Nationally, DSM programs are delivering capacity equivalents at less than one-half to three-quarters of equivalent supply-side options.

El Paso Electric is developing its DSM goals and objectives with three distinct phases occurring in the development process: first, a group of scenarios are developed identifying the type and mix of load shape changes which have the most value to the utility; second, the load shape changes are matched with DSM programs which achieve the targeted load shape change and run through economic, technical, and market potential screens to identify the appropriate mix of programs; and third, implementation plans are developed and put into place. EPE anticipates an adjustment of about five MW to system peak from passive DSM programs in 1992. By 2001, this adjustment is expected to be 25 MW.

Supply-Side Plan

Installed Capacity EPE operates eight local generation gas units with an installed capacity of 793 MW in 1991. EPE has part ownership in five remote generating units totaling 704 MW, yielding a total installed capacity base of 1,497 MW in 1991. About 53 percent of the capacity is fueled by gas, 40 percent by nuclear fuel, and 7 percent by coal as illustrated in Figure 12.5. The installed capacity is projected to be 1,657 MW by the year 2006, of which 57.5 percent will be fueled by natural gas, 36.2 percent by nuclear fuel, and 6.3 percent by coal.

Net System Capacity

Installed capacity plus the net of firm purchases and sales yields net system capacity. EPE achieved a net system capacity of 1,289 MW in 1991. (See Figure 12.3 and Table 12.5.) With the use of a Texas allocator of 80.92 percent, EPE's net system capacity for the State of Texas was 1,043 MW in 1991. The net system capacity is projected to be 1,499 MW by the year 2001 and 1,681 MW by the year 2006. For Texas, the corresponding figures are 1,186 MW in 2001 and 1,327 MW in 2006, with the use of allocation factors of 79.14 percent and 78.95 percent respectively.

Peak Demand and Net System Capacity

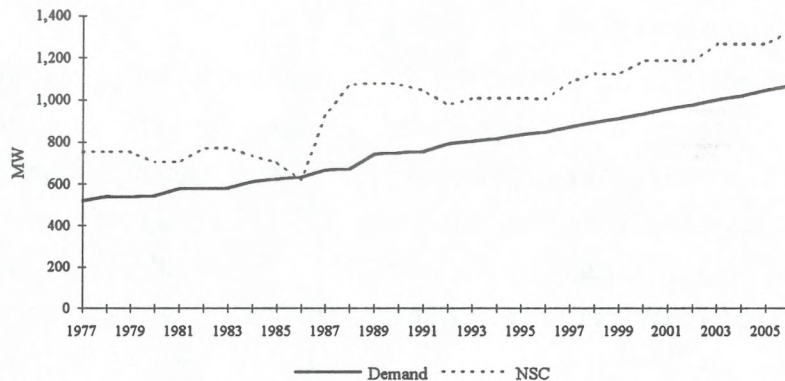


Figure 12.3

Net Generation

Nuclear power produced about 3,957,723 MWH in 1991. This is 58 percent of total net generation on the EPE system. (See Figure 12.4 and Table 12.4.) Nuclear power is projected to reach 4,204,800 MWH

(63.8 percent) by the year 2006. Natural-gas-fueled plants produced 2,138,241 MWH (31.3 percent) in 1991 but power generation by gas is projected to decline by the year 2006, producing only 1,649,800 MWH (25.0 percent). Coal generation is expected to remain relatively constant, producing 725,149 MWH (10.6 percent) in 1991, to 735,800 MWH (11.2 percent) by the year 2006. Purchased power is expected to increase from 1,038,559 MWH in 1991 to 1,364,100 MWH by the year 2006.

System Expansion

EPE currently projects a need for capacity in 1997 and 1998. Undetermined peak purchases of 50 MW are planned in each of these years to provide the required capacity. Additional capacity will be required in the years

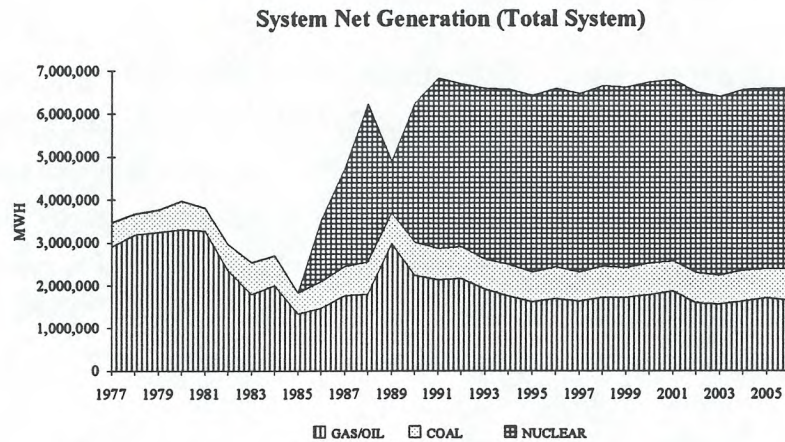


Figure 12.4

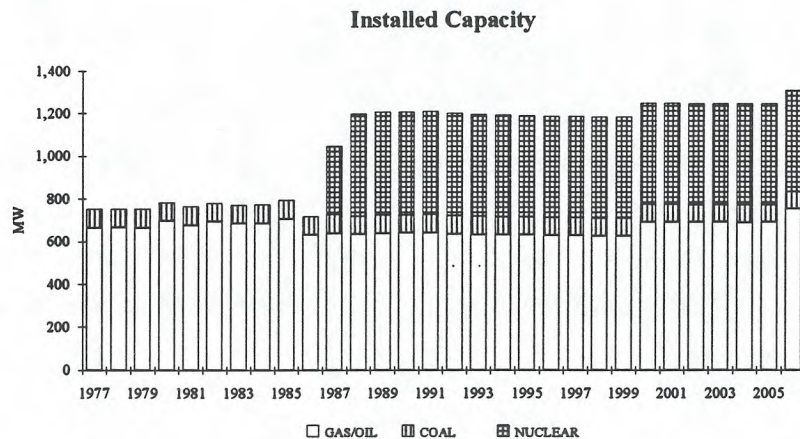


Figure 12.5

EL PASO ELECTRIC COMPANY

2000 and 2006 respectively. Combustion turbines (CT), each sized at 80 MW, are planned in these years to provide the additional needed capacity. This system expansion plan will be updated as required.

In addition to the above purchases and CT additions, EPE plans additional short-term resource purchases in 1992-1996 to fulfill EPE's firm sales commitment to Comision Federal de Electricidad (CFE). However, the amount of these short-term purchases are subject to change.

One 47-mile 345-KV transmission project, 19 115-KV transmission projects, totaling more than 101 miles, and four 69-KV transmission projects, totaling approximately 12 miles, are scheduled to be completed from 1992 through 2001. The majority of these transmission lines will be located in El Paso County, Texas; Donna Ana County, New Mexico; or Chihuahua, Mexico.

Changes Since the 1989 Filing In 1989, EPE projected 10-year peak-demand growth of 2.6 percent for Texas and planned to add 70 MW of gas-fueled capacity in 1996 and 1998. Now, EPE projects 2.4 percent average annual growth in demand and plans to add 80 MW in 2000 and 2006.

RESOURCE PLAN FILED WITH PUCT

TABLE 12.1A
EL PASO ELECTRIC COMPANY
NUMBER OF CUSTOMERS - TOTAL
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	139,618	14,048	44	2,101	3
1978	147,555	14,735	47	2,235	4
1979	154,453	15,202	44	2,336	4
1980	160,288	15,482	42	2,386	4
1981	165,239	15,990	43	2,430	4
1982	169,383	16,539	43	2,482	3
1983	174,258	17,123	40	2,531	3
1984	181,926	17,828	40	2,571	3
1985	188,207	18,720	40	2,604	2
1986	194,830	19,470	40	2,635	2
1987	201,829	20,161	39	2,734	2
1988	206,832	20,516	40	2,880	2
1989	212,290	21,003	51	2,983	2
1990	216,776	21,619	41	3,134	2
1991	221,491	21,916	44	3,430	2
1992	227,281	22,440	38	3,298	2
1993	233,217	23,180	38	3,312	2
1994	238,993	23,899	40	3,385	2
1995	244,839	24,563	40	3,473	2
1996	250,798	25,216	41	3,561	2
1997	256,896	25,865	43	3,640	2
1998	263,148	26,528	43	3,722	2
1999	269,661	27,220	44	3,803	2
2000	276,443	27,943	45	3,886	2
2001	283,390	28,690	47	3,972	2
2002	290,420	29,443	48	4,066	2
2003	297,541	30,204	49	4,164	2
2004	304,759	30,971	50	4,267	2
2005	311,682	31,701	51	4,369	2
2006	318,514	32,416	52	4,473	2

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

EL PASO ELECTRIC COMPANY

TABLE 12.1B
EL PASO ELECTRIC COMPANY
NUMBER OF CUSTOMERS - TEXAS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	113,702	10,773	42	1,394	2
1978	120,074	11,290	45	1,469	3
1979	125,384	11,647	42	1,516	3
1980	129,838	11,944	40	1,551	3
1981	133,627	12,337	41	1,578	3
1982	136,642	12,745	41	1,606	2
1983	140,076	13,077	39	1,635	2
1984	145,748	13,575	38	1,646	2
1985	150,255	14,232	38	1,649	2
1986	155,099	14,765	38	1,676	2
1987	160,330	15,247	37	1,765	2
1988	163,546	15,474	38	1,885	2
1989	167,500	15,847	49	1,944	2
1990	170,608	16,369	38	2,006	2
1991	173,881	16,618	41	2,269	2
1992	178,344	17,000	35	2,115	2
1993	182,344	17,515	35	2,100	2
1994	186,482	18,015	37	2,150	2
1995	190,738	18,486	37	2,216	2
1996	195,117	18,960	38	2,277	2
1997	199,629	19,447	40	2,329	2
1998	204,289	19,950	40	2,380	2
1999	209,211	20,481	41	2,426	2
2000	214,410	21,041	42	2,476	2
2001	219,779	21,620	44	2,529	2
2002	225,234	22,210	45	2,589	2
2003	230,777	22,808	46	2,652	2
2004	236,405	23,417	47	2,719	2
2005	241,730	23,992	48	2,784	2
2006	246,968	24,556	49	2,851	2

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 12.2A
EL PASO ELECTRIC COMPANY
ANNUAL SALES BY SECTOR - TOTAL (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	874,140	879,002	617,957	698,600	169,618	3,239,317	6,982
1978	907,958	887,604	650,543	709,097	165,453	3,320,655	84,609
1979	937,859	929,985	682,163	710,478	162,600	3,423,085	120,366
1980	972,070	963,148	621,877	702,790	164,941	3,424,826	292,376
1981	966,487	1,013,735	702,321	712,884	168,514	3,563,941	-946
1982	994,109	1,052,964	634,008	745,184	178,871	3,605,136	-888,616
1983	1,017,566	1,083,648	677,118	778,803	178,113	3,735,248	-1,474,107
1984	1,046,934	1,127,241	741,134	796,115	182,005	3,893,429	-1,500,930
1985	1,079,433	1,180,392	696,660	809,529	47,910	3,813,924	-2,375,429
1986	1,114,177	1,245,059	658,519	831,690	44,991	3,894,436	-744,665
1987	1,179,814	1,296,856	635,446	880,197	45,023	4,037,336	320,950
1988	1,246,083	1,377,393	697,756	928,758	44,727	4,294,717	1,586,212
1989	1,299,771	1,423,852	763,650	974,915	44,725	4,506,913	896
1990	1,318,472	1,458,776	784,175	954,450	37,551	4,578,852	1,261,840
1991	1,342,831	1,487,540	864,932	956,791	35,856	4,711,963	1,726,078
1992	1,386,892	1,546,867	916,189	996,835	39,600	4,910,343	1,356,214
1993	1,425,400	1,584,917	875,322	1,005,638	39,798	4,955,105	1,201,775
1994	1,462,197	1,623,424	899,099	1,006,192	39,997	5,055,112	1,063,693
1995	1,499,665	1,668,514	921,039	1,023,067	40,197	5,176,858	781,710
1996	1,539,525	1,717,643	911,975	1,043,700	40,398	5,277,895	828,430
1997	1,581,286	1,765,382	924,485	1,065,331	40,600	5,402,013	572,300
1998	1,626,909	1,818,395	938,611	1,086,089	40,803	5,536,021	590,329
1999	1,674,405	1,873,566	953,360	1,105,947	41,007	5,673,783	405,681
2000	1,721,980	1,927,856	968,220	1,126,495	41,212	5,811,542	369,665
2001	1,768,346	1,983,624	982,619	1,148,227	41,418	5,950,225	251,688
2002	1,813,224	2,036,391	996,822	1,171,156	41,625	6,085,422	-175,713
2003	1,858,050	2,087,811	1,008,742	1,194,583	45,337	6,220,944	-425,652
2004	1,903,542	2,138,933	1,024,410	1,219,429	45,556	6,358,508	-407,678
2005	1,949,306	2,195,732	1,037,420	1,244,520	45,756	6,499,590	-526,031
2006	1,996,929	2,253,819	1,051,166	1,269,217	47,719	6,645,706	-685,103

