

# Electric Power Outlook For Pennsylvania 2001 – 2006

July 2002

Pennsylvania Public Utility Commission  
Bureau of Conservation, Economics & Energy Planning

# Electric Power Outlook For Pennsylvania 2001 – 2006

July 2002

Published annually by the  
Pennsylvania Public Utility Commission  
P.O.Box 3265, Harrisburg, PA 17105-3265

Glen R. Thomas, Chairman  
Robert K. Bloom, Vice Chairman  
Aaron Wilson, Jr., Commissioner  
Terrance J. Fitzpatrick, Commissioner  
Kim Pizzingrilli, Commissioner

Produced by the  
Bureau of Conservation, Economics and Energy Planning  
Dr. Z. Ahmed Kaloko, Director

## EXECUTIVE SUMMARY

The Electric Power Outlook for Pennsylvania is filed annually pursuant to Section 524 of the Pennsylvania Public Utility Code. That section of the Code, *data to be supplied by electric utilities*, requires extensive annual information filings by electric utilities under the Commission's jurisdiction. The Commission's annual report is filed pursuant to Section 524(b) and is a summary and discussion of the data provided.

The report concludes that there is sufficient generation, transmission and distribution capacity to meet the needs of Pennsylvania consumers for the foreseeable future.

Both generation adequacy and the reserve margins of the Pennsylvania-New Jersey-Maryland Interconnection, Inc. (PJM) and the East Central Area Reliability Council (ECAR) have been maintained. While sufficient generation capacity is expected for the next five years, the Pennsylvania Public Utility Commission will continue its current policy of encouraging generation adequacy within PJM.

With respect to transmission adequacy, the transmission system in the Mid-Atlantic has sufficient capacity to meet demand. However, the system is often congested during periods of high demand. Both the Mid-Atlantic Area Council (MAAC) and ECAR are planning transmission expansions and upgrades over the next 5 years to relieve congestion. Current initiatives at the federal level, such as the Federal Energy Regulatory Commission's standard market design rulemaking, may also help improve the overall reliability and efficiencies of the transmission system.

While the data provided reflects distribution adequacy, the Commission acknowledges the Report of the Legislative Budget and Finance Committee issued in June 2002. As agreed, the Commission is considering the recommendations set forth in the Report and is preparing to take the appropriate corrective measures.

To summarize the relevant statistics in this report, electricity demand in Pennsylvania has grown at a rate of 1.9% annually in the past five years. This is an aggregate figure for all sectors, including industrial, commercial and residential. The current projections for 2001-2006 show electricity demand growth at 1.6% annually. This includes a residential growth of 1.4%, a commercial growth of 2.0% and an industrial growth of 1.4%.

As the Report concludes, our electric system is adequate to meet the demand of Pennsylvania's consumers for the foreseeable future. Pennsylvania needs to maintain its commitment to the basics of energy production and to encourage new initiatives in demand side response, renewable energy, and other new technologies so we can continue as a national leader in this area.

# Contents

## Section 1

Electric Power Outlook	1
Purpose	1
Electric Distribution Companies	3
Regional Reliability Councils	4
Demand Side Response Initiative	5

## Section 2

Summary of Electric Distribution Company Data	7
Duquesne Light Company	9
Number of Customers	9
Energy Sales	9
Peak Load	10
Projected Load Growth	10
Forecasting Error	10
Additional Information	10
Metropolitan Edison Company	17
Number of Customers	17
Energy Sales	17
Peak Load	17
Projected Load Growth	18
Forecasting Error	18
Additional Information	18
Pennsylvania Electric Company	25
Number of Customers	25
Energy Sales	25
Peak Load	25
Projected Load Growth	26
Forecasting Error	26
Additional Information	26
Pennsylvania Power Company	33
Number of Customers	33
Energy Sales	33
Peak Load	33
Projected Load Growth	34
Forecasting Error	34
Additional Information	34
PPL Electric Utilities Corporation	41
Number of Customers	41
Energy Sales	41
Peak Load	41
Projected Load Growth	42

Forecasting Error	42
Additional Information	42
PECO Energy Company	49
Number of Customers	49
Energy Sales	49
Peak Load	49
Projected Load Growth	50
Forecasting Error	50
Additional Information	50
West Penn Power Company	57
Number of Customers	57
Energy Sales	57
Peak Load	57
Projected Load Growth	58
Forecasting Error	58
Additional Information	58
UGI Utilities, Inc.	65
Number of Customers	65
Energy Sales	65
Peak Load	65
Projected Load Growth	66
Additional Information	66

### **Section 3**

Regional Reliability Assessments	68
Generation	68
Transmission	69
North American Electric Reliability Council	70
Compliance Standards	71
Reliability Assessment	72
Mid-Atlantic Area Council	76
Compliance Standards	77
Reliability Assessment	77
PJM Interrconnection L.L.C.	78
East Central Area Reliability Coordination Agreement	81
Compliance Standards	82
Reliability Assessment	83

### **Section 4**

Conclusions	84
-------------	----

### **Appendices**

A – Capacity and Demand Projections of ECAR and MAAC
B – PJM Transmission Zones

# Section 1

## Electric Power Outlook

*Electric Power Outlook for Pennsylvania 2001-2006* is a statistical report summarizing and discussing the current and future electric power supply and demand situation for the eight major investor-owned jurisdictional electric distribution companies (EDCs) operating within the Commonwealth and the entities responsible for maintaining the reliability of the bulk electric supply system within the region. Any comments or conclusions contained in this report do not necessarily reflect the views or opinions of the Commission or individual commissioners. Although this report has been issued by the Commission, it is not to be considered or construed as approval or acceptance by the Commission of any of the plans, assumptions or calculations made by the electric distribution companies or regional reliability entities and reflected in the information submitted.

The information contained in this report includes a brief description of the existing system for each EDC, highlights of the past year, information on EDCs' projections of peak load, a discussion of historical trends in electric utility forecasting and a statistical look at the accuracy of past utility forecasts, focusing on the short term degree of error. Since the eight largest EDCs operating in Pennsylvania represent approximately 99% of electricity sales, the smaller companies have not been included in this report.

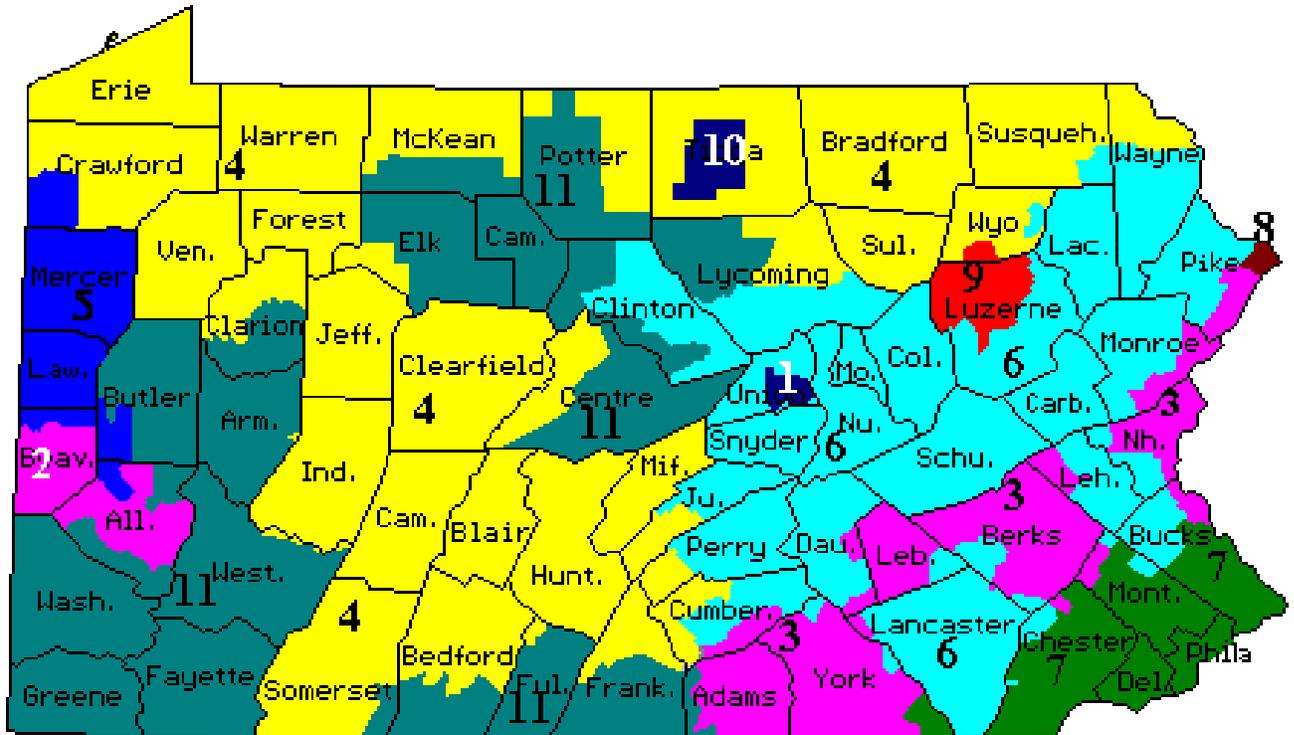
The report also provides a regional perspective with statistical information on the projected resources and aggregate peak loads for the regional reliability councils.

## Purpose

The Bureau of Conservation, Economics and Energy Planning prepares this report, pursuant to Title 66, Pennsylvania Consolidated Statutes, Section 524, which is submitted annually to the General Assembly, the Governor, the Office of Consumer Advocate and each affected public utility. The report is also made available to the general public on the Commission's web site at [http://puc.paonline.com/electric/electric\\_main.asp](http://puc.paonline.com/electric/electric_main.asp). This publication provides data on historical and forecast energy demand, peak load, forecast accuracy and the status of electric retail competition in Pennsylvania. Similar data is also provided for regional reliability councils.

Informational sources include data submitted by jurisdictional investor-owned EDCs. This data is filed annually pursuant to the Commission's regulations in Title 52 of the Pennsylvania Code, Sections 57.141-57.154. Sources also include data submitted by regional reliability councils to the North American Electric Reliability Council which is subsequently forwarded to the federal Energy Information Agency.

## Electric Distribution Companies



Eleven electric distribution companies (EDCs) currently serve the electrical energy needs of the majority of Pennsylvania's homes, businesses and industries. Cooperatives and municipal systems provide service to several rural and urban areas. The eleven jurisdictional EDCs (nine systems) are:

- 1 Citizens' Electric Company
- 2 Duquesne Light Company
- 3 Metropolitan Edison Company (FirstEnergy)
- 4 Pennsylvania Electric Company (FirstEnergy)
- 5 Pennsylvania Power Company (FirstEnergy)
- 6 PPL Electric Utilities Corporation
- 7 PECO Energy Company
- 8 Pike County Light & Power Company (Orange & Rockland Utilities, Inc.)
- 9 UGI Utilities, Inc.
- 10 Wellsboro Electric Company
- 11 West Penn Power Company (Allegheny Energy, Inc.)

It is the responsibility of each load-serving entity to make provisions for adequate generating resources to serve its customers. Furthermore, section 2807(e)(3) of the Public Utility Code requires that, at the end of the transition period, the local EDC or Commission-approved alternate supplier must acquire electric energy at prevailing market prices for customers who contract for power which is not delivered or customers who do not choose an alternate supplier. EDCs must also assume the role of provider-of-last-resort for customers choosing to return to the EDC.

Due to the deregulation of electric generation, available local generating resources are now available to the competitive wholesale market. The EDCs have either entered into long-term contracts for power from traditional resources with affiliates or other generation suppliers or expect to purchase power from the wholesale market to fulfill their “provider-of-last-resort” obligations.

The Commission is in the process of developing regulations to address the EDCs’ responsibilities concerning provider-of-last-resort service.

## **Regional Reliability Councils**

In Pennsylvania, all major electric utilities are interconnected with neighboring systems extending beyond state boundaries. The degree of coordination among these systems varies.

The PJM Interconnection, L.L.C. (PJM) is a formal power pool, independent system operator and Regional Transmission Organization (RTO) in the Northeast Region of the North American Electric Reliability Council (NERC) and consists of the members of the Mid-Atlantic Area Council (MAAC). PJM is the largest centrally dispatched system in North America and the third largest in the world. PJM coordinates the operation of 540 electric generating units and operates a regional bid-based energy market. PJM also monitors, evaluates and coordinates the operation of over 8,000 miles of transmission lines. Metropolitan Edison Company, Pennsylvania Electric Company, PPL Electric Utilities Corporation, PECO Energy Company and UGI Utilities, Inc. are all members of PJM.

West Penn Power Company is a subsidiary of Allegheny Energy, Inc. (AE), a diversified electric utility holding company operating as a formal, tight power pool in western Pennsylvania, West Virginia, western Maryland and portions of Ohio and Virginia. AE is centrally dispatched and has had interconnection agreements with PJM, Virginia Power and the East Central Area Reliability Council (ECAR) Region companies of Ohio Edison, American Electric Power and Duquesne Light Company.

On April 1, 2002, PJM West became operational, broadening the regional scope of the electric grid operator for the Mid-Atlantic region, to include Allegheny Power (and West Penn Power Company) and marking the first time, nationally, that two separate control areas are operated under a single energy market and a single governance structure. The PJM West offices located at Greensburg, Pennsylvania, will provide transmission and generation coordination for the PJM West area. Allegheny expects its customers to benefit from enhanced reliability and expanded wholesale markets.

Duquesne Light Company is also a member of ECAR. Duquesne anticipates joining the PJM West RTO in the near future. Duquesne's inclusion in this RTO will put the region's transmission facilities under common control to enhance reliability to customers.

Pennsylvania Power Company (as a subsidiary of Ohio Edison Company and FirstEnergy Corporation) is a member of ECAR.

ECAR and MAAC set forth the criteria which individual utilities and systems must follow in planning adequate levels of generating capability. Among the factors which are considered in establishing these levels are load characteristics, load forecast error, scheduled maintenance requirements and the forced outage rates of generating units.

The MAAC reliability standards require that sufficient generating capacity be installed to insure that the probability of system load exceeding available capacity is no greater than one day in 10 years. Load serving entities that are members of MAAC have a capacity obligation determined by evaluating individual system load characteristics and unit size and operating characteristics.

ECAR's standard for evaluating the reliability of the generation component of the bulk power supply involves the computation of the number of days per year that the ECAR Region is expected to rely on (a) generating resources outside of ECAR and (b) reducing area load to the extent that such resources are not available. This measure of performance, the Dependence on Supplemental Capacity Resources (DSCR), is used to identify critical bulk power supply situations for appropriate response by the member companies.

## **Demand Side Response Initiative**

The Commission has continued its efforts to address price volatility in the wholesale market during periods of peak consumption. When wholesale prices escalate during peak periods, there is a significant, lingering impact on wholesale

prices for some period afterward. These price spikes and their aftermath dampen competition in retail markets because it becomes difficult for suppliers to obtain power at a price which is low enough to allow them to compete with the capped generation prices charged by EDCs for “provider of last resort” service.

Under the protection of rate caps, retail customers do not have a strong incentive to use less electricity during peak periods, even though wholesale prices are climbing. The reason for this is that the retail customer pays an average capped rate. In other words, a retail customer pays the same price for a kilowatthour of electricity on a high demand day in the summer as the customer does on a low demand day in the fall. The result is that the inelastic retail demand drives the wholesale price of electricity extremely high, and system reliability could be threatened.

Through a collaborative process, the Commission, utility representatives and other interested parties are currently addressing ways to encourage customers to respond to peak period wholesale prices by reducing their demand. The working group is addressing existing and proposed demand side response programs, consumer education programs and appropriate methods to measure program results.

In the summer of 2001, the reported energy demand reduction attributable to demand side response programs was 1,843 MWH and the average megawatt reduction was 83 MW. The aggregate non-coincident reduction at system peak was 176 megawatts.

In the short term, the purpose of the demand side response initiative is to reduce peak demand and educate customers about peak price fluctuations. In the long term, the intention is to improve overall energy efficiency.

## Section 2

### Summary of Electric Distribution Company Data

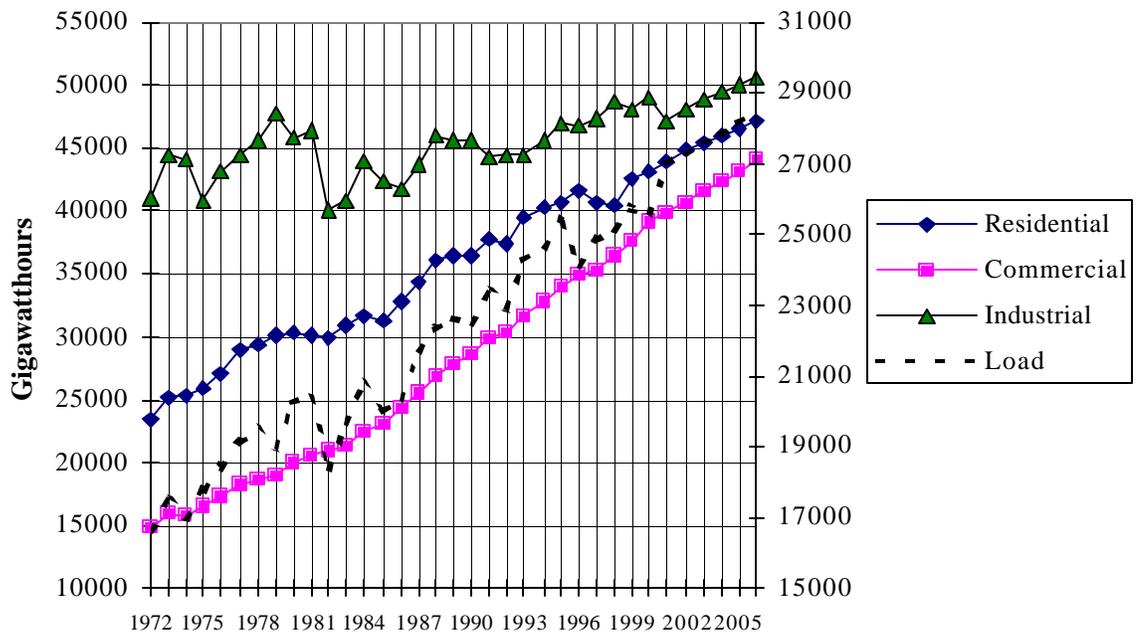
The eight largest EDCs operating in Pennsylvania delivered approximately 99% of the jurisdictional companies' electrical energy needs. Aggregate sales in 2001 totaled approximately 134.2 billion kilowatthours (KWH), a 2.3% increase from that of 2000 and approximately 4.0% of the United States' total sales. Industrial sales continued to dominate the Pennsylvania market capturing 35.1% of the total sales, followed by residential (32.6%) and commercial (29.7%). Aggregate non-coincident peak load rose to 26,994 MW in 2001, up 5.7% from 2000. See Table 2.1.