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

EL PASO ELECTRIC COMPANY

TABLE 12.2B
EL PASO ELECTRIC COMPANY
ANNUAL SALES BY SECTOR - TEXAS (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	684,972	744,794	599,820	449,074	47,127	2,525,787	5,444
1978	709,582	748,458	631,393	456,093	44,973	2,590,499	66,005
1979	730,326	787,029	661,746	460,137	45,264	2,684,502	94,395
1980	756,898	815,108	604,047	460,754	45,510	2,682,317	228,988
1981	752,005	856,222	683,919	460,064	48,909	2,801,119	-744
1982	773,512	883,787	617,965	473,450	53,145	2,801,859	-690,619
1983	788,765	898,941	659,335	493,041	44,553	2,884,635	-1,138,415
1984	807,944	929,637	718,964	500,112	47,090	3,003,747	-1,157,955
1985	832,947	983,115	673,867	510,992	47,910	3,048,831	-1,898,906
1986	859,578	1,044,031	634,485	517,127	44,991	3,100,212	-592,799
1987	909,589	1,085,615	608,769	548,378	45,023	3,197,374	254,177
1988	960,110	1,150,530	668,446	585,766	44,727	3,409,579	1,259,295
1989	1,004,731	1,189,264	733,218	615,475	44,725	3,587,413	713
1990	1,018,079	1,218,654	753,914	623,399	37,551	3,655,941	1,007,504
1991	1,032,163	1,240,158	832,671	618,229	35,856	3,762,675	1,378,336
1992	1,068,779	1,293,828	881,577	626,838	39,600	3,915,072	1,081,325
1993	1,094,699	1,316,968	837,415	638,769	39,798	3,931,975	953,633
1994	1,120,969	1,342,462	859,080	641,626	39,997	4,008,435	843,452
1995	1,148,794	1,375,756	878,887	654,811	40,197	4,102,720	619,514
1996	1,178,885	1,414,893	867,663	667,147	40,398	4,173,339	655,056
1997	1,210,750	1,452,680	877,560	680,328	40,600	4,266,344	451,985
1998	1,246,437	1,495,697	889,466	692,558	40,803	4,369,465	465,934
1999	1,284,379	1,540,919	901,972	703,928	41,007	4,476,786	320,095
2000	1,322,516	1,585,349	914,525	716,055	41,212	4,584,311	291,602
2001	1,359,875	1,631,342	926,673	729,378	41,418	4,693,340	198,523
2002	1,395,879	1,674,334	938,126	743,927	41,625	4,798,545	-138,555
2003	1,431,306	1,716,011	949,018	758,951	45,337	4,905,277	-335,631
2004	1,466,539	1,757,317	960,073	775,258	45,556	5,009,397	-321,179
2005	1,502,500	1,804,297	970,750	791,834	45,756	5,119,791	-414,360
2006	1,540,171	1,852,434	982,079	808,084	47,719	5,235,141	-539,688

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

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TABLE 12.3A
EL PASO ELECTRIC COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	657	0	0	0	657	950	44.68%
1978	690	0	0	0	690	960	39.09%
1979	688	0	0	0	688	960	39.53%
1980	693	0	0	0	693	898	29.64%
1981	738	0	0	0	738	897	21.53%
1982	733	0	0	0	733	976	33.10%
1983	749	0	0	0	749	991	32.36%
1984	784	0	0	0	784	940	19.84%
1985	776	0	0	0	776	876	12.83%
1986	797	0	0	0	797	978	22.74%
1987	828	0	0	0	828	1,157	39.66%
1988	844	0	0	0	844	1,340	58.84%
1989	923	0	0	0	923	1,336	44.75%
1990	932	0	0	0	932	1,332	43.00%
1991	936	0	0	0	936	1,289	37.76%
1992	974	22	0	-6	990	1,216	22.83%
1993	1,004	11	0	-8	1,007	1,261	25.22%
1994	1,030	9	0	-10	1,029	1,265	22.93%
1995	1,054	10	0	-13	1,051	1,265	20.36%
1996	1,078	6	0	-15	1,069	1,265	18.33%
1997	1,111	9	0	-18	1,102	1,369	24.23%
1998	1,140	9	0	-20	1,129	1,419	25.69%
1999	1,169	9	0	-22	1,156	1,419	22.75%
2000	1,197	10	0	-24	1,182	1,499	26.82%
2001	1,229	10	0	-26	1,213	1,499	23.58%
2002	1,256	10	0	-28	1,238	1,499	21.08%
2003	1,287	11	0	-31	1,268	1,601	26.26%
2004	1,312	12	0	-32	1,291	1,601	24.01%
2005	1,346	11	0	-32	1,324	1,601	20.92%
2006	1,375	11	0	-32	1,354	1,681	24.15%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

EL PASO ELECTRIC COMPANY

TABLE 12.3B
EL PASO ELECTRIC COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	ADJUSTMENTS TO PEAK DEMAND				PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	520	0	0	0	520	752	44.68%
1978	542	0	0	0	542	754	39.09%
1979	539	0	0	0	539	752	39.53%
1980	544	0	0	0	544	705	29.64%
1981	580	0	0	0	580	704	21.53%
1982	578	0	0	0	578	770	33.10%
1983	583	0	0	0	583	772	32.36%
1984	612	0	0	0	612	734	19.84%
1985	624	0	0	0	624	703	12.83%
1986	633	0	0	0	633	618	-2.36%
1987	666	0	0	0	666	931	39.66%
1988	675	0	0	0	675	1,072	58.84%
1989	743	0	0	0	743	1,075	44.75%
1990	752	0	0	0	752	1,075	43.00%
1991	757	0	0	0	757	1,043	37.76%
1992	782	16	0	-5	794	975	22.83%
1993	805	6	0	-7	804	1,007	25.22%
1994	824	5	0	-9	819	1,007	22.93%
1995	843	5	0	-12	836	1,006	20.36%
1996	861	1	0	-14	848	1,003	18.33%
1997	888	2	0	-16	873	1,085	24.23%
1998	910	2	0	-19	893	1,122	25.69%
1999	933	2	0	-21	914	1,122	22.75%
2000	956	2	0	-23	935	1,186	26.82%
2001	983	2	0	-25	960	1,186	23.58%
2002	1,004	1	0	-27	978	1,184	21.08%
2003	1,029	3	0	-29	1,002	1,265	26.26%
2004	1,048	2	0	-31	1,019	1,264	24.01%
2005	1,076	1	0	-31	1,046	1,265	20.92%
2006	1,099	2	0	-31	1,069	1,327	24.15%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
 - 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- SOURCE: Load Forecast 1991 Filing, Request 1.01

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TABLE 12.4
EL PASO ELECTRIC COMPANY
NET GENERATION BY FUEL TYPE - TOTAL (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	2,900,346	575,407	0	0	0	0	3,475,753
1978	3,193,038	480,647	0	0	0	0	3,673,685
1979	3,255,178	515,865	0	0	0	0	3,771,043
1980	3,309,400	667,444	0	0	0	0	3,976,844
1981	3,270,797	545,520	0	0	0	0	3,816,317
1982	2,352,046	613,515	0	0	0	0	2,965,561
1983	1,795,817	736,904	0	0	0	0	2,532,721
1984	2,000,509	704,704	0	0	0	0	2,705,213
1985	1,326,446	497,502	0	0	0	0	1,823,948
1986	1,463,186	624,473	0	1,432,177	0	0	3,519,836
1987	1,757,200	690,000	0	2,290,624	0	0	4,737,824
1988	1,792,465	764,085	0	3,680,446	0	0	6,236,996
1989	2,975,883	718,526	0	1,201,834	0	0	4,896,243
1990	2,237,927	768,762	0	3,240,648	0	0	6,247,337
1991	2,138,241	725,149	0	3,957,723	0	0	6,821,113
1992	2,158,000	750,900	0	3,785,200	0	0	6,694,100
1993	1,913,800	698,600	0	3,979,900	0	0	6,592,300
1994	1,746,000	751,800	0	4,073,800	0	0	6,571,600
1995	1,610,200	700,400	0	4,116,600	0	0	6,427,200
1996	1,689,300	749,700	0	4,150,200	0	0	6,589,200
1997	1,625,500	690,800	0	4,157,600	0	0	6,473,900
1998	1,715,200	727,700	0	4,200,600	0	0	6,643,500
1999	1,718,600	693,200	0	4,202,700	0	0	6,614,500
2000	1,779,700	738,900	0	4,215,500	0	0	6,734,100
2001	1,863,900	705,200	0	4,203,700	0	0	6,772,800
2002	1,580,900	718,300	0	4,192,900	0	0	6,492,100
2003	1,550,500	685,500	0	4,153,100	0	0	6,389,100
2004	1,626,200	725,100	0	4,204,900	0	0	6,556,200
2005	1,699,200	692,200	0	4,199,600	0	0	6,591,000
2006	1,649,800	735,800	0	4,204,800	0	0	6,590,400

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

EL PASO ELECTRIC COMPANY

TABLE 12.5A
EL PASO ELECTRIC COMPANY
NET SYSTEM CAPACITY BY SOURCE - TOTAL (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	839	111	0	0	0	0	0	950
1978	849	111	0	0	0	0	0	960
1979	849	111	0	0	0	0	0	960
1980	888	111	0	0	0	0	101	898
1981	862	111	0	0	0	0	76	897
1982	879	111	0	0	0	0	14	976
1983	879	112	0	0	0	0	0	991
1984	879	111	0	0	0	0	50	940
1985	879	110	0	0	0	0	113	876
1986	793	110	0	200	0	0	125	978
1987	793	110	0	400	0	0	146	1,157
1988	793	104	0	600	0	0	157	1,340
1989	794	104	0	600	0	0	162	1,336
1990	793	104	0	600	0	0	165	1,332
1991	793	104	0	600	0	0	208	1,289
1992	793	104	0	600	50	0	331	1,216
1993	793	104	0	600	100	0	336	1,261
1994	793	104	0	600	100	0	332	1,265
1995	793	104	0	600	100	0	332	1,265
1996	793	104	0	600	100	0	332	1,265
1997	793	104	0	600	50	0	178	1,369
1998	793	104	0	600	100	0	178	1,419
1999	793	104	0	600	100	0	178	1,419
2000	873	104	0	600	100	0	178	1,499
2001	873	104	0	600	100	0	178	1,499
2002	873	104	0	600	100	0	178	1,499
2003	873	104	0	600	100	0	76	1,601
2004	873	104	0	600	100	0	76	1,601
2005	873	104	0	600	100	0	76	1,601
2006	953	104	0	600	100	0	76	1,681

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
 - 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- SOURCE: Load Forecast 1991 Filing, Request 1.01

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TABLE 12.5B
EL PASO ELECTRIC COMPANY
NET SYSTEM CAPACITY BY SOURCE - TEXAS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	664	88	0	0	0	0	0	752
1978	667	87	0	0	0	0	0	754
1979	665	87	0	0	0	0	0	752
1980	697	87	0	0	0	0	79	705
1981	677	87	0	0	0	0	60	704
1982	693	88	0	0	0	0	11	770
1983	685	87	0	0	0	0	0	772
1984	686	87	0	0	0	0	39	734
1985	706	88	0	0	0	0	91	703
1986	630	87	0	0	0	0	99	618
1987	638	88	0	322	0	0	117	931
1988	634	83	0	480	0	0	126	1,072
1989	639	84	0	483	0	0	130	1,075
1990	640	84	0	484	0	0	133	1,075
1991	642	84	0	486	0	0	168	1,043
1992	636	83	0	481	40	0	265	975
1993	633	83	0	479	80	0	268	1,007
1994	631	83	0	478	80	0	264	1,007
1995	631	83	0	477	80	0	264	1,006
1996	629	82	0	476	79	0	263	1,003
1997	628	82	0	475	40	0	141	1,085
1998	627	82	0	475	79	0	141	1,122
1999	627	82	0	474	79	0	141	1,122
2000	691	82	0	475	79	0	141	1,186
2001	691	82	0	475	79	0	141	1,186
2002	690	82	0	474	79	0	141	1,184
2003	690	82	0	474	79	0	60	1,265
2004	689	82	0	474	79	0	60	1,264
2005	690	82	0	474	79	0	60	1,265
2006	752	82	0	474	79	0	60	1,327

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER THIRTEEN

TEXAS-NEW MEXICO POWER COMPANY

Texas-New Mexico Power Company (TNP) is an investor-owned, public utility company rendering electrical service in Texas and New Mexico. TNP's service territory covers a wide range of geographic and climatic regions with operations separated into five Divisions: four located in Texas and one in New Mexico. The four Texas Divisions serve 80 incorporated cities and towns and surrounding unincorporated areas and are defined as follows:

- (1) Central Division covers portions of 17 counties located northwest to southeast of Fort Worth;
- (2) Northern Division includes two geographic areas:
 - (a) North Central Texas with portions of 15 counties ranging from the Oklahoma border to North Dallas and
 - (b) the Texas Panhandle in Hansford, Lipscomb, and Ochiltree Counties;
- (3) Southeast Division includes communities in Galveston, Brazoria, and Matagordo Counties near the Texas Gulf Coast; and
- (4) Western Division serves communities in Pecos, Reeves, Terrell, Ward, and Winkler Counties.

TNP's 1991 Texas system coincident peak of 992 MW (after adjusting for 2 MW of interruptible load) was 9.2 percent, 23.3 percent, 61.0 percent, and 6.5 percent, respectively, for the four divisions. TNP operates as a member of the Electric Reliability Council of Texas (ERCOT), and the bulk of its Texas service territory is within ERCOT. In the Texas Panhandle, TNP's Perryton area of the Northern Division is located in the Southwest Power Pool (SPP).

TNP's New Mexico Division is located in the Western States Coordinating Council (WSCC). The New Mexico Division operates completely separate from TNP's Texas system as there are no AC transmission interconnections with either TNP's ERCOT or SPP systems. TNP has a small amount of generation in New Mexico but purchases most

RESOURCE PLAN FILED WITH PUCT

of its electrical power requirements from other utility companies for its system. TNP's New Mexico Division serves nine incorporated towns and surrounding areas.

In August 1990, TNP began electric power generation at the TNP One generating plant for delivery to its Texas system. Prior to the summer of 1990, TNP operated as a distribution electric utility buying its Texas electric power requirements from a combination of electric utilities and cogeneration suppliers. The TNP One generating plant is a base load facility consisting of two circulating fluidized-bed (CFB) units, totaling 297.6 MW. The plant has three fuel options: lignite mined at the plant site is the predominant fuel; western coal can be used as an alternate fuel; and natural gas is used for start up and also can be used as an alternate fuel. The CFB technology is a "clean coal" technology that currently meets the new federal regulations of the 1990 Amendments to the Clean Air Act without the need for adding further emissions equipment.

As of December 31, 1991, TNP's total assets were valued at \$1,122,591,000 and annual operating revenues were \$441,343,000. As of that date, its capital structure was comprised of 25.0 percent common equity, 1.6 percent preferred stock, and 73.4 percent long-term debt.

TNP's 1991 Texas system coincident peak of 992 MW occurred in August. In 1991, energy sales in Texas totaled 5,001,115 MWH compared to total Company sales of 6,416,335 MWH.

Demand Forecast

TNP forecasts kilowatt-hour sales by each of its 10 Texas operating districts. Energy sales forecasts for the residential and commercial classes are based on econometric models. The econometric models use a combination of demographic, economic, and weather variables. Data Resources Inc. (DRI) provides the source for the economic projections.

The remaining customer classes of industrial, municipal lighting, municipal power, and other sales are based on non-econometric approaches. The industrial forecast is derived from information obtained by interviewing individual industrial customers. Simple time series regression models are used for the municipal lighting and municipal power classes. TNP's other customer projections examine the recent energy consumption data of wholesale customers.

TEXAS-NEW MEXICO POWER COMPANY

The energy sales forecasts are finalized in the annual budget meetings between general office and division personnel where adjustments can be made to the initial two to three years of the forecast. Division personnel recommend modifications according to their particular knowledge of economic conditions, prices of alternative energy sources, probable actions of competitors, population growth, and the intentions of industrial and other significant customer groups.

The operating district non-coincident peaks are projected by using average load factors by customer class from historical data. TNP forecasts its ERCOT coincident peak using average historical coincidence factors from the operating districts.

Number of Customers

In 1991, TNP served 166,390 retail customers in Texas: 140,727 residential; 25,308 commercial; 153 industrial; and 202 municipal customers. Additionally, TNP supplies power to one wholesale customer in Texas.

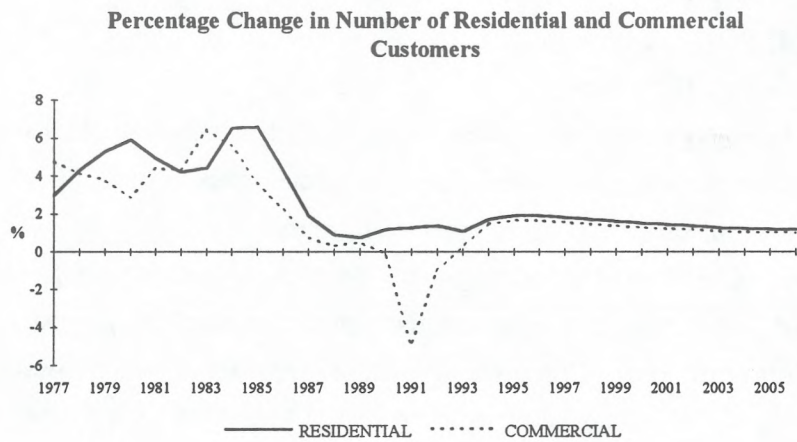


Figure 13.1

Information on number of customers is provided in Table 13.1. During the 10-year historical period through 1991, the average annual growth rates in number of customers were 1.9 percent residential, 2.3 percent commercial, -1.6 percent industrial, and 0.7 percent other retail. (See Figure 13.1.) The future annual growth rates from 1991 to 2006 are projected to be 1.6 percent residential, 2.0 percent commercial, and 0.4 percent industrial. The other retail sector is expected to have little or no growth in customers through 2006.

Sales

In Texas, TNP's energy sales in 1991 were 5,001,115 MWH including 3,418 MWH of wholesale power sales, as presented in Table 13.2. As shown on Figure 13.2, residential energy sales of 1,837,969 MWH made up 36.8 per-

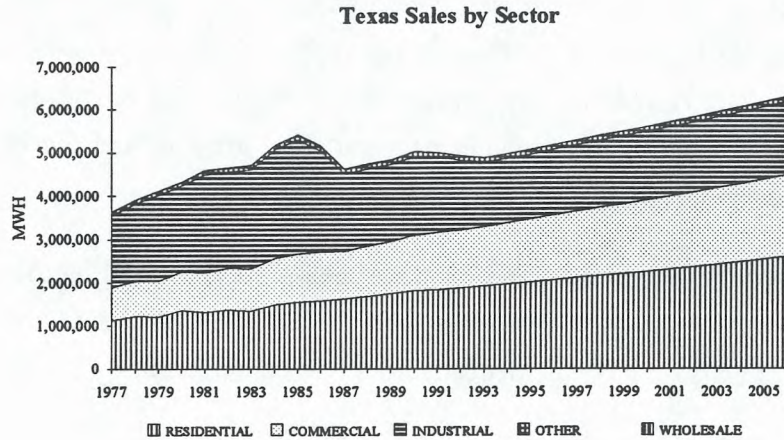


Figure 13.2

cent of TNP's total retail sales; followed by the industrial class with 1,746,773 MWH, 34.9 percent of total retail sales; the commercial class with 1,318,957 MWH, 26.4 percent of total retail sales; and other retail customers with 93,998 MWH, 1.9 percent of total retail sales. Other retail sales are mostly to municipal power or street lighting customers. By 2006, TNP expects the residential class to remain the largest class with 41.2 percent of Texas retail sales. Commercial sales are forecast to be 30.1 percent of Texas retail sales in 2006; TNP's industrial class is projected to have 26.9 percent of the total sales in 2006; other retail customers, 1.8 percent.

TNP forecasts its Texas system annual sales to grow at an average annual rate of 1.5 percent for the 15-year forecast period. The commercial class has the highest projected average annual growth rate of 2.4 percent followed by the residential class at 2.3 percent. For the historical period from 1981 through 1991, the commercial and residential classes experienced annual sales growth rates of 3.8 percent and 3.3 percent respectively. TNP's industrial segment is projected by the company to decline in energy sales from the current level. In 1985, TNP experienced its largest level of energy sales for any 12-month period at 5,418,127 MWH. TNP's current energy sales forecast remains below this historical high level until 1999.

Peak Demand

From 1983 to 1991, TNP's Texas system coincident peak demand has fluctuated from the low of 918 MW in 1983 to the high of 1,024 MW in 1990 as shown in Table 13.3. The 1991 coincident peak was 992 MW.

TEXAS-NEW MEXICO POWER COMPANY

TNP's 15-year forecast indicates coincident peak growth at an average annual rate of 1.8 percent which yields a 1,305 MW peak demand in 2006.

In 1991, the residential customer class had a non-coincident peak demand of 517 MW and a coincident peak demand of 477 MW, which represented 48.0 percent of the Texas coincident peak demand before adjustments. The commercial class had a 314-MW non-coincident demand and a 277-MW coincident peak demand. The industrial class had non-coincident and coincident peak demands of 227 MW and 224 MW, respectively. The commercial coincident peak demand represented 27.9 percent of the Texas coincident peak demand while the industrial coincident peak demand represented 22.5 percent.

Adjustments to Demand TNP has been directing DSM efforts to improve overall system load factor using two methods: (1) reductions of summer peak load; and (2) increases of winter month and shoulder month energy sales. TNP also promotes electric energy conservation among customers for improvement of their operating efficiency.

TNP introduced two DSM programs in 1990 to achieve these results. The GOOD CENTS Home program targets new residential construction to enhance the thermal integrity of the structure and incorporate properly sized and energy-efficient space heating and cooling systems. The High Efficiency Air Conditioning and Heat Pump program targets the efficiency of space heating and cooling equipment for residential and small commercial customers. Additionally, TNP has promoted energy conservation and peak load reduction through the ongoing programs of Energy Checked Efficiency Homes and Interruptible Irrigation Service. TNP has reduced the 1991 summer peak load requirement by 2 MW and projects an 11-MW peak load reduction by 2001 using these programs.

Supply-Side Plan

Installed Capacity As shown in Table 13.5, TNP has a total of 297.6 MW of net dependable capacity for its Texas ERCOT system from the two units of the TNP One facility (146.0 MW for Unit One and 151.6 MW for Unit Two). The commercial operation dates for these two CFB units were September 1990 for Unit One and October 1991 for Unit Two.

Net System Capacity

TNP's 1991 and long-term power resource mix is comprised of a combination of TNP generation and wholesale purchased power contracts from utility and non-utility suppliers. (See Table 13.5.)