**Table 2.1. Energy Demand, Peak Load and Customers Served**

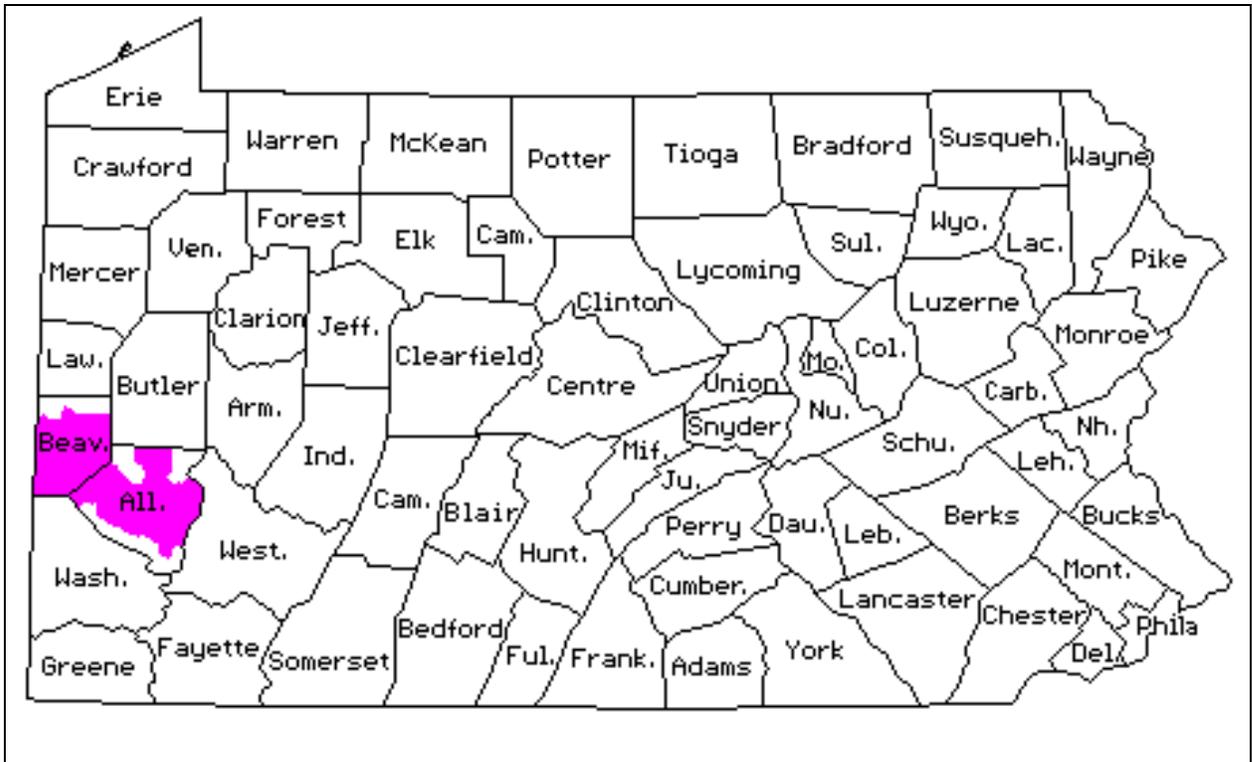
EDC	Residential (MWH)	Commercial (MWH)	Industrial (MWH)	Other (MWH)	Sales For Resale (MWH)	Total Consumption (MWH)	Peak Load (MW)	Customers Served
Duquesne	3,583,859	6,169,688	3,282,731	71,445		13,107,723	2,771	586,494
Met-Ed	4,495,607	3,855,416	4,185,931	32,932	867	12,570,753	2,486	502,801
Penelec	3,991,249	4,537,511	4,391,809	41,489	227,325	13,189,383	2,337	582,638
Penn Power	1,391,000	1,220,000	1,539,000	6,000	474,000	4,630,000	1,011	151,962
PECO	11,177,726	7,603,638	15,311,815	772,839	161,243	35,027,261	7,948	1,525,653
PPL	12,268,633	11,778,371	10,319,004	210,688	921,072	35,497,768	6,583	1,293,973
UGI	481,258	331,258	114,046	4,987	22	931,571	181	61,510
West Penn	6,324,916	4,359,918	7,955,272	52,312	580,669	19,273,087	3,677	686,517
<b>Total</b>	<b>43,714,248</b>	<b>39,855,800</b>	<b>47,099,608</b>	<b>1,192,692</b>	<b>2,365,198</b>	<b>134,227,546</b>	<b>26,994</b>	<b>5,391,548</b>

Between 1986 and 2001, the state's energy demand grew an average rate of 1.9% annually. Residential sales grew at an annual rate of 1.9%, commercial at 3.3% and industrial at 0.8%. The current aggregate 5-year projection of growth in energy demand is 1.6%. This includes a residential growth rate of 1.4%, a commercial rate of 2.0% and an industrial rate of 1.4%. See Figure 2.1.

**Figure 2.1**  
**Historic & Forecast Energy Demand**



## Duquesne Light Company



### Duquesne Light Company Service Territory

#### Number of Customers

Duquesne Light Company (Duquesne) provides service to over 586,000 electric utility customers in southwestern Pennsylvania.

#### Energy Sales

In 2001, Duquesne had energy sales totaling 13.1 billion kilowatthours (KWH) -- down 1.1% from 2000. Commercial sales continued to dominate Duquesne's market with 47.1% of the total sales, followed by residential (27.3%) and industrial (25.0%). Industrial sales declined 8.3% to a similar level experienced in 1996.

## **Peak Load**

Duquesne's summer peak load, occurring on August 9, 2001, was 2,771 megawatts (MW), representing an increase of 3.7% from last year's peak of 2,673 MW. The 2001/2002 winter peak load was 1,991 MW or 4.4% less than that of the previous year.

Between 1986 and 2001, Duquesne's total energy demand increased about 1.5% per year. The 2001 industrial energy demand was 20.1% greater than the 1986 level, still far behind the peak level achieved in 1981 (50.1%). Residential demand grew at an annual rate of 1.3% over the past 15 years, with an increase in commercial energy demand at an average of 1.8% per year.

## **Projected Load Growth**

The current 5-year projection of average growth in total energy consumption is about 1.6% per year. This includes a residential growth rate of 1.4%, a commercial growth rate of 1.8% and an industrial growth rate of 1.5%. See Figure 3.1.

The actual average annual peak load growth rate over the past fifteen years was 1.5%. Duquesne's forecast shows the peak demand increasing from 2,771 MW in the summer of 2001 to 2,953 MW in 2006, or an average annual growth rate of 1.6%.

Tables 3.1-3.4 provide Duquesne's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

## **Forecasting Error**

Duquesne's short term forecasting error for the residential and commercial sectors has been relatively consistent over the period of analysis. Overforecasting has continued into the 1990s for industrial and commercial sectors, with residential demand being underprojected for the past few years. This analysis reflects averages of deviations in forecasts made one to four years in advance and is shown in Figure 3.2 in four-year moving averages. Forecast error is computed as a percentage deviation from actual energy demand.

## **Additional Information**

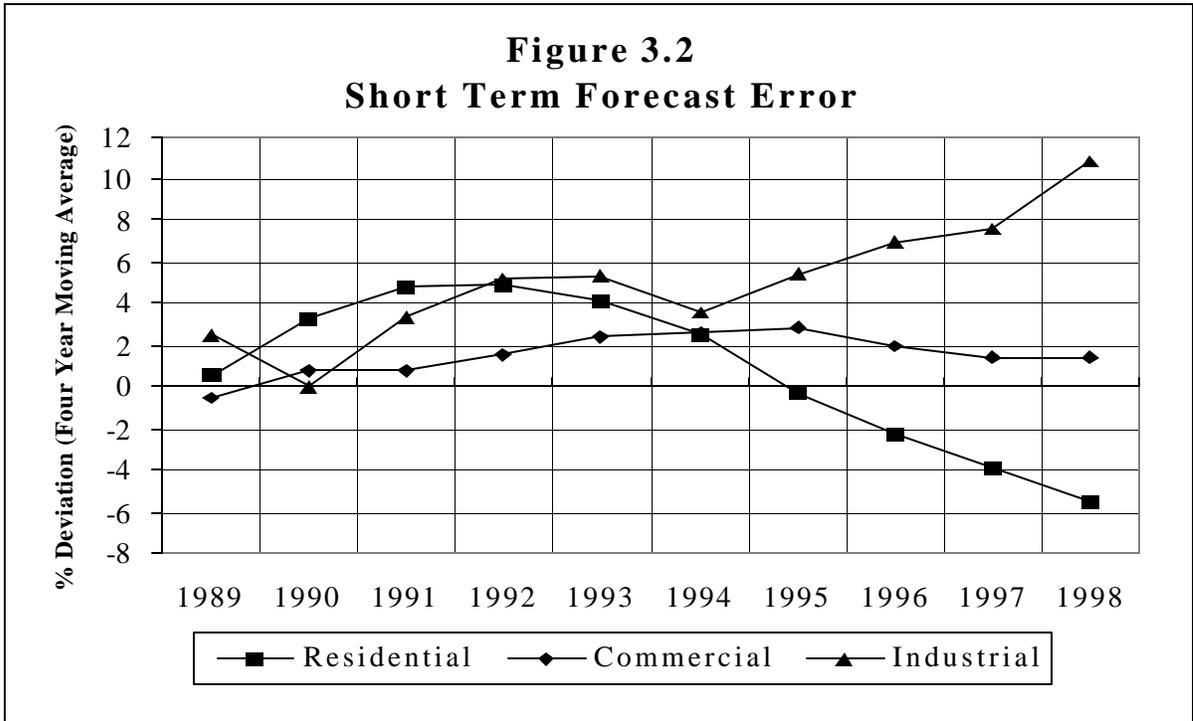
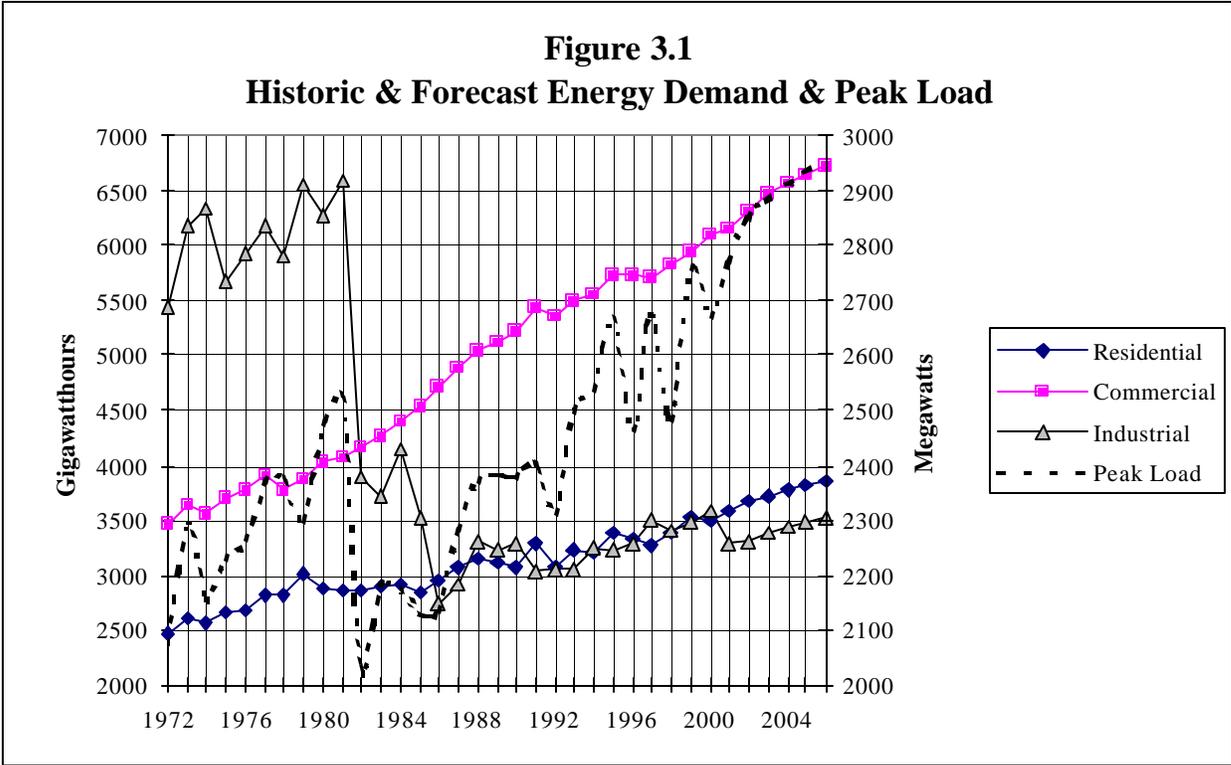
On the peak day in the summer of 2001, 10 electric generation suppliers provided 461 MW to the Duquesne system. For calendar year 2001, 16 electric

generation suppliers sold a total of 6.6 billion KWH to retail customers in Duquesne's service territory or about 50.2% of total consumption.

On April 28, 2000, Duquesne sold its generating assets to Orion Power Holdings, Inc. (Orion). Orion will supply Duquesne with the electric energy necessary to satisfy its provider of last resort (POLR) obligations through 2004. Duquesne is evaluating options to provide POLR service beyond this period, including an extension of the agreement with Orion, a similar arrangement with another generation supplier and the construction of a generating facility. Contingent upon regulatory approval, DQE's Board of Directors has authorized Duquesne to proceed with the development of a natural-gas fired generating station in Beaver County, with an initial 600 MW base unit designed for future expansion to include an additional 600 MW unit. The first unit is expected to cost approximately \$400 million and take about 24 months to build.

Duquesne anticipates joining the PJM West Regional Transmission Organization, which became operational on April 1, 2002. Duquesne entered into agreements under which FirstEnergy Solutions and Orion will supply the electric capacity required to meet Duquesne's anticipated capacity credit obligations in PJM West through 2004. These agreements are subject to regulatory approval.

Duquesne has developed and implemented a Pilot Voluntary Load Reduction Program available to commercial and industrial customers with the flexibility to curtail load or utilize on-site generating facilities during periods of peak market prices. A peak load reduction of 72.6 MW and 200.1 million KWH in energy savings are anticipated for 2002. Also, a Pilot Direct Load Curtailment program is being launched this summer for residential and commercial customers in which air conditioning units will be shut off or cycled during periods of high heat.



**Table 3.1**

**Projected Peak Demand Requirements**

(Megawatts)

Year	Actual Peak Demand	Year Forecast Was Filed																				
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001					
1986	2132	2120																				
1987	2280	2160	2164																			
1988	2372	2170	2240	2198																		
1989	2381	2190	2286	2244	2238																	
1990	2379	2220	2343	2297	2291	2279																
1991	2402	2260	2400	2352	2346	2334	2348															
1992	2308	2280	2441	2390	2415	2372	2374															
1993	2499	2360	2474	2421	2446	2403	2385	2410	2423													
1994	2535	2420	2507	2452	2475	2434	2407	2442	2461	2324												
1995	2666	2490	2539	2481	2504	2463	2431	2451	2466	2352	2355											
1996	2463		2569	2510	2529	2492	2458	2484	2497	2351	2346	2537										
1997	2671			2535	2553	2517	2482	2517	2521	2373	2390	2599	2583									
1998	2484				2577	2541	2504	2567	2564	2392	2401	2634	2614	2614								
1999	2756					2565	2527	2615	2613	2412	2413	2652	2632	2632	2715							
2000	2673							2550	2658	2655	2442	2433	2671	2653	2653	2736	2638					
2001	2771									2703	2700	2472	2452	2690	2677	2677	2757	2661	2661			
2002												2745	2501	2472	2709	2702	2702	2776	2682	2682		
2003														2533	2490	2728	2727	2727	2798	2702	2702	
2004																2511	2749	2754	2754		2723	2723
2005																		2769	2782	2782		2743
2006																				2810		
2007																					2839	
2008																						

**Deviation From Actual**

(%)

Year	Actual Peak Demand	Year Forecast Was Filed																				
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001					
1986		-0.6																				
1987		-5.3	-5.1																			
1988		-8.5	-5.6	-7.3																		
1989		-8.0	-4.0	-5.8	-6.0																	
1990		-6.7	-1.5	-3.4	-3.7	-4.2																
1991		-5.9	-0.1	-2.1	-2.3	-2.8	-2.2															
1992		-1.2	5.8	3.6	4.6	2.8	2.7	2.9														
1993		-5.6	-1.0	-3.1	-2.1	-3.8	-4.6	-3.6	-3.0													
1994		-4.5	-1.1	-3.3	-2.4	-4.0	-5.0	-3.7	-2.9	-8.3												
1995		-6.6	-4.8	-6.9	-6.1	-7.6	-8.8	-8.1	-7.5	-11.8	-11.7											
1996			4.3	1.9	2.7	1.2	-0.2	0.9	1.4	-4.5	-4.8	3.0										
1997				-5.1	-4.4	-5.8	-7.1	-5.8	-5.6	-11.2	-10.5	-2.7	-3.3									
1998					3.7	2.3	0.8	3.3	3.2	-3.7	-3.3	6.0	5.2	5.2								
1999						-6.9	-8.3	-5.1	-5.2	-12.5	-12.4	-3.8	-4.5	-4.5	-1.5							
2000								-4.6	-0.6	-0.7	-8.6	-9.0	-0.1	-0.7	-0.7	2.4	-1.3					
2001										-2.5	-2.6	-10.8	-11.5	-2.9	-3.4	-3.4	-0.5	-4.0	-4.0			

**Table 3.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	2957	2920															
1987	3065	2930	3024														
1988	3156	2920	3098	3098													
1989	3119	2930	3176	3176	3126												
1990	3078	2990	3255	3255	3210	3210											
1991	3286	3040	3333	3333	3327	3327	3327										
1992	3069	3110	3401	3401	3401	3401	3401	3234									
1993	3231	3210	3470	3470	3470	3470	3470	3267	3267								
1994	3219	3300	3539	3539	3539	3539	3539	3302	3302	3234							
1995	3379	3380	3606	3606	3606	3606	3606	3338	3338	3279	3190						
1996	3321		3680	3680	3680	3680	3680	3374	3374	3303	3207	3175					
1997	3274			3760	3760	3760	3760	3411	3411	3324	3221	3167	3228				
1998	3382				3837	3837	3837	3447	3447	3350	3237	3171	3234	3234			
1999	3526					3915	3915	3484	3484	3371	3254	3176	3240	3240	3366		
2000	3509						3992	3522	3522	3396	3271	3181	3249	3249	3383	3610	
2001	3584							3559	3559	3425	3288	3187	3258	3258	3400	3643	3643
2002									3597	3453	3305	3192	3267	3267	3415	3681	3681
2003										3483	3322	3198	3276	3276	3432	3716	3716
2004											3339	3204	3287	3287		3759	3759
2005												3210	3297	3297			3780
2006													3210	3307			
2007														3318			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-1.3																
1987	-4.4	-1.3															
1988	-7.5	-1.8	-1.8														
1989	-6.1	1.8	1.8	0.2													
1990	-2.9	5.8	5.8	4.3	4.3												
1991	-7.5	1.4	1.4	1.2	1.2	1.2											
1992	1.3	10.8	10.8	10.8	10.8	10.8	5.4										
1993	-0.6	7.4	7.4	7.4	7.4	7.4	1.1	1.1									
1994	2.5	9.9	9.9	9.9	9.9	9.9	2.6	2.6	0.5								
1995	0.0	6.7	6.7	6.7	6.7	6.7	-1.2	-1.2	-2.9	-5.6							
1996		10.8	10.8	10.8	10.8	10.8	1.6	1.6	-0.5	-3.4	-4.4						
1997			14.9	14.9	14.9	14.9	4.2	4.2	1.5	-1.6	-3.3	-1.4					
1998				13.4	13.4	13.4	1.9	1.9	-1.0	-4.3	-6.3	-4.4	-4.4				
1999					11.0	11.0	-1.2	-1.2	-4.4	-7.7	-9.9	-8.1	-8.1	-4.5			
2000						13.8	0.4	0.4	-3.2	-6.8	-9.3	-7.4	-7.4	-3.6	2.9		
2001							-0.7	-0.7	-4.4	-8.2	-11.1	-9.1	-9.1	-5.1	1.7	1.7	

**Table 3.3**

**Projected Commercial Energy Demand**

(Gigawatthours)

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	4714	4610																
1987	4886	4710	4916															
1988	5040	4780	5075	5057														
1989	5127	4840	5183	5166	5100													
1990	5220	4930	5310	5293	5263	5263												
1991	5434	5060	5428	5411	5411	5411	5411											
1992	5358	5210	5501	5484	5484	5484	5484	5516										
1993	5490	5390	5558	5541	5541	5541	5541	5675	5675									
1994	5563	5610	5614	5597	5597	5597	5597	5829	5829	5570								
1995	5729	5810	5668	5651	5651	5651	5651	5909	5909	5748	5703							
1996	5737		5721	5704	5704	5704	5704	6028	6028	5850	5818	5732						
1997	5703			5745	5745	5745	5745	6148	6148	5949	5908	5757	5858					
1998	5826				5789	5789	5789	6270	6270	6033	6017	5824	5945	5945				
1999	5954					5831	5831	6393	6393	6117	6131	5910	6039	6039	5983			
2000	6092						5876	6516	6516	6209	6247	6005	6159	6159	6073	6113		
2001	6170							6627	6627	6299	6359	6102	6301	6301	6157	6231	6231	
2002									6740	6385	6469	6198	6450	6450	6236	6336	6336	
2003											6477	6577	6295	6606	6606	6327	6438	6438
2004												6693	6400	6773	6773		6540	6540
2005													6505	6944	6944			6628
2006														7118	7118			
2007															7296			
2008																		

**Deviation From Actual**

(%)

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.2																
1987	-3.6	0.6															
1988	-5.2	0.7	0.3														
1989	-5.6	1.1	0.8	-0.5													
1990	-5.6	1.7	1.4	0.8	0.8												
1991	-6.9	-0.1	-0.4	-0.4	-0.4	-0.4											
1992	-2.8	2.7	2.4	2.4	2.4	2.4	2.9										
1993	-1.8	1.2	0.9	0.9	0.9	0.9	3.4	3.4									
1994	0.8	0.9	0.6	0.6	0.6	0.6	4.8	4.8	0.1								
1995	1.4	-1.1	-1.4	-1.4	-1.4	-1.4	3.1	3.1	0.3	-0.5							
1996		-0.3	-0.6	-0.6	-0.6	-0.6	5.1	5.1	2.0	1.4	-0.1						
1997			0.7	0.7	0.7	0.7	7.8	7.8	4.3	3.6	0.9	2.7					
1998				-0.6	-0.6	-0.6	7.6	7.6	3.6	3.3	0.0	2.0	2.0				
1999					-2.1	-2.1	7.4	7.4	2.7	3.0	-0.7	1.4	1.4	0.5			
2000						-3.6	7.0	7.0	1.9	2.5	-1.4	1.1	1.1	-0.3	0.3		
2001								7.4	7.4	2.1	3.1	-1.1	2.1	2.1	-0.2	1.0	1.0