TNP has long-term purchased power contracts for firm capacity and energy with the following suppliers for its Texas Divisions:

Net Generation

In August 1990, Unit One began power and energy deliveries to TNP's Lewisville, Texas City, and West Columbia points of delivery (PODs) that off-set firm power purchases from TNP's wholesale suppliers. For the last four and one-

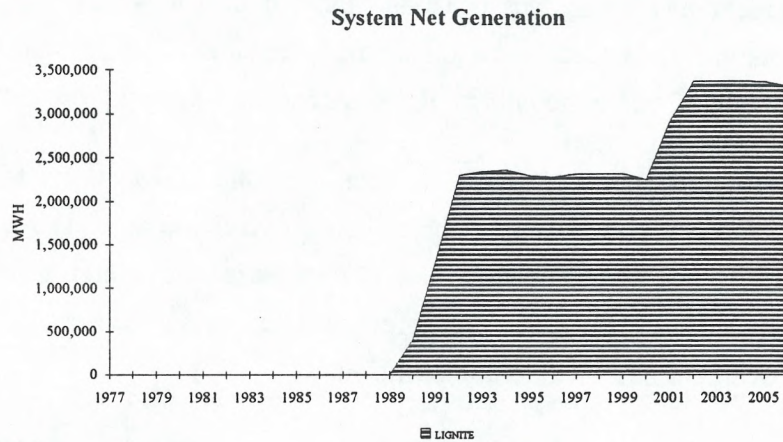


Figure 13.3

half months of 1990, the plant contributed 400,866 MWH. In 1991, Unit One delivered power for all 12 months and Unit Two began power deliveries in the middle of October. The total generation delivered to TNP's ERCOT system for the 1991 calendar year was 1,337,366 MWH. (See Figure 13.3.)

TEXAS-NEW MEXICO POWER COMPANY

<u>Division</u>	<u>Supplier</u>
Central	Texas Utilities Electric Company
Northern	Texas Utilities Electric Company Southwestern Public Service Company
Southeast	Houston Lighting and Power Company Clear Lake Cogeneration Texas Municipal Power Agency
Western	Texas Utilities Electric Company West Texas Utilities Company

For TNP's 1991 system peak in August, the power was supplied by utility suppliers at 514 MW, Clear Lake Cogeneration at 335 MW, and TNP One at 144 MW. In 1992 with the commercial operation of both TNP One units, the expected contribution by supply source is 401 MW from utility suppliers, 311 MW from Clear Lake Cogeneration, and 293 MW from TNP One.

Within its Texas system, TNP does not own the interconnected transmission system between its Divisions or among many of the PODs within a Division. To deliver power from TNP One, TNP uses the bulk power grids of HL&P and TU Electric to serve five specified PODs. Of TNP's 25 total PODs in its Texas system, 20 PODs continue to receive their full power requirements from their respective utility supplier.

System Expansion For supply-side planning purposes only, TNP is considering one additional 150-MW CFB unit in the year 2001. The relatively short construction time of 32 months provides TNP with considerable flexibility for finalizing a resource plan including this type of facility. This generating plant would serve base load energy and capacity for TNP's ERCOT service territory partially offsetting purchased power requirements. The price of the third CFB unit is projected to be \$456,543,000. TNP has the planning flexibility to construct a combined cycle, gas-fired generating unit or to purchase power from cogenerators or utility suppliers.

TNP's planned transmission projects for the forecast period include seven 138-KV lines, with construction of the first planned to commence in March 1993 and the seventh to be completed by June 1999. One 69-KV line is planned for construction in the year 2000. No 345-KV lines are currently planned. The estimated cost for the eight planned projects, which total 75.1 miles, is approximately \$13,000,000 including line and related substation

RESOURCE PLAN FILED WITH PUCT

costs. These projects are located in seven of TNP's service area counties: Bosque, Brazoria, Coryell, Denton, Galveston, Hood, and Somervell.

Changes Since the 1989 Filing TNP's 1989 filing projected 10-year growth in demand of 2 percent annually, while the current forecast projects growth of 1.7 percent. The previous filing estimated 1999 peak demand of 1,176 MW and the current filing projects demand of 1,133 MW in that year. In the last filing, TNP One Unit 3 was not included in the resource plan, but it is included in this filing.

TEXAS-NEW MEXICO POWER COMPANY

TABLE 13.1
TEXAS-NEW MEXICO POWER COMPANY
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	99,472	17,429	141	169	1
1978	103,969	17,915	155	169	1
1979	108,113	18,498	162	178	1
1980	111,824	19,444	178	178	1
1981	116,480	20,064	179	188	1
1982	120,083	20,734	191	195	1
1983	125,487	21,472	170	210	1
1984	130,659	22,573	180	209	1
1985	133,201	23,485	182	209	1
1986	134,169	24,143	189	208	1
1987	135,155	24,322	188	207	2
1988	135,858	24,729	184	210	2
1989	137,187	24,950	173	202	2
1990	138,841	25,242	158	202	1
1991	140,727	25,308	153	202	1
1992	143,352	25,986	163	203	0
1993	145,590	26,437	163	203	1
1994	147,963	26,941	163	203	1
1995	150,576	27,460	163	203	1
1996	153,248	27,996	163	203	1
1997	155,843	28,552	163	203	1
1998	158,353	29,112	163	203	1
1999	160,724	29,651	163	203	1
2000	163,061	30,204	163	203	1
2001	165,460	30,769	163	203	1
2002	167,902	31,350	163	203	1
2003	170,389	31,945	163	203	1
2004	172,922	32,559	163	203	1
2005	175,504	33,188	163	203	1
2006	178,134	33,833	163	203	1

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

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TABLE 13.2
TEXAS-NEW MEXICO POWER COMPANY
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	1,132,837	762,875	1,645,294	77,250	12,752	3,631,008	-3,824,652
1978	1,231,104	811,352	1,775,716	79,976	13,864	3,912,012	-4,138,010
1979	1,221,113	824,529	1,976,767	80,844	12,894	4,116,147	-4,320,603
1980	1,356,202	891,877	1,987,887	85,851	14,996	4,336,813	-4,592,530
1981	1,324,575	909,215	2,260,601	86,819	13,432	4,594,642	-4,845,413
1982	1,380,476	964,692	2,203,493	92,978	13,608	4,655,247	-4,875,399
1983	1,341,939	980,703	2,288,955	95,736	14,104	4,721,437	-4,833,159
1984	1,500,860	1,062,685	2,503,934	97,681	15,398	5,180,558	-5,268,661
1985	1,555,402	1,112,703	2,632,844	99,793	17,385	5,418,127	-3,491,532
1986	1,585,108	1,126,041	2,327,090	101,184	17,848	5,157,271	-2,580,004
1987	1,623,019	1,111,566	1,773,040	98,512	19,626	4,625,763	-2,454,757
1988	1,693,767	1,148,925	1,778,330	101,130	20,861	4,743,013	-2,599,375
1989	1,742,463	1,202,986	1,778,670	95,275	20,629	4,840,023	-2,660,242
1990	1,822,276	1,278,719	1,815,041	95,751	18,266	5,030,053	-2,663,010
1991	1,837,969	1,318,957	1,746,773	93,998	3,418	5,001,115	-2,283,546
1992	1,881,579	1,333,761	1,609,864	99,692	3,521	4,928,417	-1,519,958
1993	1,922,555	1,373,322	1,485,567	100,844	3,521	4,885,809	-1,509,672
1994	1,966,355	1,413,749	1,486,136	101,913	3,521	4,971,674	-1,542,133
1995	2,014,888	1,450,909	1,494,824	102,930	3,521	5,067,072	-2,167,694
1996	2,065,518	1,488,374	1,519,010	103,912	3,521	5,180,335	-2,224,501
1997	2,113,040	1,529,439	1,536,185	104,874	3,521	5,287,059	-2,224,084
1998	2,159,346	1,570,348	1,553,360	105,827	3,521	5,392,402	-2,259,914
1999	2,204,831	1,605,533	1,570,535	106,775	3,521	5,491,195	-2,287,572
2000	2,253,867	1,642,050	1,587,710	107,727	3,521	5,594,875	-2,382,878
2001	2,305,868	1,679,925	1,604,884	108,683	3,521	5,702,881	-2,161,259
2002	2,359,326	1,719,375	1,622,059	109,644	3,521	5,813,925	-1,757,060
2003	2,414,289	1,760,455	1,639,234	110,612	3,521	5,928,111	-1,798,250
2004	2,470,806	1,803,218	1,656,409	111,587	3,521	6,045,541	-1,938,104
2005	2,528,927	1,847,722	1,673,584	112,567	3,521	6,166,321	-2,307,596
2006	2,588,702	1,894,027	1,690,759	113,555	3,521	6,290,564	-2,403,930

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

TEXAS-NEW MEXICO POWER COMPANY

TABLE 13.3
TEXAS-NEW MEXICO POWER COMPANY
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	738	0	0	0	738	738	0.00%
1978	785	0	0	0	785	785	0.00%
1979	800	0	0	0	800	800	0.00%
1980	885	0	0	0	885	885	0.00%
1981	932	0	0	0	932	932	0.00%
1982	923	0	0	0	923	923	0.00%
1983	923	0	-5	0	918	918	0.00%
1984	945	0	-5	0	940	940	0.00%
1985	991	0	-5	0	986	986	0.00%
1986	1,022	0	-3	0	1,019	1,019	0.00%
1987	935	0	-2	0	933	933	0.00%
1988	983	0	-2	0	981	981	0.00%
1989	970	0	-2	0	968	968	0.00%
1990	1,026	0	-2	0	1,024	1,032	0.82%
1991	994	0	-2	0	992	993	0.10%
1992	1,012	-3	-2	-2	1,005	1,005	0.00%
1993	1,010	-5	-2	-2	1,001	1,001	0.00%
1994	1,033	-7	-2	-3	1,021	1,021	0.00%
1995	1,057	-9	-2	-4	1,042	1,042	0.00%
1996	1,084	-11	-2	-5	1,066	1,066	0.00%
1997	1,110	-13	-2	-6	1,089	1,089	0.00%
1998	1,136	-15	-2	-7	1,112	1,112	0.00%
1999	1,160	-17	-2	-8	1,133	1,133	0.00%
2000	1,185	-19	-2	-9	1,155	1,155	0.00%
2001	1,211	-21	-2	-9	1,179	1,179	0.00%
2002	1,246	-32	-2	-9	1,203	1,203	0.00%
2003	1,272	-34	-2	-9	1,227	1,227	0.00%
2004	1,289	-26	-2	-9	1,252	1,252	0.00%
2005	1,317	-28	-2	-9	1,278	1,278	0.00%
2006	1,345	-29	-2	-9	1,305	1,305	0.00%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Data includes power supplied by other utilities.

SOURCE: Load Forecast 1991 Filing, Request 1.01

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TABLE 13.4
TEXAS-NEW MEXICO POWER COMPANY
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	0	0	400,860	0	0	0	400,860
1991	0	0	1,337,366	0	0	0	1,337,366
1992	0	0	2,299,792	0	0	0	2,299,792
1993	0	0	2,343,093	0	0	0	2,343,093
1994	0	0	2,352,244	0	0	0	2,352,244
1995	0	0	2,291,164	0	0	0	2,291,164
1996	0	0	2,271,852	0	0	0	2,271,852
1997	0	0	2,310,227	0	0	0	2,310,227
1998	0	0	2,310,227	0	0	0	2,310,227
1999	0	0	2,310,227	0	0	0	2,310,227
2000	0	0	2,243,713	0	0	0	2,243,713
2001	0	0	2,920,509	0	0	0	2,920,509
2002	0	0	3,364,660	0	0	0	3,364,660
2003	0	0	3,366,674	0	0	0	3,366,674
2004	0	0	3,366,390	0	0	0	3,366,390
2005	0	0	3,353,737	0	0	0	3,353,737
2006	0	0	3,304,108	0	0	0	3,304,108

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

TEXAS-NEW MEXICO POWER COMPANY

TABLE 13.5
TEXAS-NEW MEXICO POWER COMPANY
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	21	0	21
1983	0	0	0	0	0	25	0	25
1984	0	0	0	0	0	27	0	27
1985	0	0	0	0	0	357	0	357
1986	0	0	0	0	0	338	0	338
1987	0	0	0	0	0	300	0	300
1988	0	0	0	0	0	341	0	341
1989	0	0	0	0	0	335	0	335
1990	0	0	144	0	0	226	0	370
1991	0	0	144	0	0	335	0	479
1992	0	0	293	0	0	311	0	604
1993	0	0	293	0	0	301	0	594
1994	0	0	293	0	0	307	0	600
1995	0	0	293	0	0	259	0	552
1996	0	0	293	0	0	274	0	567
1997	0	0	293	0	0	288	0	581
1998	0	0	293	0	0	302	0	595
1999	0	0	293	0	0	316	0	609
2000	0	0	293	0	0	325	0	618
2001	0	0	442	0	0	312	0	754
2002	0	0	442	0	0	322	0	764
2003	0	0	442	0	0	325	0	767
2004	0	0	442	0	0	325	0	767
2005	0	0	442	0	0	305	0	747
2006	0	0	442	0	0	322	0	764

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Does not include wholesale suppliers.

SOURCE: Load Forecast 1991 Filing, Request 1.01

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CHAPTER FOURTEEN

BRAZOS ELECTRIC POWER COOPERATIVE

Brazos Electric Power Cooperative (BEPC) is a 20-member generation and transmission cooperative governed by the distribution cooperatives it serves. BEPC sells wholesale to the 20 cooperatives and through interconnection agreements to six Texas cities and Texas A & M University. BEPC's member-cooperatives, with individually certified service areas, render electric service covering all or part of 66 counties in Texas. BEPC is a member of the Texas Municipal Power Pool (TMPP) and ERCOT.

BEPC reported a summer peak demand of 857 MW in 1991.¹ Annual sales for the cooperative amounted to 3,746,263 MWH in 1991. BEPC currently has an installed capacity of 467 MW of natural gas units.

Demand Forecast

In formulating its forecasts, BEPC employs econometric models developed by its staff and its consultant, Dr. Ray Perryman of Baylor University. Models are developed for each of the member cooperatives and the municipalities served by BEPC. These models are combined to formulate the forecasts for the cooperative.

Number of Customers	BEPC provides wholesale electric service to 20 member-cooperatives, 6 municipalities, and Texas A & M University. These 27 customers comprise the total firm sales of Brazos over
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¹ The discussion in this report relates to BEPC's generation and transmission system only. Brazos serves most (about 79 percent) of its customers' load directly from generation owned or purchased through its transmission system. The remainder is supplied via wholesale power contracts through isolated metering points on the systems of other utilities in the state (viz., West Texas Utilities, Texas Utilities Electric Company, the Lower Colorado River Authority, Gulf States Utilities, and Texas-New Mexico Power Company). It is the first part (the 79 percent) of its total load that Brazos refers to as "generation and transmission system load". Brazos develops forecasts only for this load that it serves from its owned or dedicated generation.

the forecast period. (See Table 14.1.)

Sales

BEPC reported sales of 3,746,263 MWH in 1991 to the wholesale sector. Figure 14.1 reflects the 6.3 percent annual growth rate in sales over the period 1981 through 1991. The Cooperative anticipates growth at 4.0 percent per annum through 2001 and at 2.9 percent annually for the 2001-2006 period.

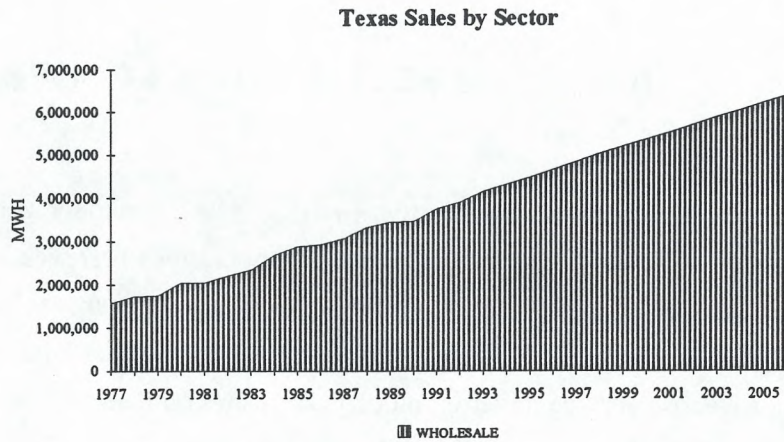


Figure 14.1

Peak Demand Historically, BEPC experienced a growth in peak demand of 5.1 percent per year for the 10-year period beginning in 1981. Peak demand rose from 520 MW in 1981 to 857 MW in 1991, which is provided in Table 14.3. The cooperative expects growth to occur at a rate of 3.6 percent annually through 2001 and at 3.1 percent annually from 2001 to 2006 as shown in Figure 14.2.

Adjustments to Demand At this time, BEPC has a pilot program underway which includes rebates for high-efficiency air conditioners and heat pumps, as well as direct load control of air conditioners and water heaters.

Supply-Side Plan

Installed Capacity BEPC has an installed capacity of about 467 MW. (See Figure 14.4.) By the turn of the century, projections indicate additions will more than double gas-fired capacity including a 283-MW combined cycle unit in 1997.

**Net System
Capacity**

BEPC contracts for 64 MW of power from the Brazos River Authority and the Southwestern Power Administration as well as from San Miguel Electric Cooperative for 195 MW. BEPC also purchases power from other utilities. The net system capacity (including purchases) for the BEPC system grew to 967 MW in 1991 from 521 MW in 1981. (See Table 14.5.)

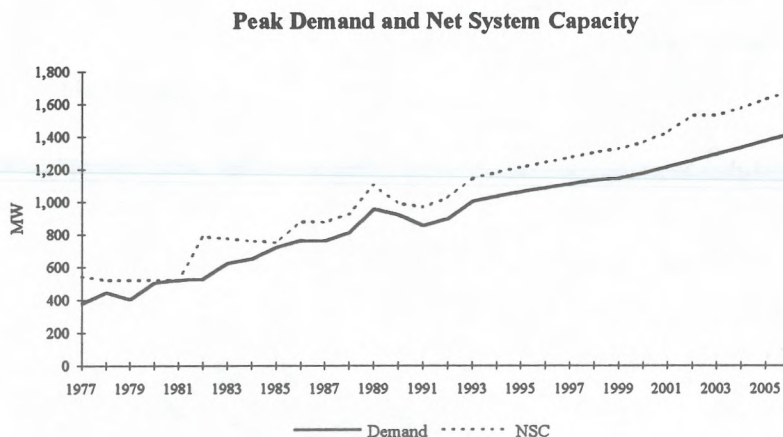


Figure 14.2

BEPC maintained a 12.8 percent reserve margin in 1991, shown in Figure 14.2 as the area between net system capacity and peak demand. Projections show the margin averaging below 15 percent, reaching just over 17 percent in 2001.

Brazos Electric as a member of TMPP plans its installed reserve requirements upon the forecasted coincident peak demand of the TMPP. BEPC is forecasting a one percent diversity with respect to the TMPP peak. The TMPP plans to maintain a minimum installed reserve margin of 15 percent, and the reserves are available to each member to meet its individual annual peak demand.

As a result of this agreement among TMPP members, actual installed-capacity transfers among members are determined retroactively based upon the TMPP coincident peak.

Brazos Electric plans to install or purchase sufficient capacity to meet its share of the forecasted TMPP coincident peak demand and 15 percent reserve margin obligation, and to utilize TMPP reserves to meet its annual peak demand and reserve margin obligation. Consequently, BEPC's installed margin, when computed upon the annual peak demand

forecast, is less than 15 percent during the period the cooperative expects to purchase excess capacity from other TMPP members.

Net Generation

BEPC net generation mix, shown in Figure 14.3, was 100 percent gas-fired in 1991. Projections indicate gas-fired capacity will continue to play a primary role in future generation.

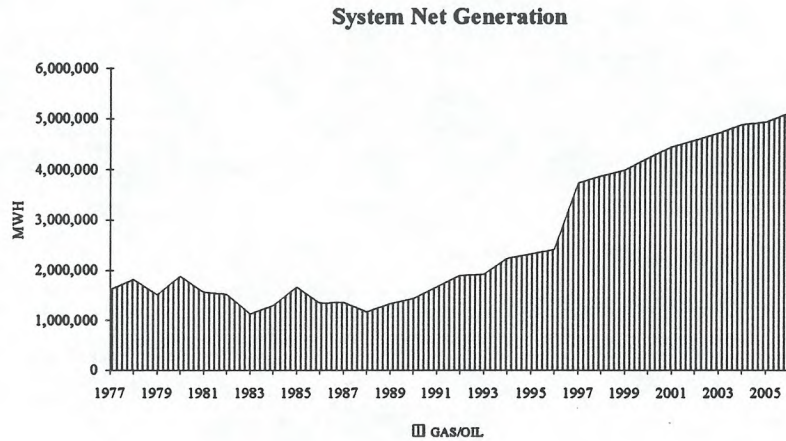


Figure 14.3

System Expansion

Brazos Electric has a capacity resource plan at this time for the 1990-1997 time frame, but no capacity resource plan for the 1998-2006 period is yet available.

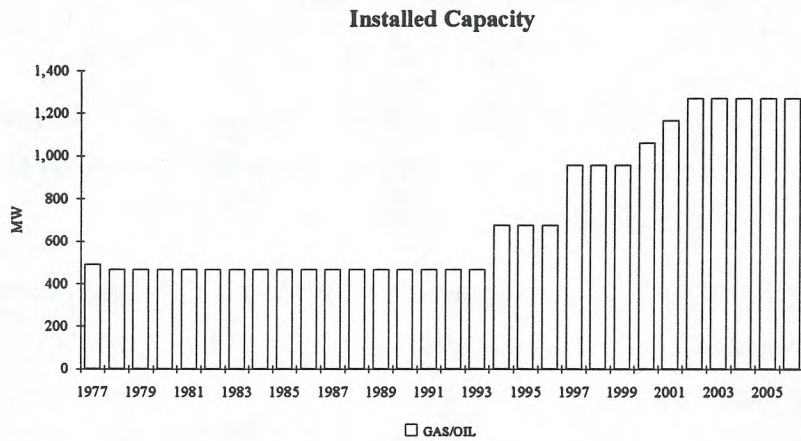


Figure 14.4

The generation addition and purchased capacity schedule used in this filing is a feasible schedule for the 1998-2006 time frame; BEPC has filed for a CCN for the 1994 capacity additions and analyzed alternatives to the 1997 addition. Figure 14.4 lays out the schedule of capacity additions, beginning with 208 MW of gas-fired capacity in 1994 and 283 MW of gas-fired (combined cycle) base capacity in 1997.

Included in BEPC's planned construction work were 14 transmission line projects, but one has been recently denied by the PUCT. All of these thirteen planned projects are

BRAZOS ELECTRIC POWER COOPERATIVE

scheduled to be completed by 1996. These projects constitute a total of 130 miles of 138-KV line and 62 miles of 69-KV line.

**Changes Since the
1989 Filing**

BEPC is using the same demand projection as used in the 1989 filing; however, the 288-MW addition of gas-fired base capacity planned for 1995, is now scheduled for commercial operation in 1997.