**Table 3.4**

**Projected Industrial Energy Demand  
(Gigawatthours)**

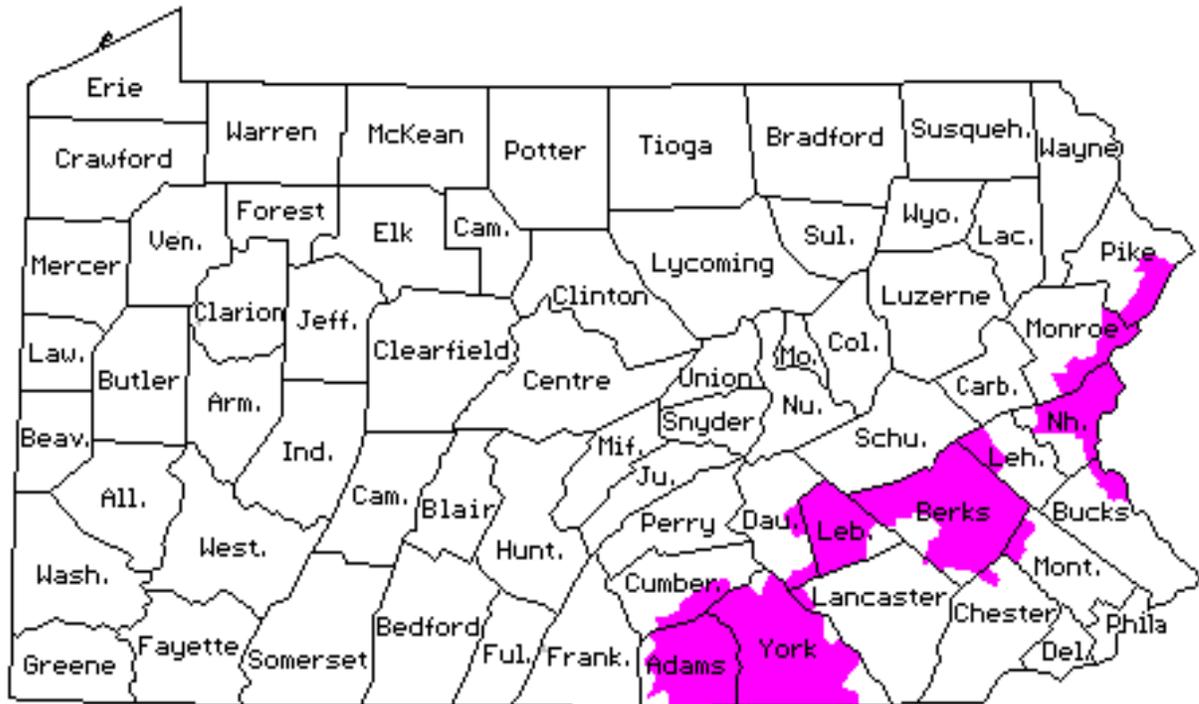
Year	Actual Energy Demand	Year Forecast Was Filed																	
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
1986	2734	3280																	
1987	2918	3490	2813																
1988	3302	3600	2964	2964															
1989	3221	3740	3048	3048	3218														
1990	3297	3770	3131	3131	3244	3244													
1991	3042	3760	3231	3231	3276	3276	3276												
1992	3059	3730	3309	3309	3309	3309	3309	3201											
1993	3046	3690	3352	3352	3352	3352	3352	3208	3208										
1994	3256	3690	3400	3400	3400	3400	3400	3315	3315	3149									
1995	3237	3680	3443	3443	3443	3443	3443	3336	3336	3293	3362								
1996	3285		3469	3469	3469	3469	3469	3429	3429	3342	3423	3349							
1997	3501			3485	3485	3485	3485	3486	3486	3401	4367	3717	3431						
1998	3412				3494	3494	3494	3576	3576	3451	4335	3941	3690	3690					
1999	3481					3502	3502	3502	3674	3674	3484	4398	4013	3828	3828	3771			
2000	3581						3501	3736	3736	3519	4461	4086	3919	3919	3836	3537			
2001	3283								3817	3817	3554	4526	4160	3988	3988	3901	3576	3576	
2002											3902	3591	4591	4236	4059	4059	3964	3615	3615
2003												3631	4655	4313	4130	4130	4027	3651	3651
2004													4717	4393	4202	4202		3695	3695
2005														4474	4276	4276			3742
2006															4351	4351			
2007																4427			
2008																			

**Deviation From Actual**

(%)

Year	Year Forecast Was Filed																		
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001			
1986	20.0																		
1987	19.6	-3.6																	
1988	9.0	-10.2	-10.2																
1989	16.1	-5.4	-5.4	-0.1															
1990	14.3	-5.0	-5.0	-1.6	-1.6														
1991	23.6	6.2	6.2	7.7	7.7	7.7													
1992	21.9	8.2	8.2	8.2	8.2	8.2	4.6												
1993	21.1	10.0	10.0	10.0	10.0	10.0	5.3	5.3											
1994	13.3	4.4	4.4	4.4	4.4	4.4	1.8	1.8	-3.3										
1995	13.7	6.4	6.4	6.4	6.4	6.4	3.1	3.1	1.7	3.9									
1996			5.6	5.6	5.6	5.6	4.4	4.4	1.7	4.2	1.9								
1997				-0.5	-0.5	-0.5	-0.5	-0.4	-0.4	-2.9	24.7	6.2	-2.0						
1998					2.4	2.4	2.4	4.8	4.8	1.2	27.1	15.5	8.1	8.1					
1999						0.6	0.6	5.5	5.5	0.1	26.3	15.3	9.9	9.9	8.3				
2000								-2.2	4.3	4.3	-1.7	24.6	14.1	9.5	9.5	7.1	-1.2		
2001										16.3	16.3	8.3	37.9	26.7	21.5	21.5	18.8	8.9	8.9

## **Metropolitan Edison Company**



### **Metropolitan Edison Company Service Territory**

#### **Number of Customers**

Metropolitan Edison Company (Met-Ed) provides service to nearly 503,000 electric utility customers in eastern and south central Pennsylvania.

#### **Energy Sales**

In 2001, Met-Ed had total energy sales of 12.6 billion kilowatthours (KWH) - up 0.3% from 2000. Residential sales dominated Met-Ed's market with 35.8% of the total sales, followed by industrial (33.3%) and commercial (30.7%).

#### **Peak Load**

Met-Ed's summer peak load, occurring on August 9, 2001, was 2,486 megawatts (MW), an all-time system peak. This represents an increase of 9.3% from last year's peak of 2,274 MW and 1.9% above the 1999 peak load of 2,439 MW. The 2001/02 winter peak load was 2,067 MW or 5.1% lower than the previous year's winter peak of 2,179 MW.

Between 1986 and 2001, Met-Ed's energy demand grew at an average rate of 2.9% per year. Residential and commercial sales have maintained relatively steady growth over the period (3.3% for residential and 4.3% for commercial), while industrial sales have fluctuated considerably. Industrial sales grew at an average rate of about 1.6%.

### **Projected Load Growth**

The current 5-year projection of growth in total energy demand is 2.3%. This includes a residential growth rate of 2.1%, a commercial growth rate of 2.9% and an industrial rate of 1.8%. See Figure 4.1.

The actual average annual peak load growth rate over the past 15 years was 2.9%. Met-Ed's forecast shows its peak load increasing from 2,486 MW to 2,725 MW by 2006, or an average annual growth rate of 1.9%.

Tables 4.1-4.4 provide Met-Ed's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

Met-Ed's short term forecasting error for each customer group shows a similar trend. Demand was overestimated in the early 1980s, followed by a period of underestimations. Overall, forecasting accuracy has improved. This analysis reflects averages of deviations in forecasts made 1 to 4 years in advance and are shown in Figure 4.2 in 4-year moving averages. Forecast error is calculated as a percentage of actual energy demand.

### **Additional Information**

Met-Ed was a wholly owned subsidiary of GPU. On November 7, 2001, GPU was merged with FirstEnergy Corporation, a holding company registered under the Public Utility Holding Company Act of 1935. Met-Ed is a member of the PJM Interconnection and the Mid-Atlantic Area Council.

The final restructuring settlement between Met-Ed and various intervenors was approved by the Commission on October 16, 1998. The settlement provided that 100% of customers could choose another energy supplier beginning January 1, 1999. Met-Ed retains Provider of Last Resort (PLR) responsibility for those customers who choose not to shop. Beginning in June 2000, 20% of Met-Ed's PLR obligation were to be met by competitive default suppliers (CDS) chosen by competitive bid. The amount of PLR load served by CDS was to increase by 20% increments each year up to 80% of the load in June 2003. The CDS bid process

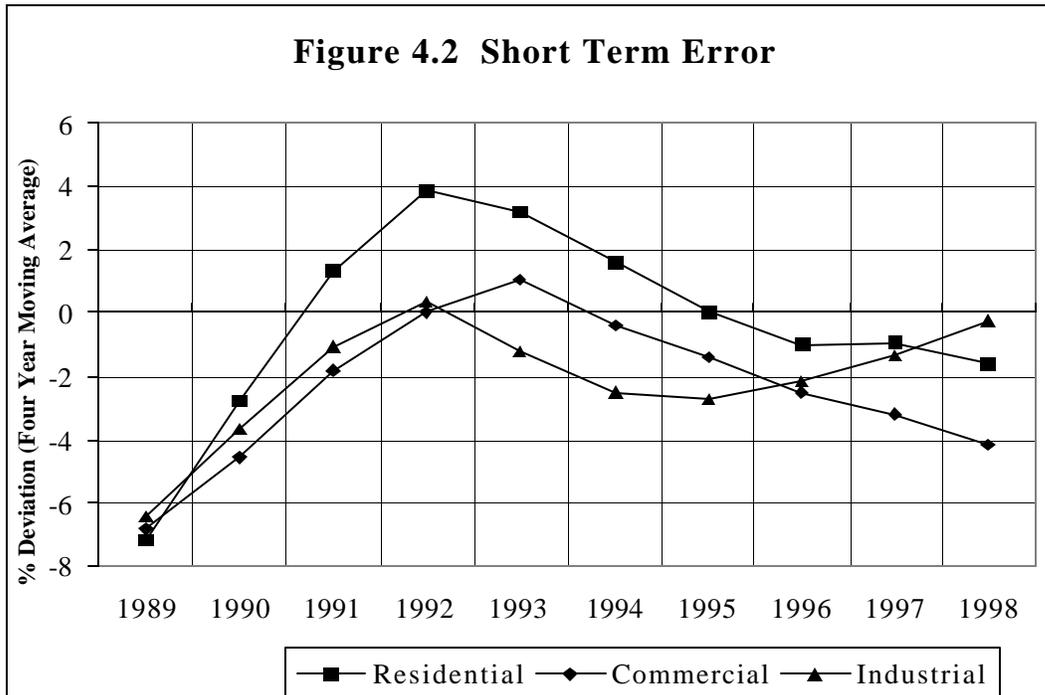
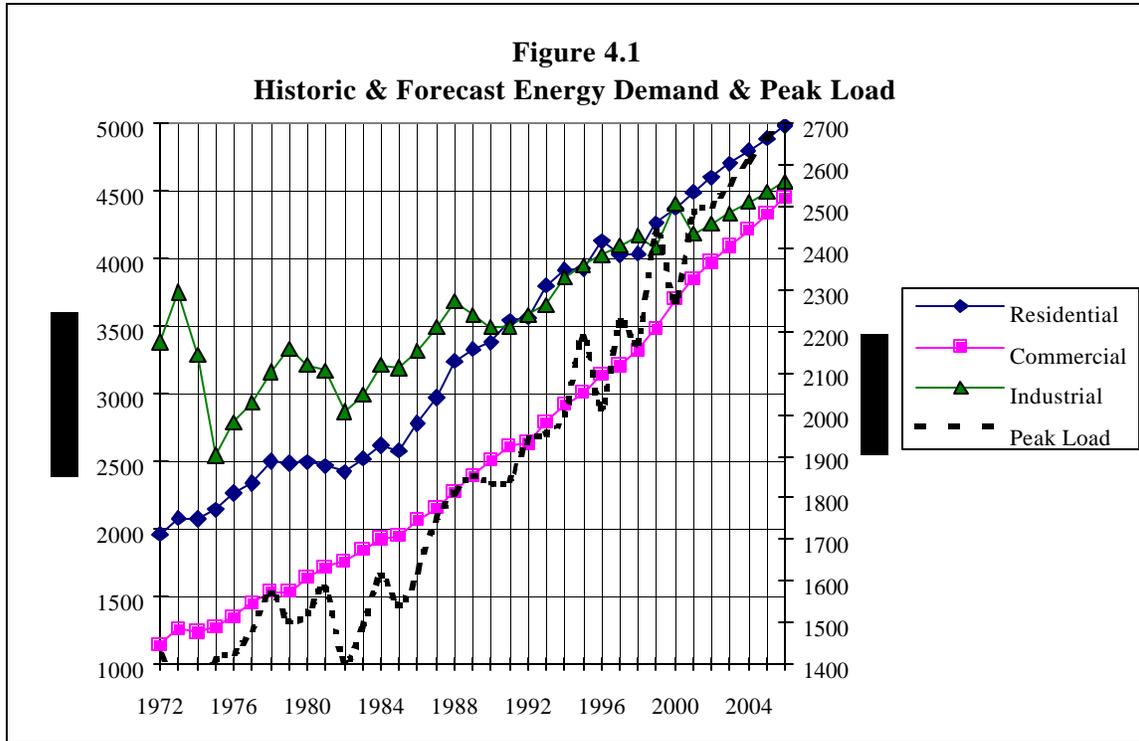
failed for June 2000. Met-Ed increased the load available for CDS bid in June 2001 to 40%; again, however, no bids were received.

GPU has divested most of its generation facilities and negotiated short-term contracts with the new owners: Edison Mission Energy, Sithe Energy (now Reliant) and Amergen. These contracts ended in 2001, except for an agreement with Reliant for capacity only through May 31, 2002. Met-Ed currently retains ownership of the York Haven generating station, which has a combined generating capacity of 19.4 MW.

In 2001, Met-Ed purchased approximately 2.3 billion KWH from cogeneration and small power production projects. Contract capacity (defined as PJM installed capacity credits) is 272 MW.

For calendar year 2001, 21 electric generation suppliers sold a total of over 2.1 billion KWH to retail customers in Met-Ed's service territory, or about 16.9% of total consumption, down from 45.7% in 2000.

The only active conservation program is a low-income weatherization program (LIURP), which includes the installation of a variety of weatherization measures in the homes of customers with electric heat and/or electric water heating and/or high baseload use. In addition, 93 time-of-day conversions were made. Nearly \$1.6 million was spent in 2001 for a peak load reduction of 45 KW, a load shift of 70 KW and energy savings totaling 500,580 KWH.



**Table 4.1**

**Projected Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	1623	1580															
1987	1745	1600	1591														
1988	1811	1620	1594	1649													
1989	1852	1630	1616	1633	1779												
1990	1836	1650	1637	1701	1817	1877											
1991	1842	1660	1659	1735	1829	1937	1910										
1992	1940	1670	1681	1769	1849	1992	1962	1970									
1993	1954	1680	1704	1799	1909	2045	2020	2015	1980								
1994	2000	1690	1725	1828	1959	2095	2061	2061	2019	1999							
1995	2186	1700	1748	1858	2009	2146	2092	2069	2065	2041	2042						
1996	2017		1770	1887	2059	2196	2122	2078	2100	2086	2080	2094					
1997	2224			1915	2109	2245	2168	2086	2129	2129	2113	2139	2139				
1998	2176				2159	2293	2220	2101	2161	2170	2147	2176	2176	2194			
1999	2439					2341	2269	2116	2191	2216	2192	2205	2205	2233	2263		
2000	2274						2326	2138	2223	2255	2229	2228	2228	2268	2318	2404	
2001	2486							2159	2253	2293	2263	2264	2305	2373	2456	2455	
2002									2284	2331	2299	2303	2303	2343	2429	2508	2504
2003										2367	2333	2345	2345	2386	2486	2559	2553
2004											2369	2388	2388	2429		2612	2602
2005												2432	2432	2472			2652
2006													2475	2515			
2007														2559			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.6																
1987	-8.3	-8.8															
1988	-10.5	-12.0	-8.9														
1989	-12.0	-12.7	-11.8	-3.9													
1990	-10.1	-10.8	-7.4	-1.0	2.2												
1991	-9.9	-9.9	-5.8	-0.7	5.2	3.7											
1992	-13.9	-13.4	-8.8	-4.7	2.7	1.1	1.5										
1993	-14.0	-12.8	-7.9	-2.3	4.7	3.4	3.1	1.3									
1994	-15.5	-13.8	-8.6	-2.1	4.8	3.1	3.1	1.0	0.0								
1995	-22.2	-20.0	-15.0	-8.1	-1.8	-4.3	-5.4	-5.5	-6.6	-6.6							
1996		-12.2	-6.4	2.1	8.9	5.2	3.0	4.1	3.4	3.1	3.8						
1997			-13.9	-5.2	0.9	-2.5	-6.2	-4.3	-4.3	-5.0	-3.8	-3.8					
1998				-0.8	5.4	2.0	-3.4	-0.7	-0.3	-1.3	0.0	0.0	0.8				
1999					-4.0	-7.0	-13.2	-10.2	-9.1	-10.1	-9.6	-9.6	-8.4	-7.2			
2000						2.3	-6.0	-2.2	-0.8	-2.0	-2.0	-2.0	-0.3	1.9	5.7		
2001							-13.2	-9.4	-7.8	-9.0	-8.9	-8.9	-7.3	-4.5	-1.2	-1.2	

**Table 4.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	2783	2694															
1987	2975	2739	2791														
1988	3245	2784	2856	2995													
1989	3331	2830	2912	3074	3252												
1990	3383	2871	2962	3137	3402	3544											
1991	3542	2910	3019	3190	3548	3753	3677										
1992	3567	2946	3069	3243	3667	3966	3847	3691									
1993	3800	2983	3113	3299	3734	4123	4012	3817	3701								
1994	3921	3016	3164	3347	3826	4254	4122	3948	3796	3894							
1995	3925	3048	3205	3391	3914	4360	4223	4075	3894	4007	3892						
1996	4135		3248	3441	3998	4462	4328	4180	3984	4114	3972	3961					
1997	4034			3489	4083	4559	4452	4260	4071	4203	4047	4028	4028				
1998	4040				4165	4652	4568	4323	4150	4287	4121	4041	4041	4122			
1999	4266					4741	4688	4390	4224	4364	4203	4095	4095	4204	4264		
2000	4377						4803	4456	4293	4446	4286	4152	4152	4264	4352	4344	
2001	4496							4526	4360	4522	4359	4222	4222	4328	4442	4430	4430
2002									4427	4597	4438	4292	4292	4391	4533	4516	4501
2003										4677	4508	4361	4361	4451	4624	4602	4577
2004											4582	4430	4430	4513		4687	4651
2005												4499	4499	4575			4724
2006													4571	4636			
2007														4697			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-3.2																
1987	-7.9	-6.2															
1988	-14.2	-12.0	-7.7														
1989	-15.0	-12.6	-7.7	-2.4													
1990	-15.1	-12.4	-7.3	0.6	4.8												
1991	-17.8	-14.8	-9.9	0.2	6.0	3.8											
1992	-17.4	-14.0	-9.1	2.8	11.2	7.8	3.5										
1993	-21.5	-18.1	-13.2	-1.7	8.5	5.6	0.4	-2.6									
1994	-23.1	-19.3	-14.6	-2.4	8.5	5.1	0.7	-3.2	-0.7								
1995	-22.4	-18.4	-13.6	-0.3	11.1	7.6	3.8	-0.8	2.1	-0.9							
1996		-21.5	-16.8	-3.3	7.9	4.7	1.1	-3.7	-0.5	-4.0	-4.2						
1997			-13.5	1.2	13.0	10.4	5.6	0.9	4.2	0.3	-0.2	-0.2					
1998				3.1	15.2	13.1	7.0	2.7	6.1	2.0	0.0	0.0	2.0				
1999					11.1	9.9	2.9	-1.0	2.3	-1.5	-4.0	-4.0	-1.4	0.0			
2000						9.7	1.8	-1.9	1.6	-2.1	-5.1	-5.1	-2.6	-0.6	-0.7		
2001							0.7	-3.0	0.6	-3.0	-6.1	-6.1	-3.7	-1.2	-1.5	-1.5	