RESOURCE PLAN FILED WITH PUCT

TABLE 14.1
BRAZOS ELECTRIC COOPERATIVE
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL					
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE
1977	0	0	0	0	27
1978	0	0	0	0	27
1979	0	0	0	0	27
1980	0	0	0	0	27
1981	0	0	0	0	27
1982	0	0	0	0	27
1983	0	0	0	0	27
1984	0	0	0	0	27
1985	0	0	0	0	26
1986	0	0	0	0	28
1987	0	0	0	0	28
1988	0	0	0	0	28
1989	0	0	0	0	27
1990	0	0	0	0	27
1991	0	0	0	0	27
1992	0	0	0	0	27
1993	0	0	0	0	27
1994	0	0	0	0	27
1995	0	0	0	0	27
1996	0	0	0	0	27
1997	0	0	0	0	27
1998	0	0	0	0	27
1999	0	0	0	0	27
2000	0	0	0	0	27
2001	0	0	0	0	27
2002	0	0	0	0	27
2003	0	0	0	0	27
2004	0	0	0	0	27
2005	0	0	0	0	27
2006	0	0	0	0	27

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

BRAZOS ELECTRIC POWER COOPERATIVE

TABLE 14.2
BRAZOS ELECTRIC COOPERATIVE
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL				WHOLESALE	TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER			
1977	0	0	0	0	1,570,051	1,570,051	-47,973
1978	0	0	0	0	1,733,399	1,733,399	-20,273
1979	0	0	0	0	1,749,680	1,749,680	-308,677
1980	0	0	0	0	2,039,761	2,039,761	-250,818
1981	0	0	0	0	2,041,012	2,041,012	-568,580
1982	0	0	0	0	2,207,758	2,207,758	-765,585
1983	0	0	0	0	2,343,967	2,343,967	-1,390,775
1984	0	0	0	0	2,679,229	2,679,229	-1,506,488
1985	0	0	0	0	2,875,377	2,875,377	-1,384,236
1986	0	0	0	0	2,913,135	2,913,135	-1,747,916
1987	0	0	0	0	3,075,661	3,075,661	-1,847,450
1988	0	0	0	0	3,321,732	3,321,732	-2,387,075
1989	0	0	0	0	3,437,366	3,437,366	-2,281,239
1990	0	0	0	0	3,462,969	3,462,969	-2,317,601
1991	0	0	0	0	3,746,263	3,746,263	-2,234,560
1992	0	0	0	0	3,896,787	3,896,787	-2,191,703
1993	0	0	0	0	4,151,604	4,151,604	-2,385,660
1994	0	0	0	0	4,314,829	4,314,829	-2,227,098
1995	0	0	0	0	4,482,814	4,482,814	-2,335,045
1996	0	0	0	0	4,655,717	4,655,717	-2,428,611
1997	0	0	0	0	4,836,383	4,836,383	-1,279,738
1998	0	0	0	0	5,028,191	5,028,191	-1,345,527
1999	0	0	0	0	5,188,352	5,188,352	-1,402,335
2000	0	0	0	0	5,355,606	5,355,606	-1,332,445
2001	0	0	0	0	5,525,483	5,525,483	-1,296,470
2002	0	0	0	0	5,696,761	5,696,761	-1,350,394
2003	0	0	0	0	5,867,106	5,867,106	-1,353,378
2004	0	0	0	0	6,036,912	6,036,912	-1,366,149
2005	0	0	0	0	6,209,677	6,209,677	-1,495,506
2006	0	0	0	0	6,382,384	6,382,384	-1,495,699

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

RESOURCE PLAN FILED WITH PUCT

TABLE 14.3
BRAZOS ELECTRIC POWER COOPERATIVE, INC.
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	ADJUSTMENTS TO PEAK DEMAND				PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
	PEAK DEMAND BEFORE ADJ.	EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	382	0	0	0	382	545	42.67%
1978	449	0	0	0	449	521	16.04%
1979	405	0	0	0	405	521	28.64%
1980	508	0	0	0	508	521	2.56%
1981	520	0	0	0	520	521	0.19%
1982	531	0	0	0	531	785	47.83%
1983	624	0	0	0	624	775	24.20%
1984	650	0	0	0	650	761	17.08%
1985	721	0	0	0	721	749	3.88%
1986	764	0	0	0	764	879	15.05%
1987	762	0	0	0	762	875	14.83%
1988	811	0	0	0	811	927	14.30%
1989	958	0	0	0	958	1,102	15.03%
1990	921	0	0	0	921	990	7.49%
1991	857	0	0	0	857	967	12.84%
1992	900	0	-1	0	899	1,024	13.90%
1993	1,005	0	-1	0	1,004	1,144	13.94%
1994	1,042	0	-6	0	1,036	1,179	13.80%
1995	1,079	0	-14	0	1,065	1,213	13.90%
1996	1,119	0	-32	0	1,087	1,242	14.26%
1997	1,160	0	-51	0	1,109	1,271	14.61%
1998	1,202	0	-70	0	1,132	1,302	15.02%
1999	1,240	0	-96	0	1,144	1,325	15.82%
2000	1,279	0	-103	0	1,176	1,365	16.07%
2001	1,319	0	-104	0	1,215	1,425	17.28%
2002	1,360	0	-104	0	1,256	1,529	21.74%
2003	1,399	0	-104	0	1,295	1,529	18.07%
2004	1,439	0	-104	0	1,335	1,576	18.05%
2005	1,480	0	-104	0	1,376	1,628	18.31%
2006	1,520	0	-104	0	1,416	1,678	18.50%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

BRAZOS ELECTRIC POWER COOPERATIVE

TABLE 14.4
BRAZOS ELECTRIC COOPERATIVE
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	1,609,370	0	0	0	0	0	1,609,370
1978	1,815,742	0	0	0	0	0	1,815,742
1979	1,516,942	0	0	0	0	0	1,516,942
1980	1,882,297	0	0	0	0	0	1,882,297
1981	1,566,039	0	0	0	0	0	1,566,039
1982	1,522,464	0	0	0	0	0	1,522,464
1983	1,127,358	0	0	0	0	0	1,127,358
1984	1,296,765	0	0	0	0	0	1,296,765
1985	1,670,890	0	0	0	0	0	1,670,890
1986	1,344,734	0	0	0	0	0	1,344,734
1987	1,357,572	0	0	0	0	0	1,357,572
1988	1,164,884	0	0	0	0	0	1,164,884
1989	1,331,712	0	0	0	0	0	1,331,712
1990	1,438,035	0	0	0	0	0	1,438,035
1991	1,662,705	0	0	0	0	0	1,662,705
1992	1,894,533	0	0	0	0	0	1,894,533
1993	1,921,909	0	0	0	0	0	1,921,909
1994	2,241,153	0	0	0	0	0	2,241,153
1995	2,319,884	0	0	0	0	0	2,319,884
1996	2,413,361	0	0	0	0	0	2,413,361
1997	3,731,156	0	0	0	0	0	3,731,156
1998	3,878,845	0	0	0	0	0	3,878,845
1999	3,991,066	0	0	0	0	0	3,991,066
2000	4,236,075	0	0	0	0	0	4,236,075
2001	4,448,664	0	0	0	0	0	4,448,664
2002	4,572,703	0	0	0	0	0	4,572,703
2003	4,722,622	0	0	0	0	0	4,722,622
2004	4,884,662	0	0	0	0	0	4,884,662
2005	4,934,919	0	0	0	0	0	4,934,919
2006	5,113,665	0	0	0	0	0	5,113,665

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

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TABLE 14.5
BRAZOS ELECTRIC POWER COOPERATIVE, INC.
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	491	0	0	0	54	0	0	545
1978	467	0	0	0	54	0	0	521
1979	467	0	0	0	54	0	0	521
1980	467	0	0	0	54	0	0	521
1981	467	0	0	0	54	0	0	521
1982	467	0	0	0	318	0	0	785
1983	467	0	0	0	308	0	0	775
1984	467	0	0	0	294	0	0	761
1985	467	0	0	0	282	0	0	749
1986	467	0	0	0	412	0	0	879
1987	467	0	0	0	408	0	0	875
1988	467	0	0	0	460	0	0	927
1989	467	0	0	0	635	0	0	1,102
1990	467	0	0	0	530	0	7	990
1991	467	0	0	0	507	0	7	967
1992	467	0	0	0	557	0	0	1,024
1993	467	0	0	0	677	0	0	1,144
1994	675	0	0	0	504	0	0	1,179
1995	675	0	0	0	538	0	0	1,213
1996	675	0	0	0	567	0	0	1,242
1997	958	0	0	0	313	0	0	1,271
1998	958	0	0	0	344	0	0	1,302
1999	958	0	0	0	367	0	0	1,325
2000	1,062	0	0	0	303	0	0	1,365
2001	1,166	0	0	0	259	0	0	1,425
2002	1,270	0	0	0	259	0	0	1,529
2003	1,270	0	0	0	259	0	0	1,529
2004	1,270	0	0	0	306	0	0	1,576
2005	1,270	0	0	0	358	0	0	1,628
2006	1,270	0	0	0	408	0	0	1,678

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

CHAPTER FIFTEEN

OTHER GENERATING UTILITIES

In addition to the utilities discussed in chapters two through fourteen of this volume, 23 other utilities provided information to the PUC. Data from these utilities will be treated in the aggregate. Most of these 23 other utilities serve wholesale customers who sell to the final consumer.

Demand Forecast

Number of Customers The 23 other generating utilities directly served 91,001 residential customers in 1991 as shown in Table 15.1. Growth is expected at about 2 percent annually through 2001. Wholesale customers form the most significant class providing electricity to residential, commercial, industrial, and other retail consumers. The number of wholesale customers is expected to be constant through the forecast period.

Sales Table 15.2 presents annual sales by sector. The 23 other utilities reported total system sales in 1981 of about 4,513,791 MWH. Over the period from 1981 through 1991, sales demonstrated an annual growth rate of 7.2 percent to reach 9,008,268 MWH.¹ The majority of system sales, approximately 77 percent, were made to the wholesale sector. Growth is projected to slow considerably. An average growth rate of 3.2 percent is anticipated through 2001, resulting in total system sales of 12,292,367 MWH.

Peak Demand Over the period from 1981 through 1991, the total peak demand of the 23 utilities, after adjustments, exhibited an annual growth rate of 4.6 percent. Figure 15.1 as well as Table 15.3 show that peak demand after adjustments rose from a total of 1,259 MW in 1981 to 1,976 MW in 1991. The

¹ December 1991 sales are estimated for some of the utilities included in this total.

projections indicate that growth through 2001 is expected to occur at a rate of 3.4 percent per year, resulting in a total peak demand of 2,765 MW by 2001. Growth over the 2001 to 2006 time period is expected to be 3.1 percent per year.

Supply-Side Plan

Net System

Capacity

The 23 utilities reported a 1981 total of 1,738 MW installed capacity. Of this capacity, 80.7 percent was gas-fired and 19.3 percent utilized hydroelectric power. Lignite and coal capacity was added in 1982. In 1991, 48.5

percent of the total 2,988 MW of installed capacity was fired using gas, 30.5 percent used lignite, 13.2 percent used hydroelectric power, and 7.8 percent used coal. (See Figure 15.3.) Projections show a total installed capacity of 3,258 MW in 2001. Each of the fuel types are expected to comprise roughly the same percentage as in 1991 with gas up slightly and lignite down slightly as a percent of the total. Net system capacity compared to peak demand after adjustments is shown in Figure 15.1.

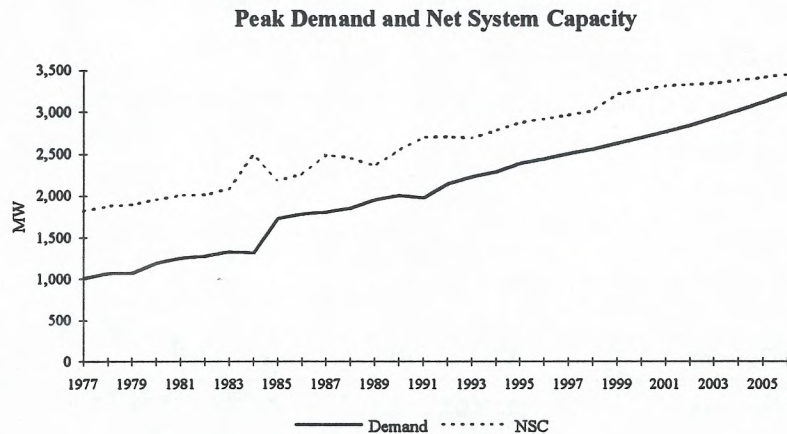


Figure 15.1

OTHER GENERATING UTILITIES

Installed capacity plus purchased power equals net system capacity which is provided in Table 15.5. This group of small utilities obtains a significant portion of its net system capacity, 17.9 percent in 1991, from purchased power. This is projected to increase to 19.8 percent in 2001 and 23.1 percent in 2006. Changes in installed capacity are shown in Figure 15.3.

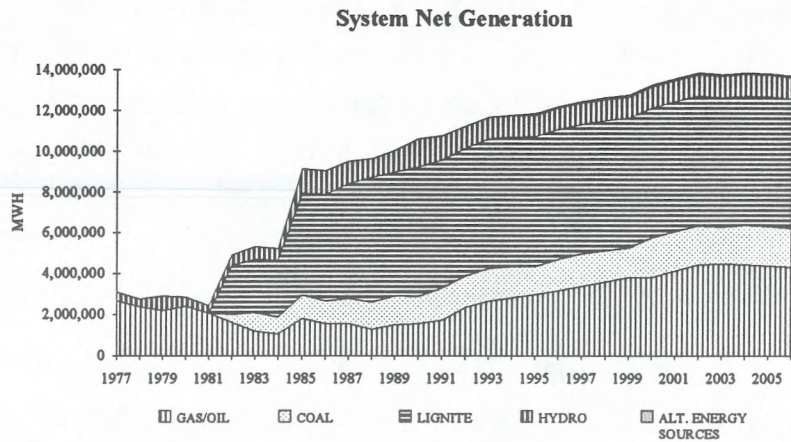


Figure 15.2

Net Generation

As seen in Figure 15.2 and Table 15.4, the total net generation of the 23 other utilities was 10,767,234 MWH in 1991. Net generation is projected to be 13,557,307 MWH in 2001 for a growth rate of 2.3 percent per year.