**Table 4.3**

**Projected Commercial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	2065	2022															
1987	2155	2076	2044														
1988	2275	2127	2099	2193													
1989	2396	2182	2152	2255	2270												
1990	2506	2238	2206	2311	2338	2540											
1991	2618	2295	2260	2372	2406	2681	2641										
1992	2638	2350	2314	2433	2474	2810	2756	2712									
1993	2794	2407	2368	2498	2555	2922	2871	2817	2754								
1994	2921	2465	2424	2564	2641	3024	2942	2926	2859	2878							
1995	3011	2522	2480	2627	2718	3115	3017	2972	2958	2961	2959						
1996	3144		2536	2689	2798	3205	3089	3015	3015	3055	3037	3026					
1997	3209			2752	2897	3302	3189	3098	3065	3146	3117	3106	3106				
1998	3209				2983	3401	3282	3179	3135	3237	3209	3179	3179	3224			
1999	3487					3506	3379	3271	3204	3328	3304	3258	3258	3306	3414		
2000	3699							3475	3361	3293	3427	3397	3338	3389	3518	3518	
2001	3855								3466	3386	3518	3497	3420	3420	3473	3622	3751
2002										3490	3608	3611	3512	3512	3567	3732	3860
2003											3700	3724	3607	3607	3663	3841	3970
2004												3835	3703	3703	3762	3947	4079
2005													3805	3805	3864		4189
2006														3912	3972		
2007															4083		
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed															
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	-2.1															
1987	-3.7	-5.2														
1988	-6.5	-7.7	-3.6													
1989	-8.9	-10.2	-5.9	-5.3												
1990	-10.7	-12.0	-7.8	-6.7	1.4											
1991	-12.3	-13.7	-9.4	-8.1	2.4	0.9										
1992	-10.9	-12.3	-7.8	-6.2	6.5	4.5	2.8									
1993	-13.9	-15.2	-10.6	-8.6	4.6	2.8	0.8	-1.4								
1994	-15.6	-17.0	-12.2	-9.6	3.5	0.7	0.2	-2.1	-1.5							
1995	-16.2	-17.6	-12.7	-9.7	3.5	0.2	-1.3	-1.7	-1.6	-1.7						
1996		-19.3	-14.5	-11.0	1.9	-1.7	-4.1	-4.1	-2.8	-3.4	-3.7					
1997			-14.2	-9.7	2.9	-0.6	-3.5	-4.5	-2.0	-2.9	-3.2	-3.2				
1998				-7.0	6.0	2.3	-0.9	-2.3	0.9	0.0	-0.9	-0.9	0.5			
1999					0.5	-3.1	-6.2	-8.1	-4.6	-5.3	-6.6	-6.6	-5.2	-2.1		
2000						-6.0	-9.1	-11.0	-7.3	-8.2	-9.8	-9.8	-8.4	-4.9	-4.9	
2001							-10.1	-12.2	-8.8	-9.3	-11.3	-11.3	-9.9	-6.0	-6.1	-2.7

**Table 4.4**

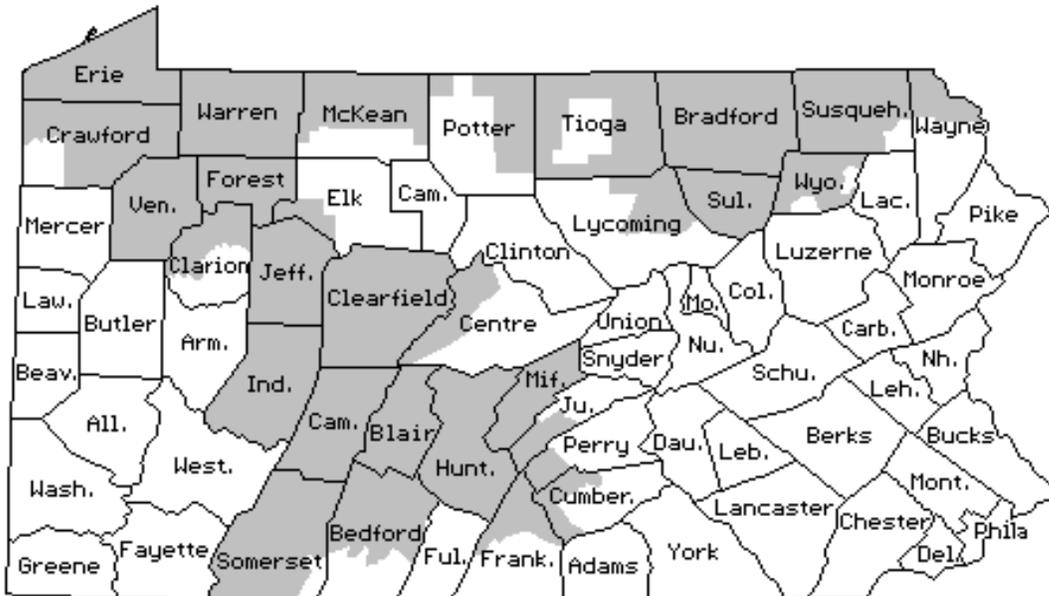
**Projected Industrial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	3319	3141																
1987	3497	3200	3228															
1988	3685	3229	3149	3253														
1989	3588	3259	3124	3247	3552													
1990	3496	3291	3141	3264	3599	3510												
1991	3502	3324	3159	3351	3675	3608	3513											
1992	3589	3352	3177	3423	3704	3691	3578	3585										
1993	3665	3383	3199	3485	3744	3760	3640	3639	3643									
1994	3861	3410	3222	3537	3849	3830	3722	3706	3718	3757								
1995	3957	3439	3244	3586	3955	3901	3787	3784	3781	3821	3888							
1996	4033		3267	3636	4056	3973	3840	3857	3807	3891	3956	3985						
1997	4097			3686	4118	4047	3914	3907	3900	3974	4019	4064	4064					
1998	4173				4187	4123	3994	3999	4003	4078	4110	4132	4132	4136				
1999	4085					4199	4095	4090	4081	4182	4205	4197	4197	4229	4239			
2000	4412						4195	4160	4132	4277	4291	4294	4294	4305	4307	4313		
2001	4186								4252	4196	4367	4376	4389	4370	4365	4352	4312	
2002										4255	4458	4463	4468	4468	4448	4435	4410	4409
2003											4547	4552	4535	4535	4560	4506	4459	4490
2004												4644	4627	4627	4664		4508	4567
2005													4724	4724	4776			4645
2006														4810	4876			
2007															4964			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-5.4																
1987	-8.5	-7.7															
1988	-12.4	-14.5	-11.7														
1989	-9.2	-12.9	-9.5	-1.0													
1990	-5.9	-10.2	-6.6	2.9	0.4												
1991	-5.1	-9.8	-4.3	4.9	3.0	0.3											
1992	-6.6	-11.5	-4.6	3.2	2.8	-0.3	-0.1										
1993	-7.7	-12.7	-4.9	2.2	2.6	-0.7	-0.7	-0.6									
1994	-11.7	-16.5	-8.4	-0.3	-0.8	-3.6	-4.0	-3.7	-2.7								
1995	-13.1	-18.0	-9.4	-0.1	-1.4	-4.3	-4.4	-4.5	-3.4	-1.8							
1996		-19.0	-9.8	0.6	-1.5	-4.8	-4.4	-5.6	-3.5	-1.9	-1.2						
1997			-10.0	0.5	-1.2	-4.5	-4.6	-4.8	-3.0	-1.9	-0.8	-0.8					
1998				0.3	-1.2	-4.3	-4.2	-4.1	-2.3	-1.5	-1.0	-1.0	-0.9				
1999					2.8	0.3	0.1	-0.1	2.4	2.9	2.8	2.8	3.5	3.8			
2000						-4.9	-5.7	-6.3	-3.1	-2.7	-2.7	-2.7	-2.4	-2.4	-2.2		
2001							1.6	0.2	4.3	4.5	4.9	4.9	4.4	4.3	4.0	3.0	

## ***Pennsylvania Electric Company***



**Pennsylvania Electric Company Service Territory**

### **Number of Customers**

Pennsylvania Electric Company (Penelec) provides service to nearly 583,000 electric utility customers in western and northern Pennsylvania.

### **Energy Sales**

In 2001, Penelec had energy sales totaling 13.2 billion kilowatthours (KWH) - down 3.2% from 2000. Commercial sales dominated Penelec's market with 34.4% of the total sales, followed by industrial (33.3%) and residential (30.2%).

### **Peak Load**

Penelec's 2001 summer peak load, occurring on August 9, 2001, was 2,337 megawatts (MW), representing a decrease of 6.8% from last year's summer peak of 2,508 MW. The 2001/02 winter peak load was 2,073 MW or 19.3% lower than the previous year's winter peak of 2,569 MW.

Between 1986 and 2001, Penelec's energy demand grew at an average rate of 1.3% per year. Residential and commercial sales have maintained relatively steady growth over the period (1.4% for residential and 3.3% for commercial), while

industrial sales have fluctuated greatly. Industrial sales for 2001 were 5.9% less than the 1986 level, or an average annual decrease of 0.4%.

### **Projected Load Growth**

The current 5-year projection of growth in total energy demand is 2.0%. This includes a residential growth rate of 1.1% and commercial and industrial growth rates of 2.3%. See Figure 5.1.

The actual average annual peak load growth rate over the past 15 years was 0.3%. Penelec's forecast shows its peak load increasing from 2,337 MW in 2001 to 2,465 MW in 2006. Penelec is now, marginally, a summer-peaking EDC.

Tables 5.1-5.4 provide Penelec's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

The trend in Penelec's short term forecasting error is similar for the residential and commercial sectors. Energy demand had been underestimated during the late 1980s and most of the 1990s. Underestimations in the industrial sector have been followed by overestimations in the 1990s. This analysis reflects averages of deviations in forecasts made 1 to 4 years in advance and are shown in Figure 5.2 in 4-year moving averages. Forecast error is calculated as a percentage of actual energy demand.

### **Additional Information**

Penelec was a wholly owned subsidiary of GPU. On November 7, 2001, GPU was merged with FirstEnergy Corporation, a holding company registered under the Public Utility Holding Company Act of 1935. Penelec is a member of the PJM Interconnection and the Mid-Atlantic Area Council.

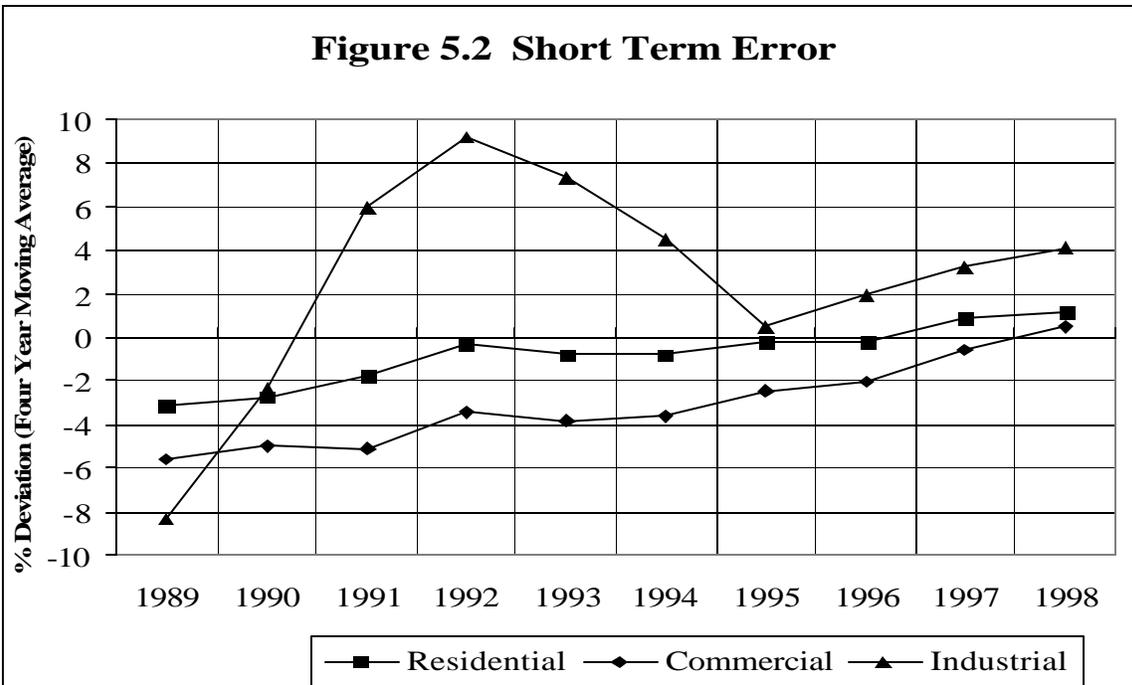
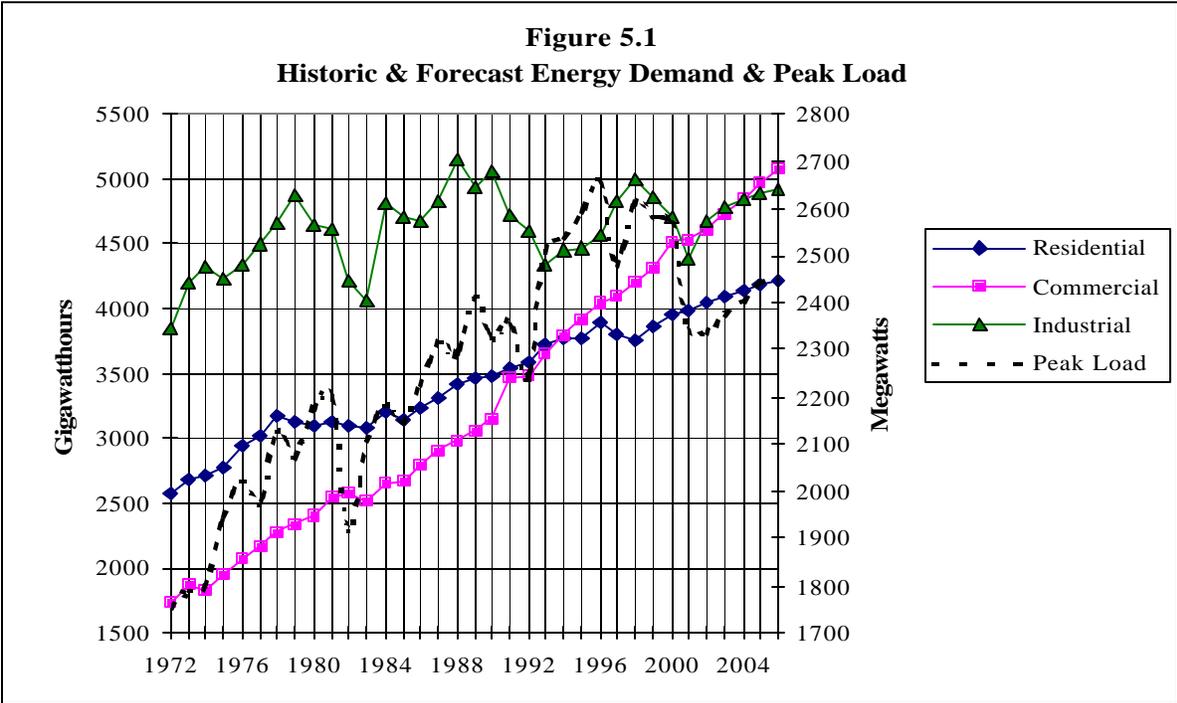
The final restructuring settlement between Penelec and various intervenors was approved by the Commission on October 16, 1998. The settlement provided that 100% of customers could choose another energy supplier beginning January 1, 1999. Penelec retains Provider of Last Resort (PLR) responsibility for those customers who choose not to shop. Beginning in June 2000, 20% of Penelec's PLR obligation was to be met by competitive default suppliers (CDS) chosen by competitive bid. The amount of PLR load served by CDS was to increase by 20% increments each year up to 80% of the load in June 2003. There were no bidders for the first 20% increment. Penelec increased the load available for CDS bid in June 2001 to 40%; again, however, no bids were received.

GPU has divested most of its generation facilities and negotiated short term contracts with the new owners: Edison Mission Energy, Sithe Energy (now Reliant) and Amergen. These contracts ended in 2001, except for an agreement with Reliant for capacity only through May 31, 2002.

In 2001, Penelec purchased approximately 3.1 billion KWH from cogeneration and small power production projects. Contract capacity (defined as PJM installed capacity credits) is 400 MW.

For calendar year 2001, 22 electric generation suppliers sold a total of 1.9 billion KWH to retail customers in Penelec's service territory, or about 14.3% of total consumption, down from 38.9% in 2000.

The only active conservation program is a low-income weatherization program, which includes the installation of a variety of weatherization measures in the homes of customers with electric heat and/or electric water heating and/or high baseload use. In addition, 31 time-of-day conversions were made. Over \$1.4 million was spent in 2001 for a peak load reduction of 100 KW and energy savings totaling 665,123 KWH.



**Table 5.1**

**Projected Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	2223	2160															
1987	2314	2150	2087														
1988	2295	2170	2076	2135													
1989	2415	2190	2078	2132	2129												
1990	2325	2200	2080	2125	2163	2388											
1991	2355	2230	2084	2135	2192	2422	2465										
1992	2240	2230	2092	2145	2221	2457	2509	2398									
1993	2514	2240	2099	2159	2240	2492	2542	2446	2425								
1994	2538	2250	2104	2170	2268	2528	2552	2480	2482	2519							
1995	2589	2260	2111	2184	2298	2562	2570	2512	2541	2578	2584						
1996	2652		2118	2185	2323	2596	2579	2539	2582	2651	2641	2706					
1997	2481			2199	2358	2627	2597	2560	2615	2727	2758	2743	2751				
1998	2613				2388	2660	2629	2590	2639	2717	2790	2728	2742	2688			
1999	2583					2692	2656	2617	2663	2775	2795	2769	2795	2730	2672		
2000	2569						2681	2636	2688	2808	2893	2818	2855	2772	2704	2651	
2001	2337							2660	2713	2842	2916	2867	2904	2813	2737	2675	2321
2002									2737	2875	2967	2914	2951	2853	2770	2700	2347
2003										2507	3056	2527	2564	2472	2804	2737	2373
2004											2526	2567	2604	2506		2760	2399
2005												2606	2643	2540			2425
2006													2682	2573			
2007														2606			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.8																
1987	-7.1	-9.8															
1988	-5.4	-9.5	-7.0														
1989	-9.3	-14.0	-11.7	-11.8													
1990	-5.4	-10.5	-8.6	-7.0	2.7												
1991	-5.3	-11.5	-9.3	-6.9	2.8	4.7											
1992	-0.4	-6.6	-4.2	-0.8	9.7	12.0	7.1										
1993	-10.9	-16.5	-14.1	-10.9	-0.9	1.1	-2.7	-3.5									
1994	-11.3	-17.1	-14.5	-10.6	-0.4	0.6	-2.3	-2.2	-0.7								
1995	-12.7	-18.5	-15.6	-11.2	-1.0	-0.7	-3.0	-1.9	-0.4	-0.2							
1996		-20.1	-17.6	-12.4	-2.1	-2.8	-4.3	-2.6	0.0	-0.4	2.0						
1997			-11.4	-5.0	5.9	4.7	3.2	5.4	9.9	11.2	10.6	10.9					
1998				-8.6	1.8	0.6	-0.9	1.0	4.0	6.8	4.4	4.9	2.9				
1999					4.2	2.8	1.3	3.1	7.4	8.2	7.2	8.2	5.7	3.4			
2000						4.4	2.6	4.6	9.3	12.6	9.7	11.1	7.9	5.3	3.2		
2001								13.8	16.1	21.6	24.8	22.7	24.3	20.4	17.1	14.5	-0.7

**Table 5.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																	
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
1986	3235	3257																	
1987	3310	3275	3236																
1988	3423	3295	3250	3310															
1989	3466	3314	3259	3332	3439														
1990	3489	3332	3256	3338	3481	3491													
1991	3553	3351	3242	3312	3526	3544	3550												
1992	3590	3371	3250	3328	3554	3585	3594	3690											
1993	3716	3392	3277	3337	3591	3619	3637	3735	3624										
1994	3773	3411	3284	3355	3626	3654	3675	3790	3665	3719									
1995	3765	3427	3291	3366	3660	3689	3709	3818	3710	3770	3772								
1996	3897		3303	3388	3694	3725	3731	3843	3751	3817	3820	3813							
1997	3801			3403	3727	3760	3762	3868	3789	3859	3876	3853	3853						
1998	3756				3762	3794	3794	3891	3820	3893	3920	3890	3890	3870					
1999	3864					3828	3822	3910	3847	3928	3961	3921	3921	3922	3894				
2000	3949							3850	3924	3868	3961	3999	3948	3948	3950	3931	3881		
2001	3991								3937	3887	3986	4030	3982	3979	3968	3915	3977		
2002											3905	4008	4064	4015	4015	4009	4007	3951	4021
2003												4036	4084	4046	4046	4039	4045	3984	4065
2004													4126	4077	4077	4069		4017	4109
2005														4109	4109	4099			4154
2006															4139	4129			
2007																4160			
2008																			

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	0.7																
1987	-1.1	-2.2															
1988	-3.7	-5.1	-3.3														
1989	-4.4	-6.0	-3.9	-0.8													
1990	-4.5	-6.7	-4.3	-0.2	0.1												
1991	-5.7	-8.8	-6.8	-0.8	-0.3	-0.1											
1992	-6.1	-9.5	-7.3	-1.0	-0.1	0.1	2.8										
1993	-8.7	-11.8	-10.2	-3.4	-2.6	-2.1	0.5	-2.5									
1994	-9.6	-13.0	-11.1	-3.9	-3.2	-2.6	0.5	-2.9	-1.4								
1995	-9.0	-12.6	-10.6	-2.8	-2.0	-1.5	1.4	-1.5	0.1	0.2							
1996		-15.2	-13.1	-5.2	-4.4	-4.3	-1.4	-3.7	-2.1	-2.0	-2.2						
1997			-10.5	-1.9	-1.1	-1.0	1.8	-0.3	1.5	2.0	1.4	1.4					
1998				0.2	1.0	1.0	3.6	1.7	3.7	4.4	3.6	3.6	3.0				
1999					-0.9	-1.1	1.2	-0.4	1.7	2.5	1.5	1.5	1.5	0.8			
2000						-2.5	-0.6	-2.0	0.3	1.3	0.0	0.0	0.0	-0.4	-1.7		
2001							-1.4	-2.6	-0.1	1.0	-0.2	-0.2	-0.3	-0.6	-1.9	-0.4	

**Table 5.3**

**Projected Commercial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	2791	2703																
1987	2910	2741	2788															
1988	2984	2779	2809	2873														
1989	3070	2815	2847	2916	3079													
1990	3150	2852	2885	2960	3152	3164												
1991	3475	2889	2920	3020	3228	3270	3226											
1992	3488	2926	2952	3081	3298	3379	3301	3549										
1993	3650	2962	2985	3140	3365	3454	3396	3644	3567									
1994	3794	2998	3018	3201	3439	3525	3483	3737	3651	3713								
1995	3922	3034	3052	3262	3534	3614	3547	3855	3734	3809	3828							
1996	4044		3082	3321	3605	3706	3600	3937	3756	3901	3934	4031						
1997	4098			3382	3720	3800	3673	4018	3807	3979	4041	4156	4156					
1998	4198				3800	3883	3753	4101	3862	4054	4131	4282	4282	4283				
1999	4319					3967	3828	4190	3915	4122	4212	4388	4388	4408	4347			
2000	4509							3901	4280	3968	4193	4292	4495	4495	4531	4459	4387	
2001	4538								4353	4034	4242	4389	4600	4658	4571	4473	4472	
2002										4108	4291	4486	4695	4695	4784	4684	4558	4549
2003											4333	4586	4795	4795	4908	4797	4643	4626
2004												4682	4898	4898	5031		4728	4704
2005													4995	4995	5152			4781
2006														5099	5270			
2007															5386			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-3.2																
1987	-5.8	-4.2															
1988	-6.9	-5.9	-3.7														
1989	-8.3	-7.3	-5.0	0.3													
1990	-9.5	-8.4	-6.0	0.1	0.4												
1991	-16.9	-16.0	-13.1	-7.1	-5.9	-7.2											
1992	-16.1	-15.4	-11.7	-5.4	-3.1	-5.4	1.7										
1993	-18.8	-18.2	-14.0	-7.8	-5.4	-7.0	-0.2	-2.3									
1994	-21.0	-20.5	-15.6	-9.4	-7.1	-8.2	-1.5	-3.8	-2.1								
1995	-22.6	-22.2	-16.8	-9.9	-7.9	-9.6	-1.7	-4.8	-2.9	-2.4							
1996		-23.8	-17.9	-10.9	-8.4	-11.0	-2.6	-7.1	-3.5	-2.7	-0.3						
1997			-17.5	-9.2	-7.3	-10.4	-1.9	-7.1	-2.9	-1.4	1.4	1.4					
1998				-9.5	-7.5	-10.6	-2.3	-8.0	-3.4	-1.6	2.0	2.0	2.0				
1999					-8.1	-11.4	-3.0	-9.3	-4.6	-2.5	1.6	1.6	2.1	0.7			
2000						-13.5	-5.1	-12.0	-7.0	-4.8	-0.3	-0.3	0.5	-1.1	-2.7		
2001							-4.1	-11.1	-6.5	-3.3	1.4	1.4	2.7	0.7	-1.4	-1.4	

**Table 5.4**

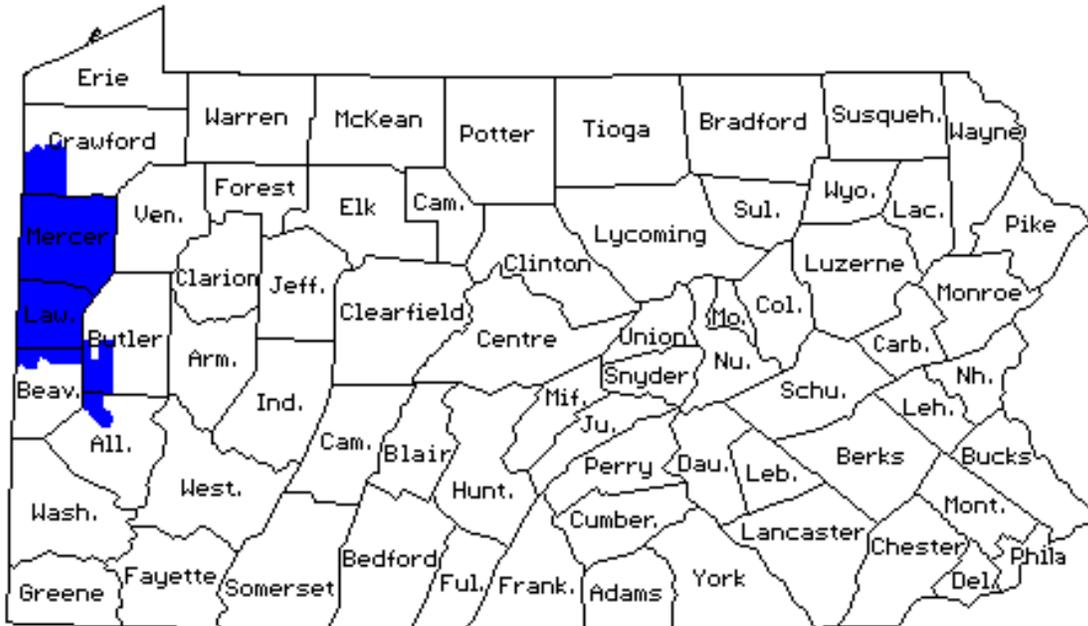
**Projected Industrial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	4665	4311															
1987	4828	4272	4145														
1988	5154	4307	4103	4554													
1989	4933	4343	4106	4204	5178												
1990	5058	4383	4112	4194	5269	5062											
1991	4718	4421	4117	4200	5374	5198	5062										
1992	4589	4460	4122	4200	5318	5277	5179	4443									
1993	4346	4497	4127	4200	5360	5330	5304	4302	4318								
1994	4449	4534	4134	4200	5403	5378	5394	4493	4561	4425							
1995	4463	4573	4136	4200	5446	5430	5441	4512	4631	4537	4538						
1996	4563		4141	4200	5488	5475	5477	4571	4664	4678	4632	4809					
1997	4836			4200	5531	5516	5530	4603	4703	4783	4796	5054	5054				
1998	4996				5574	5557	5593	4671	4737	4863	4854	5172	5172	4836			
1999	4866					5599	5674	4744	4779	4929	4912	5235	5235	4894	5047		
2000	4698						5753	4787	4797	4989	4960	5309	5309	4948	5114	5004	
2001	4392							4846	4824	5037	5008	5363	5363	5002	5205	5093	4857
2002									4847	5077	5057	5411	5411	5057	5293	5177	5144
2003										5116	5107	5460	5460	5113	5383	5239	5214
2004											5158	5515	5515	5169		5306	5244
2005												5570	5570	5226			5274
2006													5637	5284			
2007														5342			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-7.6																
1987	-11.5	-14.1															
1988	-16.4	-20.4	-11.6														
1989	-12.0	-16.8	-14.8	5.0													
1990	-13.3	-18.7	-17.1	4.2	0.1												
1991	-6.3	-12.7	-11.0	13.9	10.2	7.3											
1992	-2.8	-10.2	-8.5	15.9	15.0	12.9	-3.2										
1993	3.5	-5.0	-3.4	23.3	22.6	22.0	-1.0	-0.6									
1994	1.9	-7.1	-5.6	21.4	20.9	21.2	1.0	2.5	-0.5								
1995	2.5	-7.3	-5.9	22.0	21.7	21.9	1.1	3.8	1.7	1.7							
1996		-9.2	-8.0	20.3	20.0	20.0	0.2	2.2	2.5	1.5	5.4						
1997			-13.1	14.4	14.1	14.4	-4.8	-2.7	-1.1	-0.8	4.5	4.5					
1998				11.6	11.2	12.0	-6.5	-5.2	-2.7	-2.8	3.5	3.5	-3.2				
1999					15.1	16.6	-2.5	-1.8	1.3	0.9	7.6	7.6	0.6	3.7			
2000						22.5	1.9	2.1	6.2	5.6	13.0	13.0	5.3	8.9	6.5		
2001								10.3	9.8	14.7	14.0	22.1	22.1	13.9	18.5	16.0	10.6

## ***Pennsylvania Power Company***



**Pennsylvania Power Company Service Territory**

### **Number of Customers**

Pennsylvania Power Company (Penn Power) provides service to nearly 152,000 electric utility customers in western Pennsylvania.

### **Energy Sales**

In 2001, Penn Power had energy sales totaling 4.6 billion kilowatthours (KWH) - - a decrease of 0.4% from the 2000 figure. Industrial sales continued to dominate Penn Power's market with 33.2% of the total sales, followed by residential (30.0%) and commercial (26.4%).

### **Peak Load**

Penn Power's 2001 summer peak load, occurring on August 8, 2001, was 1,011 megawatts (MW), representing an increase of 14.2% from last year's peak of 885 MW. The 2001/02 winter peak load of 837 MW was 7.1% lower than the previous year's winter peak of 901 MW.

Between 1986 and 2001, Penn Power's energy demand grew at an average rate of 1.8% per year. Residential and commercial sales have maintained relatively steady growth over the period at rates of 2.8% and 4.9%, respectively. Industrial

sales have fluctuated considerably and, in 2001, were only 92.3% of the 1986 level, or an average annual decline of 0.5%.

### **Projected Load Growth**

The current 5-year projection of growth in total energy demand is 2.2%. This includes a residential growth rate of 2.8%, a commercial growth rate of 4.4% and an industrial rate of -0.2%. See Figure 6.1.

The actual average annual peak load growth rate over the past 15 years was 1.8%. Penn Power's forecast shows its peak load increasing from 1,011 MW in the summer of 2001 to 1,058 MW by 2006, or an average annual growth rate of 0.9%. Penn Power's peak load represents about 7.4% of FirstEnergy's peak load.

Tables 3.1-3.4 provide Penn Power's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

The overall trend in Penn Power's short term forecasting error for the residential and commercial sectors shows underestimations of between 5-10% during the 1990s. The industrial sector demand has been overestimated for most of the period of analysis. This analysis reflects averages of deviations in forecasts made 1 to 4 years in advance and are shown in Figure 6.2 in 4-year moving averages. Forecast error is calculated as a percentage of actual energy demand.

### **Additional Information**

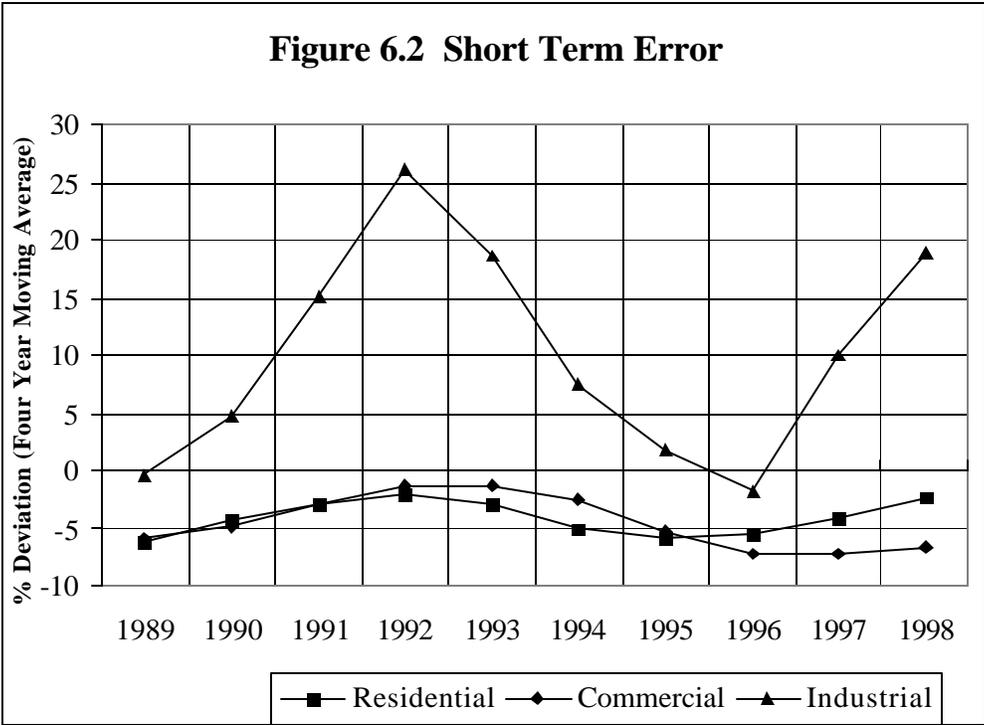
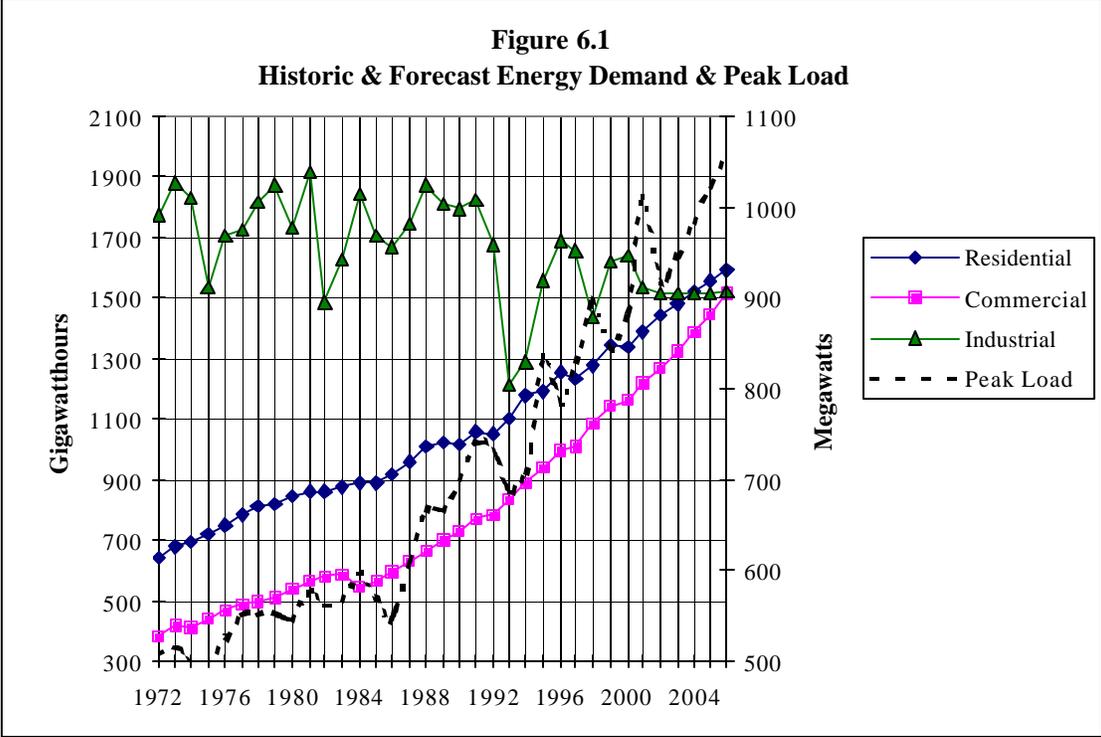
The electrical systems of Penn Power and the other FirstEnergy operating companies are interconnected and fully integrated. FirstEnergy has 13,285 MW of wholly owned generating capacity, of which 61% is coal-fired capacity and 29% is nuclear capacity. As of January 1, 2002, Penn Power owned 1,242 MW of the system's generating capacity. As a result of Penn Power's restructuring initiative, all generation is available competitively beginning in 2001.

For calendar year 2001, 9 electric generation suppliers sold a total of nearly 174 million KWH to retail customers in Penn Power's service territory or about 3.8% of total consumption, down from 12.5% in 2000. Penn Power purchased 228,000 KWH from an independent power producer in 2001.

While Penn Power is open to economic load reduction opportunities mutually beneficial to the customer and the company, it does not administer any load management or energy conservation programs on a generic basis. Penn Power

now offers an Experimental Power Curtailment Program (APX) and an Experimental Day Ahead Real Time Pricing Program (RTP) as experimental tariffs.

APX allows the customer to offer curtailed load for sale to Penn Power that can be sold in an open market. RTP provides the customer the option to manage its load by reacting to market-driven day ahead prices on an hourly basis, where the customer can reduce its load during periods of high energy prices, increase load to take advantage of market conditions or shift loads to periods of lower prices.



**Table 6.1**

**Projected Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed																	
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
1986	547	611																	
1987	611	618	665																
1988	666	624	670	644															
1989	667	630	654	663	664														
1990	700	636	659	675	670	651													
1991	739	642	664	684	674	656	647												
1992	733	648	669	693	690	705	679	675											
1993	688	654	646	701	722	716	690	684	603										
1994	706	660	651	711	743	732	705	698	608	655									
1995	835	665	656	722	763	745	721	713	625	670	717								
1996	784		661	730	783	754	739	729	641	680	752	759							
1997	829			741	800	765	757	747	654	689	792	781	781						
1998	895				820	776	770	759	677	703	807	804	804	902					
1999	845						789	795	784	693	717	825	831	830	919	880			
2000	885							807	796	711	732	844	858	858	937	897	935		
2001	1011									824	729	747	862	892	892	919	957	883	
2002											749	763	879	928	928	980	941	980	904
2003												777	897	962	962	1003	963	1003	930
2004													914	997	997	1026	983	1025	956
2005														1019	1019	1050			982
2006															977	1012			
2007																1036			
2008																			

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																		
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001			
1986	11.7																		
1987	1.1	8.8																	
1988	-6.3	0.6	-3.3																
1989	-5.5	-1.9	-0.6	-0.4															
1990	-9.1	-5.9	-3.6	-4.3	-7.0														
1991	-13.1	-10.1	-7.4	-8.8	-11.2	-12.4													
1992	-11.6	-8.7	-5.5	-5.9	-3.8	-7.4	-7.9												
1993	-4.9	-6.1	1.9	4.9	4.1	0.3	-0.6	-12.4											
1994	-6.5	-7.8	0.7	5.2	3.7	-0.1	-1.1	-13.9	-7.2										
1995	-20.4	-21.4	-13.5	-8.6	-10.8	-13.7	-14.6	-25.1	-19.8	-14.1									
1996		-15.7		-0.1	-3.8	-5.7	-7.0	-18.2	-13.3	-4.1	-3.2								
1997			-10.6	-3.5	-7.7	-8.7	-9.9	-21.1	-16.9	-4.5	-5.8	-5.8							
1998				-8.4	-13.3	-14.0	-15.2	-24.4	-21.5	-9.8	-10.2	-10.2	0.8						
1999					-6.6	-5.9	-7.2	-18.0	-15.1	-2.4	-1.7	-1.8	8.8	4.1					
2000						-8.8	-10.1	-19.7	-17.3	-4.6	-3.1	-3.1	5.9	1.4	5.6				
2001								-18.5	-27.9	-26.1	-14.7	-11.8	-11.8	-5.2	-9.1	-5.3	-12.7		