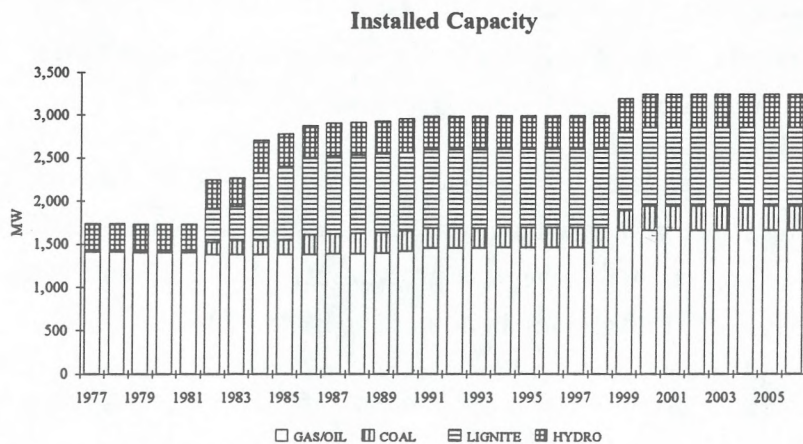


Figure 15.3

Other Utilities Description

Cooperatives **Northeast Texas Electric Cooperative, Inc. (NTEC)** is a generation and transmission cooperative headquartered in Longview, Texas. NTEC provides power to six, member distribution-cooperatives, Bowie-Cass Electric Cooperative, Deep East Texas Electric Cooperative, Panola-Harrison Electric Cooperative, Rusk County Electric Cooperative, Upshur-Rural Electric Cooperative, and Wood County Electric Cooperative. NTEC was founded in 1972 to make joint power supply arrangements for its member cooperatives.

The cooperative's 1991 peak demand was approximately 404 MW and is projected to increase at a rate of 2.9 percent annually, reaching 618 MW by 2006. Peak demand is met through part ownership in the H. W. Pirkey (76.2 MW) and Dolet Hills (38.1 MW) lignite plants operated by SWEPCO and Central Louisiana Electric Company. In addition, NTEC makes purchases (128 MW) of hydro peaking power from the Southwestern Power Administration. Remaining power requirements are purchased from SWEPCO. Sales reported on REA Form 12 for 1991 amounted to 1,810,421 MWH. Sales are expected to total 2,639,847 MWH in 2006.

Sam Rayburn G & T, Inc. (SRG&T) is a generation and transmission cooperative headquartered in Nacogdoches, Texas. SRG&T has three distribution-cooperatives as its members: Jasper-Newton Electric Cooperative, Sam Houston Electric Cooperative, and Houston County Electric Cooperative.

SRG&T estimated a 1991 peak demand of 229 MW. Growth is projected to occur at 2.1 percent per year, resulting in a peak demand of 283 MW in 2001 and 317 MW in 2006, which represents a five-year growth rate of 2.3 percent. According to SRG&T's 1991 REA Form 12, sales for 1991 were 968,826 MWH.

SRG&T currently owns 10 percent (55 MW) of the Nelson 6 coal-fired power plant. Remaining system power requirements are currently met by the purchase of a 67 percent (34.7 MW) share of the Sam Rayburn Dam Hydroelectric Project (owned by the Southwestern Power Administration), a purchase of 25 percent of the capacity and energy from the 4.5 MW Robert D. Willis hydroelectric project, a unit power sale agreement for 60 MW (plus reserves) from Entergy Services, 37.8 MW of firm power from Cajun Electric Cooperative, and supplemental wholesale purchases from GSU. About 38.5 percent of energy requirements are met by generation from Nelson 6. Current installed

OTHER GENERATING UTILITIES

capacity is 55 MW and is expected to remain constant throughout the forecast period, while firm purchases in 1991 amounted to 201 MW.

Total sales grew at a rate of 2.8 percent per year between 1981 and 1991, beginning with 734,888 MWH in 1981 and leading to a projected 965,463 MWH in 1991. (According to SRG&T's 1991 REA Form 12, sales for 1991 were 968,826 MWH.) Growth was expected to slow to 2.6 percent annually through 2001, yielding projected total annual sales of 1,245,815 MWH in that year and 1,383,290 MWH in 2006. All SRG&T sales are made to the wholesale sector.

San Miguel Electric Cooperative (SMEC) sells all of its power to two, member cooperatives, Brazos Electric Power Cooperative and South Texas Electric Cooperative. SMEC generates from a lignite plant with a total installed capacity of 391 MW. Sales and net generation are reported at 2,757,355 MWH in 1991.

South Texas Electric Cooperative/Medina Electric Cooperative (STEC/MEC) consists of two generating, transmission, and distribution cooperatives. STEC is a generation and transmission cooperative while MEC is a generation, transmission, and distribution cooperative, providing service to customers in 17 counties in Southwest Texas. The service area covers approximately 12,000 square miles of mainly unincorporated areas outside small towns and cities. The two cooperatives are power pooling partners that operate under an agreement in which generation of each is pooled and dedicated to combined system load. Isolated portions of MEC are served by Central Power and Light.

The 1991 combined peak demand after adjustments was reported as approximately 260 MW. The cooperatives have a total installed capacity of 116 MW. Purchases of 228 MW are made from San Miguel Electric Cooperative and the Western Area Power Administration. Projected needs for increased capacity include additional purchases of about 100 MW by 2006.

Total system sales amounted to 1,399,260 MWH in 1991 and are expected to grow at a rate of 1.8 percent annually, reaching 1,674,863 MWH in 2001, and at 2.5 percent annually from 2001 to 2006 reaching 1,891,288 MWH. The largest portion of the total sales are made to the wholesale sector. STEC/MEC is a wholesale supplier to Rio Grande Electric Cooperative.

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Power Agencies **Sam Rayburn Municipal Power Agency** is a municipal corporation and political subdivision formed to plan, finance, develop, acquire, and operate projects for the generation and transmission to supply the Cities of Jasper, Liberty, and Livingston, and the Vinton Public Power Authority. Actual sales to the four wholesale customers were 326,339 MWH in 1991 and are projected to increase 1 percent annually over the forecast period. Peak demand in 1991 was 72 MW and is projected to rise to 90 MW in 2006.

The Agency receives a 17.3 MW entitlement share of the Sam Rayburn Dam Hydroelectric Project and 4.5 MW (3.4 MW retained) from the Robert D. Willis Hydroelectric Project. The Agency also owns 20 percent of the 550-MW Nelson 6 coal-fired plant through a joint ownership agreement with GSU and Sam Rayburn G&T. Through this agreement, the Agency retained 69 MW of Nelson 6 capacity in 1991 and will assume its full 110-MW ownership share in 1996.

The Southwestern Power Administration (SPA), a Federal agency of the Department of Energy, markets hydroelectric power supplied from 86 generating units installed in 23 reservoirs located in Oklahoma, Texas, Arkansas, and Missouri. SPA does not have utility responsibility nor a specifically defined service area. The total system installed capacity amounted to 2,051 MW in 1991. Projections show capacity of 2,158 MW in 1992 through 2006. Installed capacity delivered to Texas equals 159 MW and is reported to continue at the same level over the forecast period. Total generation in Texas amounted to 682,106 MWH from the Sam Rayburn Project, the Whitney Project, the Robert D. Willis project, and the Denison Project. Generation is forecast at 368,290 MWH through 2006.

Texas Municipal Power Agency is a joint-action agency supplying a part of the needs of the Cities of Bryan, Denton, Garland, and Greenville. The Agency reports an installed capacity of 1,374 MW and net generation of 3,801,384 MWH in 1991.

River Authorities **The Brazos River Authority** operates two hydroelectric generating units installed at Possum Kingdom Lake in Palo Pinto County, Texas, with a total installed capacity of 25 MW. The entire output, 46,693 MWH in 1991, is sold to BEPC. Power is generated on call from BEPC dispatch rather than at Brazos River Authority discretion.

OTHER GENERATING UTILITIES

Guadalupe-Blanco River Authority (GBRA) operates seven hydroelectric generating units in Guadalupe County, Texas, with a total installed capacity of 22.1 MW. Net generation in 1991 amounted to 92,308 MWH. Projected output over the forecast period equals 86,770 MWH annually through 2006. The energy is sold to the Guadalupe Valley Electric Cooperative and the City of New Braunfels.

The Sabine River Authority owns the Toledo Bend hydroelectric units with installed capacity of 40 MW, operated by GSU. Net generation in 1991 equaled 212,114 MWH with a forecast annual generation of 108,823 MWH through 2006.

Cities **Brownfield Municipal Power and Light** sold 57,246 MWH in 1991 at a peak demand of 16 MW. The city owns seven generating units, six diesels and one turbine, with a total installed capacity of 22 MW. 3,000 MWH were generated from gas or oil in 1991. Brownfield purchased 62,204 MWH in 1991.

Lubbock Power & Light (LPL), a generation and distribution utility, provides service primarily to residential and commercial customers in the City of Lubbock. In 1991, LPL reported a peak demand of 202 MW and an installed capacity of approximately 221 MW. Peak demand is projected to increase to 318 MW by 2006. Additions in installed capacity of 10 MW in 1995 and 50 MW in 2000 are anticipated by LPL. In 1991, LPL reported total sales of 907,731 MWH and projects sales of 1,367,970 MWH in 2006.

Public Utilities Board of the City of Brownsville registered sales of 658,191 MWH in 1991. The largest sector was the industrial with 325,326 MWH, or 49.4 percent of the total. The residential sector accounted for 40.1 percent of total sales with 263,919 MWH. Sales are forecast to reach 799,855 MWH in 2001. Peak demand registered 152 MW in 1991 and is forecast to reach 181 MW in 2001. The city owns a natural gas power plant with a capacity of 96 MW and 10.16 percent (68 MW) of the coal-fired Oklaunion Unit 1 plant.

The City of Electra owns six generating units with a combined capacity of three MW. The units have not operated since 1984 and energy is supplied by the Western Farmers Electric Cooperative of Anadarko, Oklahoma. Sales in 1989 totaled 1,139 MWH.

The City of Hearne sold 31,981 MWH in 1991 at a peak demand of nine MW. Hearne owns five gas-fueled generating units with a total installed capacity of 7.8 MW. Hearne has not generated any electricity since 1985 and projects none for the future. The city

RESOURCE PLAN FILED WITH PUCT

intends to maintain the capacity on an indefinite, standby basis for the foreseeable future. A firm contract with BEPC for nine MW supplies the city's needs. A significant drop in sales occurred recently when the Sparkle Ice Cream Company transferred its operations to Bryan.

The City of Tulia owns 12 gas-fired internal combustion generating units with a total installed capacity of about 13 MW. Three of the units are retired and the others are on standby. The city purchases three MW from SPS to serve its needs. Total sales amounted to 26,928 MWH in 1991 with projections indicating 1.9 percent annual growth through 2006 when sales of 35,825 MWH are expected.

The City of Weatherford has installed capacity of five MW and purchased 39 MW from other utilities in 1991. The City serves 8,575 electric customers and had a 1991 peak of 41.7 MW. Most of its certified area is served solely by Weatherford Municipal Utility System; however, portions of its service area are dually and triply certified by TUEC and Tri-County Electric Cooperative.