**Table 6.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	922	901															
1987	961	912	912														
1988	1008	923	922	954													
1989	1024	934	928	968	1005												
1990	1020	945	934	955	1023	1057											
1991	1060	956	940	962	973	1067	1050										
1992	1050	967	946	969	977	1073	1068	1059									
1993	1105	978	952	976	992	1079	1085	1084	1081								
1994	1178	989	958	986	1007	1085	1101	1099	1094	1103							
1995	1195	999	964	994	1022	1091	1111	1107	1105	1126	1166						
1996	1254		970	1004	1037	1097	1121	1116	1113	1130	1179	1211					
1997	1238			1011	1053	1103	1131	1126	1122	1132	1189	1238	1238				
1998	1278				1069	1110	1145	1137	1139	1142	1195	1265	1265	1300			
1999	1351					1116	1156	1150	1151	1152	1201	1292	1292	1318	1300		
2000	1341						1168	1162	1162	1162	1220	1320	1320	1336	1319	1390	
2001	1391							1174	1175	1179	1235	1373	1373	1355	1339	1412	1360
2002									1188	1196	1251	1430	1430	1374	1360	1434	1395
2003										1207	1267	1459	1459	1398	1381	1457	1430
2004											1283	1488	1488	1423	1403	1479	1451
2005												1502	1502	1445			1473
2006													1516	1467			
2007														1494			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.3																
1987	-5.1	-5.1															
1988	-8.4	-8.5	-5.4														
1989	-8.8	-9.4	-5.5	-1.9													
1990	-7.4	-8.4	-6.4	0.3	3.6												
1991	-9.8	-11.3	-9.2	-8.2	0.7	-0.9											
1992	-7.9	-9.9	-7.7	-7.0	2.2	1.7	0.9										
1993	-11.5	-13.8	-11.7	-10.2	-2.4	-1.8	-1.9	-2.2									
1994	-16.0	-18.7	-16.3	-14.5	-7.9	-6.5	-6.7	-7.1	-6.4								
1995	-16.4	-19.3	-16.8	-14.5	-8.7	-7.0	-7.4	-7.5	-5.8	-2.4							
1996		-22.6	-19.9	-17.3	-12.5	-10.6	-11.0	-11.2	-9.9	-6.0	-3.4						
1997			-18.3	-14.9	-10.9	-8.6	-9.0	-9.4	-8.6	-4.0	0.0	0.0					
1998				-16.4	-13.1	-10.4	-11.0	-10.9	-10.6	-6.5	-1.0	-1.0	1.7				
1999					-17.4	-14.4	-14.9	-14.8	-14.7	-11.1	-4.4	-4.4	-2.4	-3.8			
2000						-12.9	-13.3	-13.3	-13.3	-9.0	-1.6	-1.6	-0.4	-1.6	3.7		
2001							-15.6	-15.5	-15.2	-11.2	-1.3	-1.3	-2.6	-3.7	1.5	-2.3	

**Table 6.3**

**Projected Commercial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	598	581															
1987	628	598	613														
1988	668	615	637	640													
1989	698	632	652	663	679												
1990	732	649	667	697	700	731											
1991	772	667	683	716	695	750	758										
1992	782	686	698	732	720	770	811	791									
1993	831	704	714	748	776	790	868	867	812								
1994	891	723	730	765	816	827	901	900	832	850							
1995	938	742	747	782	860	858	934	933	870	881	893						
1996	996		763	800	901	879	971	968	905	897	903	936					
1997	1013			819	947	898	1008	1006	941	914	928	970	970				
1998	1090				989	919	1050	1048	978	934	953	1010	1010	1042			
1999	1143					941	1093	1090	1015	955	976	1054	1054	1074	1110		
2000	1164						1140	1138	1052	977	1008	1103	1103	1108	1145	1204	
2001	1220							1183	1089	999	1039	1167	1167	1143	1181	1242	1162
2002									1124	1021	1070	1238	1238	1182	1221	1284	1206
2003										1042	1101	1314	1314	1221	1262	1327	1251
2004											1131	1395	1395	1262	1304	1372	1293
2005												1436	1436	1304			1335
2006													1478	1348			
2007														1392			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.8																
1987	-4.8	-2.4															
1988	-7.9	-4.6	-4.2														
1989	-9.5	-6.6	-5.0	-2.7													
1990	-11.3	-8.9	-4.8	-4.4	-0.1												
1991	-13.6	-11.5	-7.3	-10.0	-2.8	-1.8											
1992	-12.3	-10.7	-6.4	-7.9	-1.5	3.7	1.2										
1993	-15.3	-14.1	-10.0	-6.6	-4.9	4.5	4.3	-2.3									
1994	-18.9	-18.1	-14.1	-8.4	-7.2	1.1	1.0	-6.6	-4.6								
1995	-20.9	-20.4	-16.6	-8.3	-8.5	-0.4	-0.5	-7.2	-6.1	-4.8							
1996		-23.4	-19.7	-9.5	-11.7	-2.5	-2.8	-9.1	-9.9	-9.3	-6.0						
1997			-19.2	-6.5	-11.4	-0.5	-0.7	-7.1	-9.8	-8.4	-4.2	-4.2					
1998				-9.3	-15.7	-3.7	-3.9	-10.3	-14.3	-12.6	-7.3	-7.3	-4.4				
1999					-17.7	-4.4	-4.6	-11.2	-16.4	-14.6	-7.8	-7.8	-6.0	-2.9			
2000						-2.0	-2.2	-9.6	-16.0	-13.4	-5.2	-5.2	-4.8	-1.6	3.5		
2001							-3.0	-10.7	-18.1	-14.8	-4.3	-4.3	-6.3	-3.2	1.8	-4.8	

**Table 6.4**

**Projected Industrial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	1668	1778															
1987	1748	1792	1654														
1988	1878	1805	1673	1716													
1989	1809	1819	1692	1721	1896												
1990	1795	1832	1711	1684	1920	1856											
1991	1823	1845	1731	1711	1974	1888	1875										
1992	1675	1858	1750	1735	2032	1951	1931	1814									
1993	1212	1870	1770	1742	2096	1996	1977	1952	1152								
1994	1293	1882	1789	1776	2125	2041	2018	1979	1104	1170							
1995	1558	1893	1809	1809	2174	2078	2060	2008	1132	1163	1499						
1996	1693		1828	1817	2225	2113	2106	2041	1178	1187	1703	1894					
1997	1659			1848	2256	2150	2149	2084	1218	1208	1902	1967	1967				
1998	1436				2316	2191	2190	2125	1255	1242	1935	2002	2002	1677			
1999	1619					2229	2233	2169	1293	1273	1966	2043	2043	1716	1483		
2000	1643						2278	2213	1329	1305	2002	2082	2082	1759	1520	1563	
2001	1539							2259	1373	1337	2039	2138	2138	1803	1558	1596	1618
2002									1413	1377	2077	2184	2184	1847	1596	1635	1644
2003										1409	2114	2230	2230	1890	1633	1673	1677
2004											2149	2273	2273	1933	1670	1711	1716
2005												2314	2314	1981			1758
2006													2357	2029			
2007														2076			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	6.6																
1987	2.5	-5.4															
1988	-3.9	-10.9	-8.6														
1989	0.6	-6.5	-4.9	4.8													
1990	2.1	-4.7	-6.2	7.0	3.4												
1991	1.2	-5.0	-6.1	8.3	3.6	2.9											
1992	10.9	4.5	3.6	21.3	16.5	15.3	8.3										
1993	54.3	46.0	43.7	72.9	64.7	63.1	61.1	-5.0									
1994	45.6	38.4	37.4	64.3	57.8	56.1	53.1	-14.6	-9.5								
1995	21.5	16.1	16.1	39.5	33.4	32.2	28.9	-27.3	-25.4	-3.8							
1996		8.0	7.3	31.4	24.8	24.4	20.6	-30.4	-29.9	0.6	11.9						
1997			11.4	36.0	29.6	29.5	25.6	-26.6	-27.2	14.6	18.6	18.6					
1998				61.3	52.6	52.5	48.0	-12.6	-13.5	34.7	39.4	39.4	16.8				
1999					37.7	37.9	34.0	-20.1	-21.4	21.4	26.2	26.2	6.0	-8.4			
2000						38.6	34.7	-19.1	-20.6	21.9	26.7	26.7	7.1	-7.5	-4.8		
2001								46.8	-10.8	-13.1	32.5	38.9	38.9	17.2	1.2	3.7	5.1



Between 1986 and 2001, PPL's energy demand grew an average of 2.4% per year. Residential energy sales grew at an annual rate of 2.3%, commercial at a 3.4% rate and industrial at 1.7%.

### **Projected Load Growth**

The current 5-year projection of average growth in energy demand is 1.8%. This includes growth rates of 1.1% for residential, 1.4% for commercial and 3.0% for industrial. See Figure 7.1.

The actual average annual peak load growth rate over the past 15 years was 1.3%. PPL's 5-year winter peak load forecast scenario shows the peak load increasing from 7,000 MW in 2002/03 to 7,200 MW in the winter of 2006/07 at an average annual rate of 0.7%. Although the summer peak of 2001 exceeded the following winter peak by 7.4%, PPL expects to remain winter peaking during the forecast period.

Tables 7.1-7.4 provide PPL's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

The overall trend in PPL's forecasts indicates a decline in short term error for all three major customer classes. Energy demand has tended to be underestimated throughout most of the analysis period for the commercial and industrial sectors. The analysis reflects averages of deviations in forecasts made 1 to 4 years in advance and are shown in Figure 7.2 in 4-year moving averages. Forecast error is computed as a percentage of actual energy demand.

### **Additional Information**

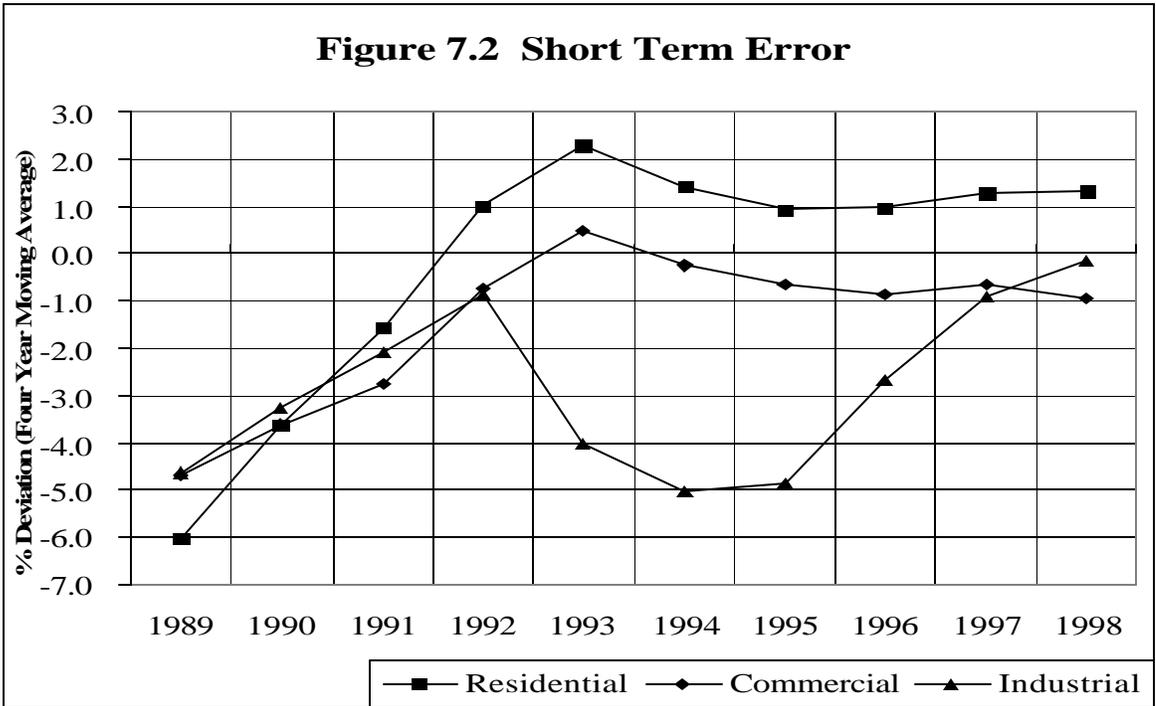
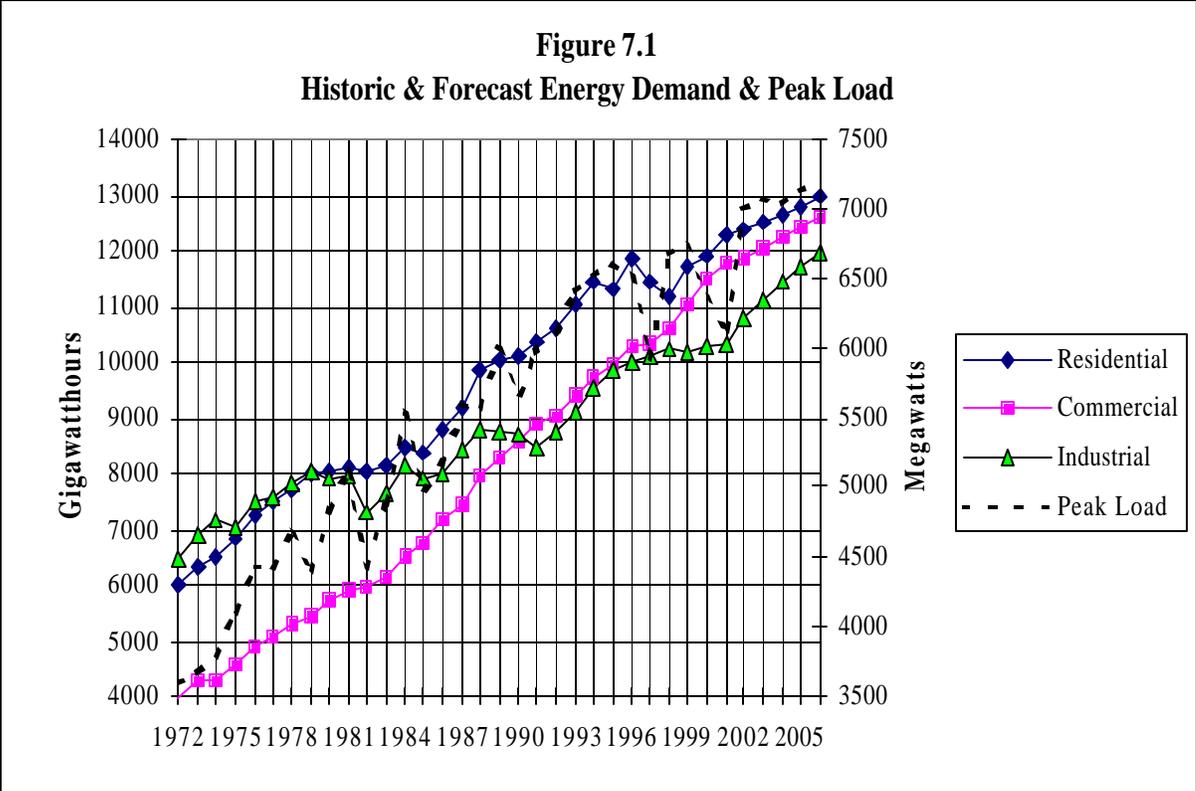
Net operable generating capacity of 7,898 MW includes 45.9% coal-fired capacity and 24.9% nuclear capacity. Independent power producers also provided 334 MW to the system. In 2001, PPL purchased over 2.7 billion KWH from cogeneration and independent power production facilities.

For calendar year 2001, 21 electric generation suppliers sold a total of approximately 1.0 billion KWH to retail customers in PPL's service territory, or about 2.9% of total consumption, down from 26.5% in 2000.

For 2001, PPL reported a peak load reduction of 283 MW and energy savings of 2.2 million KWH, resulting from its Interruptible Service – Economic Provisions tariff schedule. Interruptible Service – Emergency Provisions reduced load by 297 MW and saved 4.4 million KWH. Customers reducing load for either economic or emergency conditions receive significant rate discounts.

PPL's Price Response Service permits customers to respond to market price signals by reducing a portion of their loads. In 2001, an estimated 6,700 KW peak load reduction was achieved, with energy savings totaling 213,000 KWH.

PPL is a member of PJM and MAAC.



**Table 7.1**

**Projected Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	5154	5250																
1987	5591	5350	5350															
1988	5566	5460	5460	5315														
1989	6000	5585	5585	5370	5785													
1990	5661	5715	5715	5425	5900	6055												
1991	5974	5835	5835	5495	6075	6250	6035											
1992	6130	5965	5965	5590	6275	6440	6160	6165										
1993	6403	6095	6095	5685	6455	6635	6315	6325	6280									
1994	6508	6215	6215	5775	6625	6765	6470	6480	6345	6406								
1995	6607	6345	6345	5845	6740	6905	6625	6685	6430	6531	6435							
1996	6506		6465	5955	6845	7025	6770	6820	6565	6581	6500	6830						
1997	5925			6060	6940	7145	6905	6955	6668	6711	6625	6920	6910					
1998	6688				7030	7265	7040	7085	6813	6846	6760	7055	6935	6910				
1999	6746					7375	7155	7210	6938	6991	6895	7190	7030	6935	6815			
2000	6355						7280	7325	7063	7126	7040	7315	7120	7030	6905	6580		
2001	6131							7445	7188	7251	7175	7450	7130	7120	7006	6680	6850	
2002										7308	7396	7310	7590	7250	7130	7040	6770	6960
2003											7526	7455	7725	7350	7250	7140	6860	7060
2004												7585	7860	7470	7350		6960	7170
2005													8040	7580	7470			7270
2006														7690	7580			
2007															7690			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	1.9																
1987	-4.3	-4.3															
1988	-1.9	-1.9	-4.5														
1989	-6.9	-6.9	-10.5	-3.6													
1990	1.0	1.0	-4.2	4.2	7.0												
1991	-2.3	-2.3	-8.0	1.7	4.6	1.0											
1992	-2.7	-2.7	-8.8	2.4	5.1	0.5	0.6										
1993	-4.8	-4.8	-11.2	0.8	3.6	-1.4	-1.2	-1.9									
1994	-4.5	-4.5	-11.3	1.8	3.9	-0.6	-0.4	-2.5	-1.6								
1995	-4.0	-4.0	-11.5	2.0	4.5	0.3	1.2	-2.7	-1.2	-2.6							
1996		-0.6	-8.5	5.2	8.0	4.1	4.8	0.9	1.2	-0.1	5.0						
1997			2.3	17.1	20.6	16.5	17.4	12.5	13.3	11.8	16.8	16.6					
1998				5.1	8.6	5.3	5.9	1.9	2.4	1.1	5.5	3.7	3.3				
1999					9.3	6.1	6.9	2.8	3.6	2.2	6.6	4.2	2.8	1.0			
2000						14.6	15.3	11.1	12.1	10.8	15.1	12.0	10.6	8.7	3.5		
2001								21.4	17.2	18.3	17.0	21.5	16.3	16.1	14.3	9.0	11.7

**Table 7.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	8771	8670															
1987	9157	8810	8920														
1988	9856	8960	9131	9010													
1989	10061	9120	9358	9130	9600												
1990	10103	9280	9635	9270	9790	10480											
1991	10385	9460	9912	9410	9960	10790	10760										
1992	10604	9640	10188	9540	10130	11090	11030	10823									
1993	11043	9820	10465	9680	10290	11370	11310	11135	10990								
1994	11444	9990	10764	9830	10430	11590	11590	11425	11480	11220							
1995	11300	10160	11061	9980	10580	11780	11870	11715	11700	11420	11290						
1996	11848		11362	10140	10710	11960	12130	11955	11920	11630	11450	11475					
1997	11434			10300	10840	12120	12360	12195	12140	11850	11620	11640	11690				
1998	11156				10960	12280	12580	12435	12360	12070	11800	11815	11760	11690			
1999	11704					12420	12790	12655	12570	12290	11980	11980	11830	11760	11740		
2000	11923						12995	12850	12780	12500	12160	12145	11910	11830	11850	12031	
2001	12269							13040	12980	12700	12330	12320	12020	11910	11980	12150	12176
2002									13170	12910	12510	12495	12160	12020	12120	12280	12324
2003										13110	12690	12680	12290	12160	12260	12421	12478
2004											12870	12865	12430	12290		12562	12634
2005												13040	12570	12430			12799
2006													12710	12570			
2007														12710			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-1.2																
1987	-3.8	-2.6															
1988	-9.1	-7.4	-8.6														
1989	-9.4	-7.0	-9.3	-4.6													
1990	-8.1	-4.6	-8.2	-3.1	3.7												
1991	-8.9	-4.6	-9.4	-4.1	3.9	3.6											
1992	-9.1	-3.9	-10.0	-4.5	4.6	4.0	2.1										
1993	-11.1	-5.2	-12.3	-6.8	3.0	2.4	0.8	-0.5									
1994	-12.7	-5.9	-14.1	-8.9	1.3	1.3	-0.2	0.3	-2.0								
1995	-10.1	-2.1	-11.7	-6.4	4.2	5.0	3.7	3.5	1.1	-0.1							
1996		-4.1	-14.4	-9.6	0.9	2.4	0.9	0.6	-1.8	-3.4	-3.2						
1997			-9.9	-5.2	6.0	8.1	6.7	6.2	3.6	1.6	1.8	2.2					
1998				-1.8	10.1	12.8	11.5	10.8	8.2	5.8	5.9	5.4	4.8				
1999					6.1	9.3	8.1	7.4	5.0	2.4	2.4	1.1	0.5	0.3			
2000						9.0	7.8	7.2	4.8	2.0	1.9	-0.1	-0.8	-0.6	0.9		
2001							6.3	5.8	3.5	0.5	0.4	-2.0	-2.9	-2.4	-1.0	-0.8	

**Table 7.3**

**Projected Commercial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	7158	7070															
1987	7457	7320	7400														
1988	7932	7590	7700	7505													
1989	8285	7900	8010	7660	8005												
1990	8538	8220	8290	7795	8142	8600											
1991	8861	8540	8570	7990	8264	8928	8880										
1992	9039	8860	8840	8175	8417	9240	9180	9117									
1993	9373	9180	9100	8360	8561	9521	9480	9410	9320								
1994	9715	9500	9360	8545	8736	9797	9775	9690	9660	9540							
1995	9948	9820	9620	8730	8901	10052	10070	9980	9920	9770	9830						
1996	10288		9880	8915	9066	10297	10360	10275	10210	10010	10090	10100					
1997	10309			9100	9230	10532	10620	10535	10480	10260	10355	10350	10490				
1998	10597				9383	10748	10865	10785	10760	10520	10625	10610	10740	10490			
1999	11002					10918	11105	11040	11030	10780	10910	10885	11000	10740	10740		
2000	11477						11345	11290	11300	11045	11200	11165	11280	11000	10980	11090	
2001	11778							11540	11560	11315	11490	11445	11560	11280	11240	11275	11291
2002									11820	11585	11780	11725	11870	11560	11500	11444	11431
2003										11855	12065	11995	12140	11870	11760	11612	11561
2004											12345	12265	12410	12140		11782	11699
2005												12525	12680	12410			11848
2006													12940	12680			
2007														12940			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-1.2																
1987	-1.8	-0.8															
1988	-4.3	-2.9	-5.4														
1989	-4.6	-3.3	-7.5	-3.4													
1990	-3.7	-2.9	-8.7	-4.6	0.7												
1991	-3.6	-3.3	-9.8	-6.7	0.8	0.2											
1992	-2.0	-2.2	-9.6	-6.9	2.2	1.6	0.9										
1993	-2.1	-2.9	-10.8	-8.7	1.6	1.1	0.4	-0.6									
1994	-2.2	-3.7	-12.0	-10.1	0.8	0.6	-0.3	-0.6	-1.8								
1995	-1.3	-3.3	-12.2	-10.5	1.0	1.2	0.3	-0.3	-1.8	-1.2							
1996		-4.0	-13.3	-11.9	0.1	0.7	-0.1	-0.8	-2.7	-1.9	-1.8						
1997			-11.7	-10.5	2.2	3.0	2.2	1.7	-0.5	0.4	0.4	1.8					
1998				-11.5	1.4	2.5	1.8	1.5	-0.7	0.3	0.1	1.3	-1.0				
1999					-0.8	0.9	0.3	0.3	-2.0	-0.8	-1.1	0.0	-2.4	-2.4			
2000						-1.2	-1.6	-1.5	-3.8	-2.4	-2.7	-1.7	-4.2	-4.3	-3.4		
2001							-2.0	-1.9	-3.9	-2.4	-2.8	-1.9	-4.2	-4.6	-4.3	-4.1	

**Table 7.4**

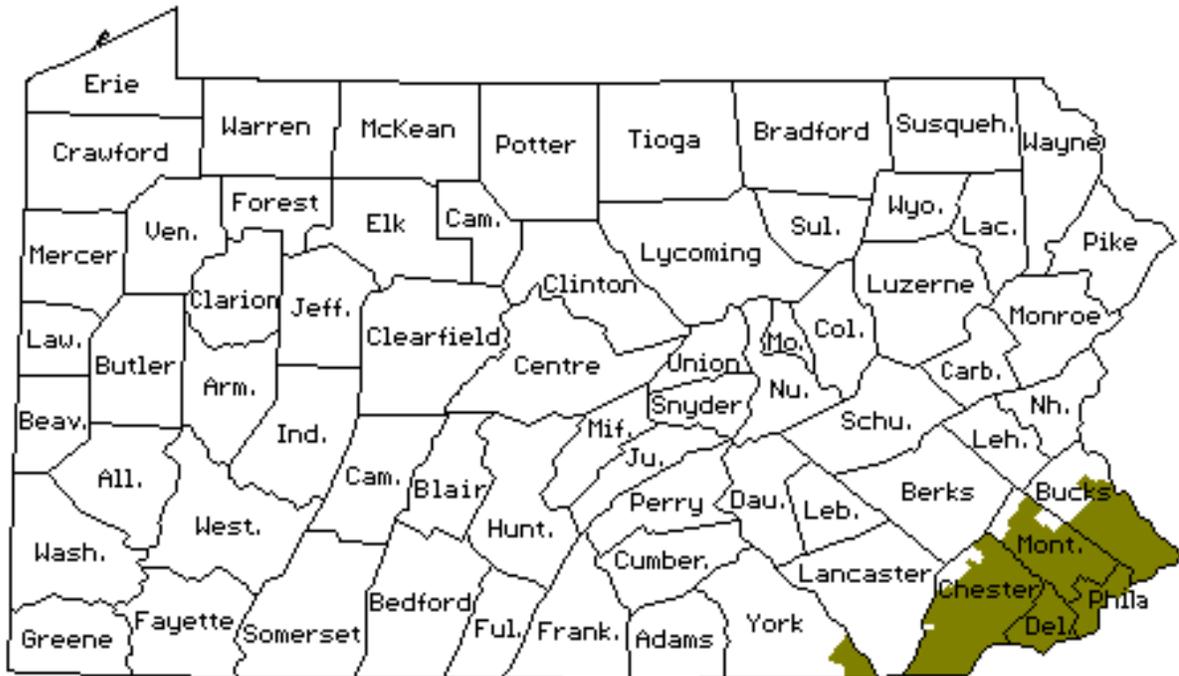
**Projected Industrial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	7986	7970																
1987	8438	8035	8036															
1988	8799	8130	7969	7757														
1989	8723	8225	8002	7652	9050													
1990	8716	8315	8000	7513	9075	8710												
1991	8456	8405	8140	7505	9188	8748	8505											
1992	8746	8490	8350	7578	9376	8860	8635	8445										
1993	9100	8575	8570	7660	9459	9014	8755	8540	8790									
1994	9536	8660	8790	7743	9534	9062	8875	8665	8910	9390								
1995	9845	8755	8990	7825	9599	9154	8995	8785	9020	9570	9685							
1996	10016		9210	7918	9664	9237	9115	8910	9130	9565	9675	9900						
1997	10078			8030	9745	9350	9225	9020	9240	9695	9885	10150	10070					
1998	10220				9807	9453	9335	9135	9350	9830	10070	10405	10110	10070				
1999	10179					9593	9445	9260	9450	9965	10260	10600	10270	10110	10190			
2000	10280						9555	9380	9650	10100	10445	10795	10440	10270	10350	10543		
2001	10319							9495	9650	10240	10635	10990	10610	10440	10520	10836	10963	
2002										9750	10380	10830	11190	10790	10610	10690	11077	11255
2003											10520	11040	11400	10960	10790	10860	11295	11521
2004												11245	11615	11140	10960		11498	11777
2005													11825	11320	11140			12010
2006														11510	11320			
2007															11510			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-0.2																
1987	-4.8	-4.8															
1988	-7.6	-9.4	-11.8														
1989	-5.7	-8.3	-12.3	3.7													
1990	-4.6	-8.2	-13.8	4.1	-0.1												
1991	-0.6	-3.7	-11.2	8.7	3.5	0.6											
1992	-2.9	-4.5	-13.4	7.2	1.3	-1.3	-3.4										
1993	-5.8	-5.8	-15.8	3.9	-0.9	-3.8	-6.2	-3.4									
1994	-9.2	-7.8	-18.8	0.0	-5.0	-6.9	-9.1	-6.6	-1.5								
1995	-11.1	-8.7	-20.5	-2.5	-7.0	-8.6	-10.8	-8.4	-2.8	-1.6							
1996		-8.0	-20.9	-3.5	-7.8	-9.0	-11.0	-8.8	-4.5	-3.4	-1.2						
1997			-20.3	-3.3	-7.2	-8.5	-10.5	-8.3	-3.8	-1.9	0.7	-0.1					
1998				-4.0	-7.5	-8.7	-10.6	-8.5	-3.8	-1.5	1.8	-1.1	-1.5				
1999					-5.8	-7.2	-9.0	-7.2	-2.1	0.8	4.1	0.9	-0.7	0.1			
2000						-7.1	-8.8	-7.1	-1.8	1.6	5.0	1.6	-0.1	0.7	2.6		
2001							-8.0	-6.5	-0.8	3.1	6.5	2.8	1.2	1.9	5.0	6.2	

## **PECO Energy Company**



PECO Energy Company Service Territory

### **Number of Customers**

PECO Energy Company (PECO) provides service to over 1.5 million electric utility customers in southeastern Pennsylvania.

### **Energy Sales**

In 2001, PECO had total retail energy sales of 35.0 billion kilowatthours (KWH) -- down 1.2% from 2000. Industrial sales continued to dominate PECO's market with 43.7% of the total sales, followed by residential (31.9%) and commercial (21.7%).

### **Peak Load**

PECO's 2001 summer peak load, occurring on August 9, 2001, was 7,948 megawatts (MW), representing an increase of 8.4% from last year's peak of 7,333 MW, but only 1.2% greater than the 1999 peak load. The 2001/02 winter peak demand was 5,997 MW or 2.0% above the previous winter's peak of 5,878 MW.

Between 1986 and 2001 PECO's energy demand grew an average of 1.3% per year. Residential energy sales grew at an annual rate of 1.5%, commercial at a 4.3% rate and industrial at 0.1%.

### **Projected Load Growth**

The current 5-year projection of growth in energy demand is 1.1%. This includes an annual growth rate of 1.5% for residential, 2.1% for commercial and 0.2% for industrial. See Figure 8.1.

The actual average annual peak demand growth rate over the past fifteen years was 1.3%. PECO's current forecast shows the peak load increasing from the actual 2001 summer peak load of 7,948 MW to 8,271 MW in the summer of 2006, or an annual growth rate of 0.8%.

Tables 8.1-8.4 provide PECO's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

The trends in PECO's short term forecasting error are similar for each customer group. Residential and commercial energy demand has tended to be underestimated throughout the analysis period. The analysis reflects averages of deviations in forecasts made one to four years in advance and are shown in Figure 8.2 in four-year moving averages. Forecast error is computed as a percentage of actual energy demand.

### **Additional Information**

Net operable capacity of 9,463 MW includes 45.6% nuclear capacity and 15.2% coal-fired capacity. This capacity is owned by Exelon. PECO has entered into a Purchased Power Agreement with Exelon Generation to provide its provider-of-last-resort load throughout the forecast period.

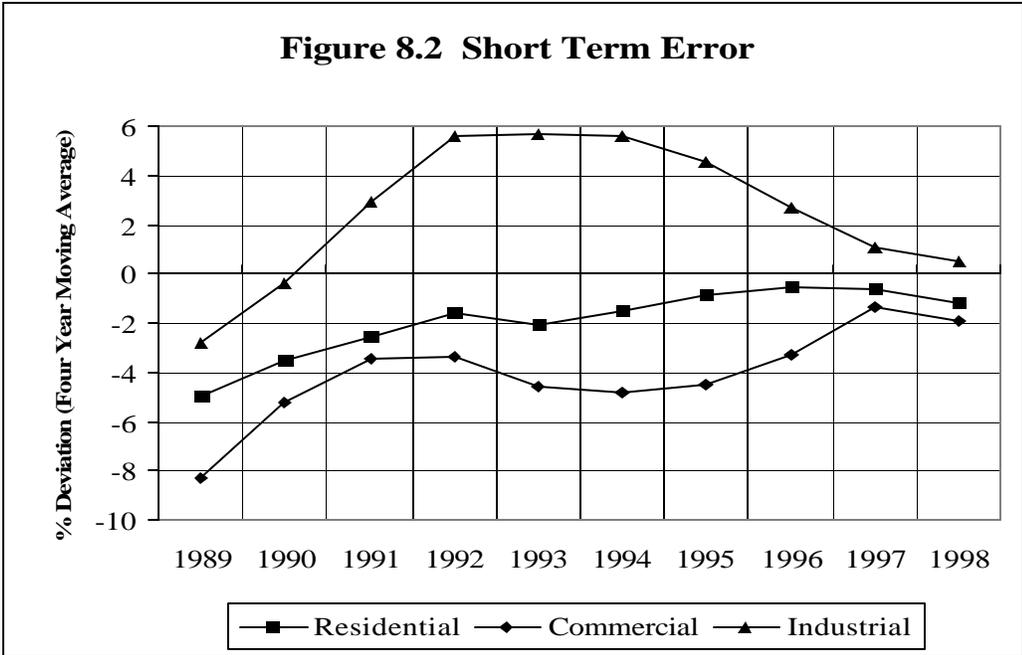
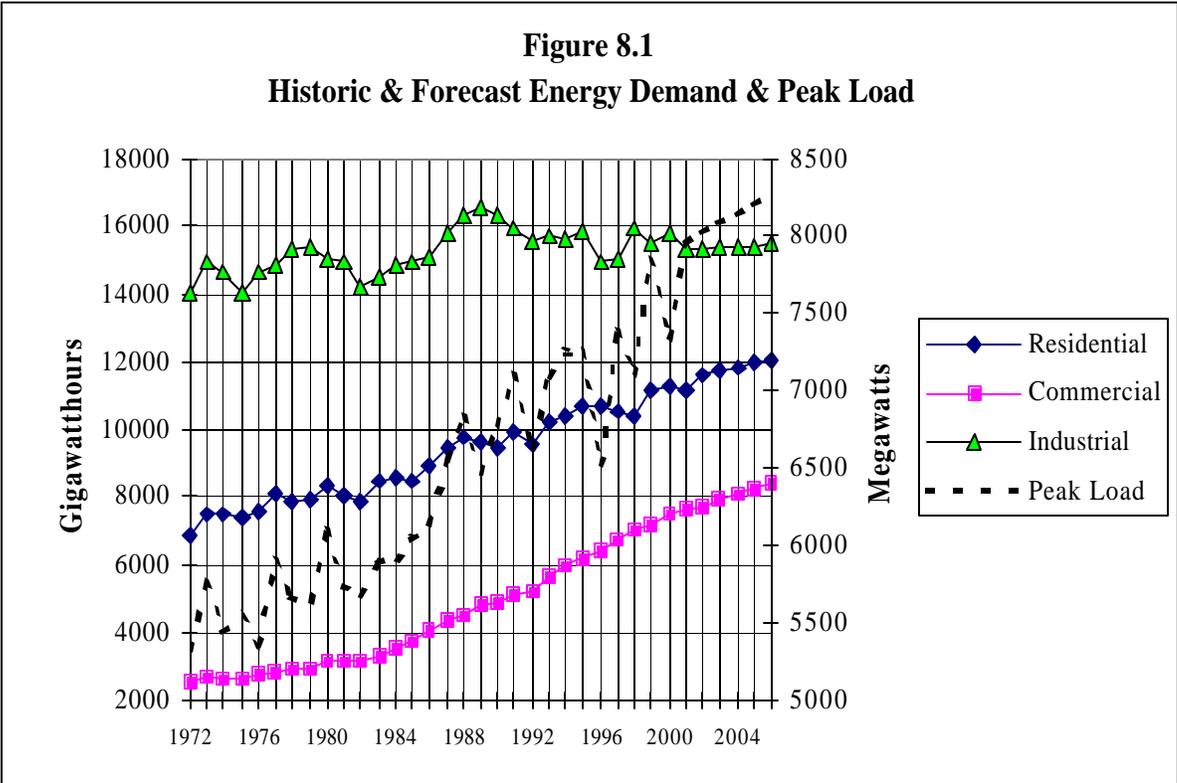
In 2001, PECO purchased over 7.5 billion KWH from cogeneration and independent power production facilities.

For calendar year 2001, electric generation suppliers sold a total of 7.3 billion KWH to retail customers in PECO's service territory or about 20.8% of total consumption, down from 38.3% in 2000. On the summer peak day, electric generation suppliers represented a load of 1,113 MW.

PECO has developed commercial and industrial rate incentive programs to encourage customers to manage their energy demands and usage consistent with system capabilities. During 2001, the peak load reduction resulting from this rate option was 122 MW.

PECO continues the Low-Income Usage Reduction Program, as well as the Customer Assistance Program. Combined energy savings were estimated at 548 million KWH, with 2001 total expenditures of \$8.2 million.

PECO is a member of the PJM Interconnection.



**Table 8.1**

**Projections of Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	6135	6160															
1987	6547	6180	5980														
1988	6826	6200	6020	6140													
1989	6467	6220	6060	6170	6450												
1990	6760	6240	6110	6220	6530	6525											
1991	7096	6260	6160	6270	6610	6590	6674										
1992	6617	6320	6210	6320	6690	6650	6781	6745									
1993	7100	6380	6260	6370	6770	6725	6853	6825	6626								
1994	7227	6440	6310	6400	6850	6790	6924	6896	6705	6645							
1995	7246	6500	6360	6440	6915	6855	6992	6962	6777	6731	6671.2						
1996	6509		6410	6480	6980	6930	7057	7028	6845	6815	6598.8	6811					
1997	7390			6520	7045	7000	7125	7093	6910	6897	6677	6868	6868				
1998	7108				7110	7075	7198	7166	6975	6975	6750.7	6973	6973	6973			
1999	7850					7165	7280	7244	7046	7052	6825.2	7063	7063	7063	7063		
2000	7333						7366	7324	7125	7135	6904.7	7135	7135	7135	7135	7339	
2001	7948							7415	7206	7226	6988.7	7233	7233	7233	7398	7392	
2002									7295	7317	7076.9	7308	7308	7308	7308	7457	7451
2003										7411	7166.4	7387	7387	7387	7387	7517	7510
2004											7255.9	7466	7466	7466		7577	7570
2005												7547	7547	7547			7631
2006													7629	7629			
2007														7711			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	0.4																
1987	-5.6	-8.7															
1988	-9.2	-11.8	-10.0														
1989	-3.8	-6.3	-4.6	-0.3													
1990	-7.7	-9.6	-8.0	-3.4	-3.5												
1991	-11.8	-13.2	-11.6	-6.8	-7.1	-5.9											
1992	-4.5	-6.2	-4.5	1.1	0.5	2.5	1.9										
1993	-10.1	-11.8	-10.3	-4.6	-5.3	-3.5	-3.9	-6.7									
1994	-10.9	-12.7	-11.4	-5.2	-6.0	-4.2	-4.6	-7.2	-8.1								
1995	-10.3	-12.2	-11.1	-4.6	-5.4	-3.5	-3.9	-6.5	-7.1	-7.9							
1996			-1.5	-0.4	7.2	6.5	8.4	8.0	5.2	4.7	1.4	4.6					
1997				-11.8	-4.7	-5.3	-3.6	-4.0	-6.5	-6.7	-9.6	-7.1	-7.1				
1998					0.0	-0.5	1.3	0.8	-1.9	-1.9	-5.0	-1.9	-1.9	-1.9			
1999						-8.7	-7.3	-7.7	-10.2	-10.2	-13.1	-10.0	-10.0	-10.0	-10.0		
2000							0.5	-0.1	-2.8	-2.7	-5.8	-2.7	-2.7	-2.7	-2.7	0.1	
2001								-6.7	-9.3	-9.1	-12.1	-9.0	-9.0	-9.0	-9.0	-6.9	-7.0

**Table 8.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	8900	8626															
1987	9441	8620	8929														
1988	10058	8620	8918	9242													
1989	9639	8610	8896	9418	9725												
1990	9474	8598	8893	9303	9969	9440											
1991	9947	8585	8883	9257	9819	9443	9536										
1992	9522	8580	8870	9320	9743	9386	9608	9988									
1993	10264	8583	8914	9387	9846	9481	9720	10041	10311								
1994	10412	8597	8963	9469	9979	9607	9849	10134	10418	10245							
1995	10660	8650	8997	9526	10086	9708	9983	10229	10531	10348	10423						
1996	10657		9046	9581	10185	9800	10121	10353	10646	10457	10387	10576					
1997	10515			9683	10294	9903	10261	10479	10761	10570	10472	10653	10653				
1998	10376				10414	10015	10401	10606	10877	10680	10581	10732	10732	10515			
1999	11132					10139	10543	10734	10994	10794	10696	10812	10812	10516	10516		
2000	11304						10686	10864	11112	10909	10812	10894	10894	10600	10600	10600	
2001	11178							10994	11230	11024	10934	10976	10976	10685	10685	10685	11278
2002									11349	11141	11055	11059	11059	10770	10770	10770	11385
2003										11261	11177	11142	11142	10856	10856	10856	11488
2004											11300	11225	11225	10943		10943	11592
2005												11310	11310	11031			11697
2006													11394	11119			
2007														11208			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-3.1																
1987	-8.7	-5.4															
1988	-14.3	-11.3	-8.1														
1989	-10.7	-7.7	-2.3	0.9													
1990	-9.2	-6.1	-1.8	5.2	-0.4												
1991	-13.7	-10.7	-6.9	-1.3	-5.1	-4.1											
1992	-9.9	-6.8	-2.1	2.3	-1.4	0.9	4.9										
1993	-16.4	-13.2	-8.5	-4.1	-7.6	-5.3	-2.2	0.5									
1994	-17.4	-13.9	-9.1	-4.2	-7.7	-5.4	-2.7	0.1	-1.6								
1995	-18.9	-15.6	-10.6	-5.4	-8.9	-6.4	-4.0	-1.2	-2.9	-2.2							
1996		-15.1	-10.1	-4.4	-8.0	-5.0	-2.9	-0.1	-1.9	-2.5	-0.8						
1997			-7.9	-2.1	-5.8	-2.4	-0.3	2.3	0.5	-0.4	1.3	1.3					
1998				0.4	-3.5	0.2	2.2	4.8	2.9	2.0	3.4	3.4	1.3				
1999					-8.9	-5.3	-3.6	-1.2	-3.0	-3.9	-2.9	-2.9	-5.5	-5.5			
2000						-5.5	-3.9	-1.7	-3.5	-4.4	-3.6	-3.6	-6.2	-6.2	-6.2		
2001							-1.6	0.5	-1.4	-2.2	-1.8	-1.8	-4.4	-4.4	-4.4	0.9	