OTHER GENERATING UTILITIES

TABLE 15.1
TOTAL OTHER UTILITIES
NUMBER OF CUSTOMERS
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

RETAIL						
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE	
1977	60,931	7,815	1,111	774		18
1978	63,724	8,522	1,158	762		18
1979	66,471	8,708	1,240	752		18
1980	70,020	9,355	1,322	845		18
1981	73,693	9,644	1,457	862		18
1982	77,239	9,948	1,514	868		20
1983	79,555	10,535	973	827		20
1984	82,290	10,419	968	816		20
1985	83,755	10,600	1,087	1,447		20
1986	85,004	10,776	986	1,497		20
1987	85,185	10,775	990	1,491		20
1988	87,476	10,651	1,367	1,495		20
1989	88,459	10,654	1,467	1,509		21
1990	89,647	10,740	1,547	1,515		21
1991	91,001	10,809	1,584	1,571		21
1992	90,642	10,855	1,588	1,518		21
1993	95,595	10,934	1,589	1,520		21
1994	97,517	11,014	1,590	1,521		21
1995	99,402	11,096	1,591	1,522		21
1996	101,248	11,177	1,592	1,523		21
1997	103,140	11,260	1,593	1,525		21
1998	105,077	11,343	1,594	1,527		21
1999	107,061	11,427	1,595	1,528		21
2000	109,094	11,513	1,596	1,529		21
2001	111,176	11,599	1,597	1,531		21
2002	113,310	11,685	1,598	1,532		21
2003	115,496	11,774	1,599	1,534		21
2004	117,736	11,861	1,600	1,536		21
2005	120,030	11,950	1,601	1,537		21
2006	122,381	12,041	1,602	1,539		21

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 3.01

RESOURCE PLAN FILED WITH PUCT

TABLE 15.2
TOTAL OTHER UTILITIES
ANNUAL SALES BY SECTOR (MWH)
 (After Adjustments for Exogenous Factors and DSM programs)
 AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	RETAIL					TOTAL SYSTEM	NET PURCHASES AND INTERCHANGES WITH OTHER UTILITIES(*)
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ALL OTHER	WHOLESALE		
1977	403,653	245,812	404,189	124,254	2,371,783	3,585,932	-831,888
1978	434,545	259,899	430,175	136,549	2,619,897	3,925,518	-1,480,841
1979	444,083	254,994	428,609	135,353	2,626,720	3,933,447	-1,377,035
1980	501,152	277,038	450,876	144,608	3,000,126	4,442,174	-1,983,711
1981	506,555	282,245	462,959	139,670	3,079,716	4,513,791	-2,631,949
1982	545,755	285,807	502,659	148,923	3,244,812	4,797,641	-458,799
1983	561,854	274,116	482,452	130,118	3,170,330	4,666,252	-39,146
1984	582,024	273,608	493,471	152,245	3,454,747	5,055,687	-640,070
1985	615,421	287,240	516,112	141,051	5,695,153	7,309,276	1,153,601
1986	623,488	289,057	501,200	143,986	6,060,959	7,682,029	908,081
1987	639,938	299,190	517,222	142,885	6,093,160	7,729,670	1,273,269
1988	682,875	313,825	570,042	149,430	6,302,301	8,103,442	1,050,815
1989	699,713	306,526	586,583	153,348	6,458,448	8,290,056	1,188,926
1990	723,776	312,546	614,372	157,897	6,874,629	8,749,139	1,299,187
1991	778,036	373,644	670,374	152,904	6,972,010	9,008,268	1,168,473
1992	777,941	385,528	708,991	156,344	7,552,687	9,645,172	822,255
1993	798,854	360,122	701,270	158,606	7,908,809	9,991,128	605,423
1994	819,023	366,695	718,067	160,777	8,111,646	10,239,521	452,380
1995	838,557	373,384	734,225	162,810	8,344,043	10,516,184	-23,247
1996	857,537	380,173	749,617	164,703	8,564,795	10,779,838	395,083
1997	876,495	387,144	765,159	166,648	8,787,929	11,046,238	374,665
1998	895,655	394,286	782,624	168,560	9,018,683	11,322,530	277,822
1999	915,656	403,025	806,099	170,559	9,279,869	11,637,771	73,892
2000	936,914	412,070	821,089	172,759	9,550,655	11,955,900	254,431
2001	959,766	421,426	842,465	175,090	9,831,355	12,292,367	244,786
2002	983,866	431,474	861,957	177,442	10,130,452	12,647,359	170,447
2003	1,008,959	437,169	885,073	179,940	10,439,980	13,013,193	-23,660
2004	1,034,954	446,051	908,440	182,521	10,768,899	13,401,749	-70,532
2005	1,061,786	456,983	930,941	185,160	11,104,865	13,803,661	-242,281
2006	1,089,418	468,258	954,073	187,850	11,455,654	14,223,215	-502,985

NOTES:

(*) Positive numbers indicate net purchases and negative numbers indicate net sales.

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.
- 3) Distinction between commercial and industrial tariffs varies by utility.

SOURCE: Load Forecast 1991 Filing, Request 2.01

OTHER GENERATING UTILITIES

TABLE 15.3
TOTAL OTHER UTILITIES
ANNUAL PEAK DEMAND AND RESERVE MARGINS (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	PEAK DEMAND BEFORE ADJ.	ADJUSTMENTS TO PEAK DEMAND			PEAK DEMAND AFTER ADJ.	NET SYSTEM CAPACITY	RESERVE MARGIN
		EXOGENOUS FACTORS	ACTIVE DSM	PASSIVE DSM			
1977	1,008	0	0	0	1,008	1,821	80.72%
1978	1,074	0	0	0	1,074	1,876	74.73%
1979	1,074	0	0	0	1,074	1,893	76.25%
1980	1,196	0	0	0	1,196	1,955	63.46%
1981	1,259	0	0	0	1,259	2,007	59.43%
1982	1,278	0	0	0	1,278	2,009	57.28%
1983	1,333	0	0	0	1,333	2,084	56.30%
1984	1,321	0	-3	0	1,318	2,485	88.47%
1985	1,729	0	0	0	1,729	2,182	26.20%
1986	1,784	0	-2	0	1,782	2,255	26.58%
1987	1,828	0	-23	0	1,805	2,487	37.75%
1988	1,871	0	-21	0	1,850	2,452	32.53%
1989	2,005	0	-50	0	1,955	2,359	20.64%
1990	2,054	0	-49	0	2,005	2,540	26.73%
1991	2,057	0	-81	0	1,976	2,697	36.45%
1992	2,147	0	-4	0	2,143	2,704	26.16%
1993	2,238	0	-9	0	2,229	2,685	20.45%
1994	2,305	0	-15	0	2,290	2,776	21.18%
1995	2,406	0	-20	0	2,386	2,873	20.43%
1996	2,470	0	-27	0	2,443	2,915	19.31%
1997	2,534	0	-33	0	2,501	2,960	18.33%
1998	2,599	0	-40	0	2,559	3,008	17.55%
1999	2,676	0	-48	0	2,628	3,207	22.02%
2000	2,749	0	-56	0	2,693	3,261	21.10%
2001	2,830	0	-65	0	2,765	3,305	19.54%
2002	2,916	0	-75	0	2,841	3,322	16.92%
2003	2,998	0	-75	0	2,923	3,337	14.18%
2004	3,094	0	-75	0	3,019	3,372	11.69%
2005	3,194	0	-75	0	3,119	3,407	9.22%
2006	3,296	0	-75	0	3,221	3,448	7.06%

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT

TABLE 15.4
TOTAL OTHER UTILITIES
NET GENERATION BY FUEL TYPE (MWH)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	HYDRO	ALTERNATIVE ENERGY SOURCES	TOTAL
1977	2,659,315	0	0	0	436,292	0	3,095,607
1978	2,355,579	0	0	0	406,741	0	2,762,320
1979	2,181,392	0	0	0	726,713	0	2,908,105
1980	2,413,513	0	0	0	436,323	0	2,849,836
1981	2,071,941	0	0	0	348,783	0	2,420,724
1982	1,635,115	347,913	2,413,523	0	496,752	0	4,893,303
1983	1,186,892	902,017	2,581,593	0	625,911	0	5,296,413
1984	1,069,170	786,189	2,792,619	0	564,717	0	5,212,695
1985	1,798,055	1,152,326	4,988,567	0	1,172,024	0	9,110,971
1986	1,552,192	1,108,663	5,215,842	0	1,154,239	0	9,030,936
1987	1,551,780	1,224,670	5,633,009	0	1,083,812	0	9,493,272
1988	1,270,251	1,309,729	6,153,258	0	901,275	0	9,634,513
1989	1,484,337	1,407,327	6,085,825	0	1,042,137	0	10,019,626
1990	1,568,766	1,292,617	6,353,463	0	1,381,789	0	10,596,634
1991	1,703,282	1,565,205	6,306,633	0	1,192,113	0	10,767,234
1992	2,336,567	1,522,796	6,303,036	0	1,049,260	0	11,211,659
1993	2,658,278	1,599,662	6,341,312	0	1,049,260	0	11,648,512
1994	2,797,038	1,556,300	6,341,312	0	1,049,260	0	11,743,910
1995	2,952,980	1,397,306	6,361,332	0	1,049,260	74,460	11,835,339
1996	3,141,486	1,559,428	6,363,261	0	1,049,260	74,460	12,187,896
1997	3,385,867	1,570,754	6,361,332	0	1,049,260	74,460	12,441,674
1998	3,587,296	1,541,846	6,361,332	0	1,049,260	74,460	12,614,195
1999	3,825,647	1,426,214	6,361,332	0	1,049,260	74,460	12,736,914
2000	3,825,245	1,931,728	6,363,261	0	1,049,260	74,460	13,243,955
2001	4,129,200	1,943,054	6,361,332	0	1,049,260	74,460	13,557,307
2002	4,440,403	1,914,146	6,361,332	0	1,049,260	74,460	13,839,602
2003	4,476,348	1,798,514	6,361,332	0	1,049,260	74,460	13,759,915
2004	4,430,472	1,931,728	6,363,261	0	1,049,260	74,460	13,849,182
2005	4,384,778	1,943,054	6,361,332	0	1,049,260	74,460	13,812,885
2006	4,304,270	1,914,146	6,361,332	0	1,049,260	74,460	13,703,469

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 2.01

OTHER GENERATING UTILITIES

TABLE 15.5
TOTAL OTHER UTILITIES
NET SYSTEM CAPACITY BY SOURCE (MW)
AS REPORTED TO THE PUBLIC UTILITY COMMISSION OF TEXAS

YEAR	NATURAL GAS/OIL	COAL	LIGNITE	NUCLEAR	FIRM PURCHASES FROM UTILITIES	PURCHASES FROM NON-UTILITIES	FIRM OFF-SYSTEM SALES	RESERVE MARGIN
1977	1,406	0	0	0	261	0	182	1,821
1978	1,406	0	0	0	316	0	182	1,876
1979	1,402	0	0	0	338	0	182	1,893
1980	1,402	0	0	0	399	0	182	1,955
1981	1,402	0	0	0	451	0	182	2,007
1982	1,379	140	391	0	477	0	714	2,009
1983	1,379	162	391	0	550	0	735	2,084
1984	1,379	162	781	0	546	0	764	2,485
1985	1,379	162	856	0	541	0	1,138	2,182
1986	1,379	230	884	0	571	0	1,191	2,255
1987	1,384	230	910	0	488	0	907	2,487
1988	1,387	233	910	0	495	0	955	2,452
1989	1,397	233	910	0	543	0	1,112	2,359
1990	1,417	233	910	0	489	0	903	2,540
1991	1,450	233	910	0	482	0	774	2,697
1992	1,450	233	910	0	502	0	787	2,704
1993	1,450	233	910	0	534	0	838	2,685
1994	1,460	233	910	0	562	0	785	2,776
1995	1,460	233	910	0	620	0	755	2,873
1996	1,460	233	910	0	607	0	700	2,915
1997	1,460	233	910	0	614	0	662	2,960
1998	1,460	233	910	0	630	0	630	3,008
1999	1,660	233	910	0	652	0	653	3,207
2000	1,660	283	910	0	655	0	652	3,261
2001	1,660	283	910	0	655	0	608	3,305
2002	1,660	283	910	0	672	0	608	3,322
2003	1,660	283	910	0	687	0	608	3,337
2004	1,660	283	910	0	722	0	608	3,372
2005	1,660	283	910	0	757	0	608	3,407
2006	1,660	283	910	0	798	0	608	3,448

NOTES:

- 1) Data from 1977 through 1991 are actual; data from 1992 to 2006 are projected.
- 2) If data were not provided by the utility, the Electric Division staff estimated the data as needed.

SOURCE: Load Forecast 1991 Filing, Request 1.01

RESOURCE PLAN FILED WITH PUCT