**Table 8.3**

**Projected Commercial\* Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	4022	3539															
1987	4341	3610	4090														
1988	4666	3681	4202	4475													
1989	4790	3741	4275	4685	4770												
1990	4926	3775	4351	4737	4923	4826											
1991	5136	3853	4419	4791	5006	4872	5081										
1992	5222	3923	4502	4845	5084	4934	5301	5248									
1993	5623	3990	4583	4904	5173	5013	5411	5472	5455								
1994	5954	4057	4658	4963	5263	5093	5578	5645	5571	5678							
1995	6222	4127	4740	5023	5353	5173	5747	5772	5714	5820	6241						
1996	6410		4823	5072	5431	5241	5919	5901	5859	5955	6403	6523					
1997	6689			5122	5510	5310	6092	6031	6006	6148	6593	6667	6667				
1998	7012				5589	5379	6268	6162	6155	6342	6787	7044	7044	6643			
1999	7154					5469	6446	6294	6305	6538	6983	7346	7346	6597	6597		
2000	7481						6627	6427	6456	6738	7182	7650	7650	6649	6649	6649	
2001	7604							6562	6610	6940	7385	7955	7955	6703	6703	6702	7315
2002									6765	7146	7591	8262	8262	6756	6756	6756	7446
2003										7354	7799	8572	8572	6810	6810	6810	7578
2004											8011	8882	8882	6865		6864	7711
2005												9195	9195	6920			7844
2006													9510	6975			
2007														7031			
2008																	

\* Small Commercial & Industrial

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-12.0																
1987	-16.8	-5.8															
1988	-21.1	-9.9	-4.1														
1989	-21.9	-10.8	-2.2	-0.4													
1990	-23.4	-11.7	-3.8	-0.1	-2.0												
1991	-25.0	-14.0	-6.7	-2.5	-5.1	-1.1											
1992	-24.9	-13.8	-7.2	-2.6	-5.5	1.5	0.5										
1993	-29.0	-18.5	-12.8	-8.0	-10.8	-3.8	-2.7	-3.0									
1994	-31.9	-21.8	-16.6	-11.6	-14.5	-6.3	-5.2	-6.4	-4.6								
1995	-33.7	-23.8	-19.3	-14.0	-16.9	-7.6	-7.2	-8.2	-6.5	0.3							
1996		-24.8	-20.9	-15.3	-18.2	-7.7	-7.9	-8.6	-7.1	-0.1	1.8						
1997			-23.4	-17.6	-20.6	-8.9	-9.8	-10.2	-8.1	-1.4	-0.3	-0.3					
1998				-20.3	-23.3	-10.6	-12.1	-12.2	-9.6	-3.2	0.5	0.5	-5.3				
1999					-23.6	-9.9	-12.0	-11.9	-8.6	-2.4	2.7	2.7	-7.8	-7.8			
2000						-11.4	-14.1	-13.7	-9.9	-4.0	2.3	2.3	-11.1	-11.1	-11.1		
2001							-13.7	-13.1	-8.7	-2.9	4.6	4.6	-11.8	-11.8	-11.9	-3.8	

**Table 8.4**

**Projected Industrial\* Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	15068	15061																
1987	15789	14877	14888															
1988	16518	15122	15116	15627														
1989	16562	15372	15479	15656	16361													
1990	16357	15629	15677	15688	16624	16213												
1991	15967	15892	15856	15903	16908	16435	16382											
1992	15559	16160	16081	16123	17194	16706	16697	16309										
1993	15714	16434	16291	16347	17491	16979	16929	16789	15994									
1994	15622	16716	16485	16575	17793	17257	17135	16980	16216	15819								
1995	15869	16967	16704	16807	18096	17535	17331	17080	16337	15899	15805							
1996	14976		16927	17007	18387	17802	17543	17195	16488	16003	15766	15249						
1997	14992			17211	18681	18071	17752	17377	16700	16155	15791	15299	15299					
1998	15929				18985	18351	17972	17566	16853	16270	15923	15259	15259	15456				
1999	15477					18667	18196	17761	17013	16402	16040	15271	15271	15919	15919			
2000	15828						18426	17960	17178	16521	16145	15248	15248	16047	16047	16047		
2001	15312							18166	17351	16642	16253	15353	15353	16175	16175	16175	15405	
2002										17531	16766	16363	15333	15333	16304	16304	16305	15406
2003											16893	16473	15314	15314	16435	16435	16435	15408
2004												16588	15294	15294	16566		16567	15409
2005													15278	15278	16699			15409
2006														15262	16832			
2007															16967			
2008																		

\* Large Commercial & Industrial

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	0.0																
1987	-5.8	-5.7															
1988	-8.5	-8.5	-5.4														
1989	-7.2	-6.5	-5.5	-1.2													
1990	-4.5	-4.2	-4.1	1.6	-0.9												
1991	-0.5	-0.7	-0.4	5.9	2.9	2.6											
1992	3.9	3.4	3.6	10.5	7.4	7.3	4.8										
1993	4.6	3.7	4.0	11.3	8.1	7.7	6.8	1.8									
1994	7.0	5.5	6.1	13.9	10.5	9.7	8.7	3.8	1.3								
1995	6.9	5.3	5.9	14.0	10.5	9.2	7.6	2.9	0.2	-0.4							
1996		13.0	13.6	22.8	18.9	17.1	14.8	10.1	6.9	5.3	1.8						
1997			14.8	24.6	20.5	18.4	15.9	11.4	7.8	5.3	2.0	2.0					
1998				19.2	15.2	12.8	10.3	5.8	2.1	0.0	-4.2	-4.2	-3.0				
1999					20.6	17.6	14.8	9.9	6.0	3.6	-1.3	-1.3	2.9	2.9			
2000						16.4	13.5	8.5	4.4	2.0	-3.7	-3.7	1.4	1.4	1.4		
2001							18.6	13.3	8.7	6.1	0.3	0.3	5.6	5.6	5.6	0.6	



Between 1986 and 2001, West Penn's energy demand grew an average of 2.0% per year. Sales for all sectors have maintained relatively steady growth during the period. Residential sales grew at an annual rate of 1.9%, commercial sales at 3.0% and industrial sales at 1.7% over the past 15 years.

### **Projected Load Growth**

The current 5-year projection of growth in energy demand is 1.2%. This includes a residential growth rate of 1.4%, a commercial rate of 1.7% and an industrial rate of 0.8%. See Figure 9.1.

The actual average annual peak load growth rate over the past 15 years was about 2.0%. West Penn's load forecast scenario shows the annual peak load decreasing to 3,458 MW in 2002 and then increasing to 3,622 MW in 2006, or an average annual growth rate of 1.2%.

Tables 9.1-9.4 provide West Penn's forecasts of peak load and residential, commercial and industrial energy demand from 1986 through 2001 as well as forecast error presented as a percentage of actual peak load and energy demand.

### **Forecasting Error**

The overall trend in West Penn's short term forecasting error for the residential and commercial sectors is similar, with demands being underestimated during the late 1980s and early 1990s, and slightly overestimated during the mid to late 1990s. Industrial forecasts have been overestimated for most of the period. This analysis reflects averages of deviations in forecasts made one to four years in advance and are shown in Figure 9.2 in four-year moving averages. Forecast error is computed as a percentage of actual energy demand.

### **Additional Information**

Effective in November 1999, all of West Penn's generation assets were transferred to Allegheny Energy Supply Company, LLC (AESC), an unregulated subsidiary of Allegheny Energy. West Penn subsequently entered into a Power Sales Agreement with AESC for providing default service load requirements. The power provided by AESC will come from owned generation and market purchases. West Penn will remain an electric distribution company, providing transmission and distribution service to its customers and providing default service, or Provider of Last Resort service, for those customers who do not choose an alternate supplier.

In 2001, West Penn purchased over 1.1 billion KWH from cogeneration and independent power production facilities. Contract capacity for these facilities was 136 MW.

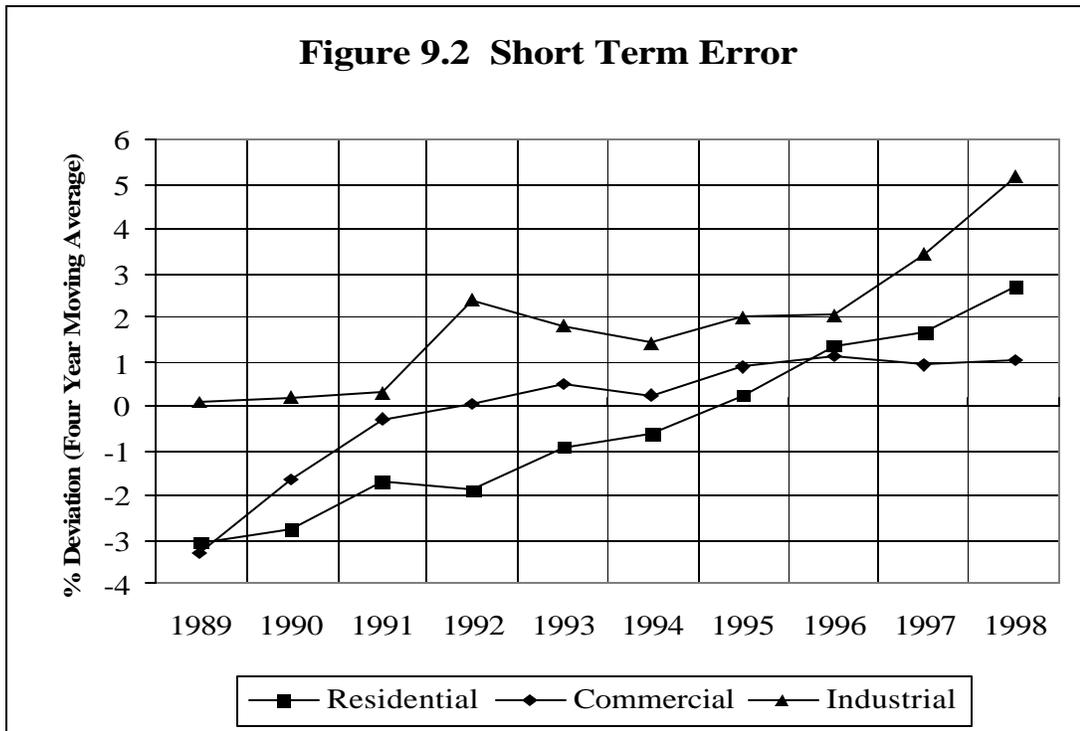
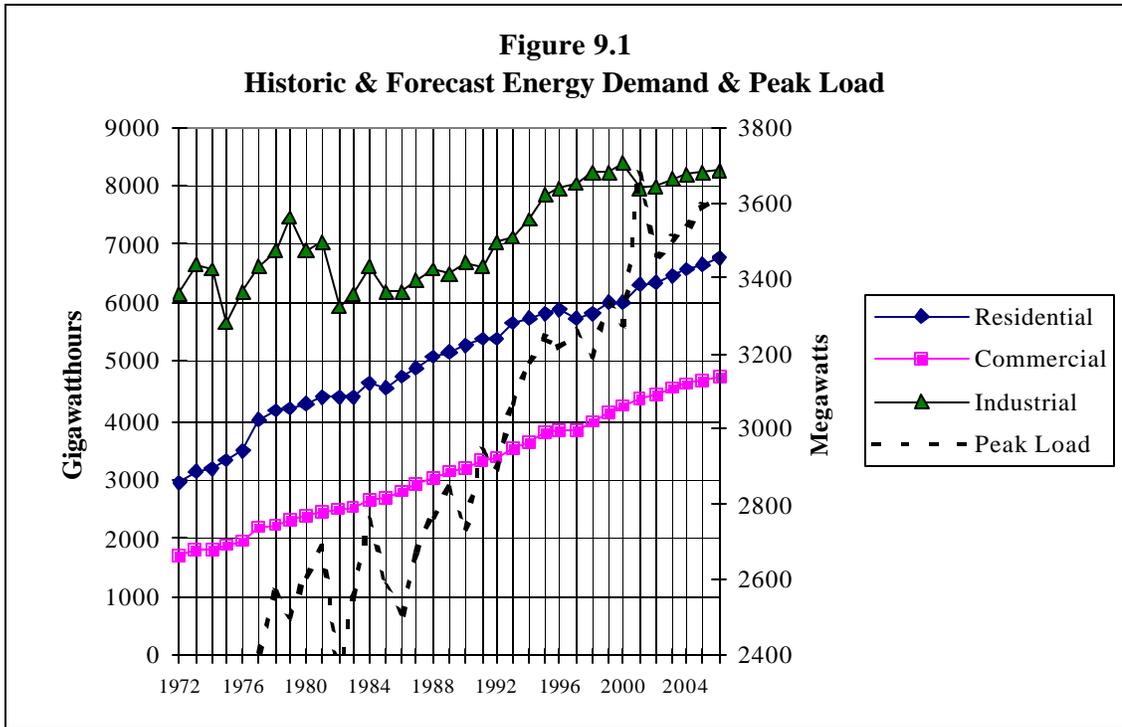
For calendar year 2001, electric generation suppliers sold a total of approximately 260 million KWH to retail customers in West Penn's service territory or about 1.3% of total consumption, down from 11.0% for 2000. On the summer peak day, electric generation suppliers represented a load of 116 MW. During 2001, Utility.Com was unable to supply scheduled loads within West Penn's service territory, totaling about 3.5 million KWH.

In 2001, West Penn expended approximately \$2.0 million on its Low Income Usage Reduction Program, resulting in a peak load reduction of 884 KW and energy savings totaling 3.2 million KWH. West Penn has also developed a Generation Buy-Back program, intended as a way for West Penn to buy back or displace firm load from large commercial and industrial customers that have on-site generation or operational flexibility. This program was implemented in 2001. A total of 39 customers signed up with a potential load reduction of 231.5 MW. Due to mild weather and the lack of price volatility, it was only implemented 4 times during 2001. The total savings were \$20,063.

Another program implemented in 2001 was Coincident Peak Pricing, a program designed to enable customers to make informed decisions about their energy consumption, while mitigating and reducing system peak loads.

On March 15, 2001, PJM Interconnection and Allegheny Power jointly submitted a filing to establish PJM as the Regional Transmission Organization for Allegheny Power pursuant to an arrangement known as "PJM West." The formation of PJM West on April 1, 2002, provides Allegheny Power with increased access to the liquid and structured capacity and energy products of the PJM market.

West Penn, as a subsidiary of Allegheny Power, is a member of ECAR.



**Table 9.1**

**Projections of Peak Demand Requirements  
(Megawatts)**

Year	Actual Peak Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	2509	2720															
1987	2676	2776	2707														
1988	2768	2821	2743	2719													
1989	2840	2869	2779	2760	2870												
1990	2735	2912	2810	2803	2933	2911											
1991	2935	2961	2839	2838	2982	2969	2913										
1992	2896	3004	2873	2875	3029	3006	2978	2945									
1993	3068	3043	2906	2915	3079	3044	3028	3152	3128								
1994	3179	3084	2939	2963	3135	3096	3081	3207	3191	3075							
1995	3242	3121	2975	3003	3198	3151	3138	3273	3263	3147	3117						
1996	3215		3004	3031	3255	3200	3184	3310	3314	3214	3207	3235					
1997	3251			3068	3313	3247	3229	3356	3362	3270	3279	3315	3315				
1998	3192				3379	3295	3201	3405	3415	3335	3329	3371	3371	3379			
1999	3328					3344	3334	3454	3464	3396	3372	3417	3417	3442	3279		
2000	3311						3392	3509	3511	3440	3410	3462	3462	3496	3360	3284	
2001	3677							3558	3563	3503	3454	3506	3506	3545	3425	3304	3141
2002									3617	3560	3500	3547	3547	3578	3484	3341	3445
2003										3624	3554	3586	3586	3617	3519	3380	3465
2004											3609	3630	3630	3668		3415	3501
2005												3679	3679	3723			3536
2006													3722	3769			
2007														3812			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	8.4																
1987	3.7	1.2															
1988	1.9	-0.9	-1.8														
1989	1.0	-2.1	-2.8	1.1													
1990	6.5	2.7	2.5	7.2	6.4												
1991	0.9	-3.3	-3.3	1.6	1.2	-0.7											
1992	3.7	-0.8	-0.7	4.6	3.8	2.8	1.7										
1993	-0.8	-5.3	-5.0	0.4	-0.8	-1.3	2.7	2.0									
1994	-3.0	-7.5	-6.8	-1.4	-2.6	-3.1	0.9	0.4	-3.3								
1995	-3.7	-8.2	-7.4	-1.4	-2.8	-3.2	1.0	0.6	-2.9	-3.9							
1996		-6.6	-5.7	1.2	-0.5	-1.0	3.0	3.1	0.0	-0.2	0.6						
1997			-5.6	1.9	-0.1	-0.7	3.2	3.4	0.6	0.9	2.0	2.0					
1998				5.9	3.2	0.3	6.7	7.0	4.5	4.3	5.6	5.6	5.9				
1999					0.5	0.2	3.8	4.1	2.0	1.3	2.7	2.7	3.4	-1.5			
2000						2.4	6.0	6.0	3.9	3.0	4.6	4.6	5.6	1.5	-0.8		
2001							-3.2	-3.1	-4.7	-6.1	-4.7	-4.7	-3.6	-6.9	-10.1	-14.6	

**Table 9.2**

**Projected Residential Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	4767	4737																
1987	4920	4796	4712															
1988	5080	4906	4790	5002														
1989	5174	5010	4852	5078	5108													
1990	5271	5122	4914	5165	5168	5273												
1991	5419	5256	4978	5270	5230	5346	5358											
1992	5397	5401	5060	5387	5291	5416	5423	5400										
1993	5680	5485	5150	5506	5346	5486	5509	5464	5729									
1994	5740	5550	5237	5617	5396	5550	5594	5537	5847	5697								
1995	5819	5648	5325	5720	5448	5606	5677	5602	5938	5763	5826							
1996	5913		5406	5819	5496	5664	5761	5665	6022	5843	5897	5844						
1997	5757			5913	5544	5722	5837	5729	6106	5932	5979	5923	5923					
1998	5823				5590	5782	5910	5806	6189	6016	6081	6020	6020	6127				
1999	6020					5843	5992	5888	6267	6096	6166	6118	6118	6250	5873			
2000	6022						6075	5972	6335	6163	6260	6223	6223	6381	6013	6061		
2001	6325								6055	6404	6238	6313	6282	6446	6077	6172	6192	
2002										6484	6317	6391	6371	6371	6518	6165	6256	6260
2003											6405	6460	6445	6445	6604	6165	6339	6329
2004												6567	6546	6546	6699	6231	6445	6436
2005													6624	6624	6763			6521
2006														6722	6864			
2007															6976			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-0.6																
1987	-2.5	-4.2															
1988	-3.4	-5.7	-1.5														
1989	-3.2	-6.2	-1.9	-1.3													
1990	-2.8	-6.8	-2.0	-2.0	0.0												
1991	-3.0	-8.1	-2.7	-3.5	-1.3	-1.1											
1992	0.1	-6.2	-0.2	-2.0	0.4	0.5	0.1										
1993	-3.4	-9.3	-3.1	-5.9	-3.4	-3.0	-3.8	0.9									
1994	-3.3	-8.8	-2.1	-6.0	-3.3	-2.5	-3.5	1.9	-0.7								
1995	-2.9	-8.5	-1.7	-6.4	-3.7	-2.4	-3.7	2.0	-1.0	0.1							
1996		-8.6	-1.6	-7.1	-4.2	-2.6	-4.2	1.8	-1.2	-0.3	-1.2						
1997			2.7	-3.7	-0.6	1.4	-0.5	6.1	3.0	3.9	2.9	2.9					
1998				-4.0	-0.7	1.5	-0.3	6.3	3.3	4.4	3.4	3.4	5.2				
1999					-2.9	-0.5	-2.2	4.1	1.3	2.4	1.6	1.6	3.8	-2.4			
2000						0.9	-0.8	5.2	2.3	4.0	3.3	3.3	6.0	-0.1	0.7		
2001							-4.3	1.3	-1.4	-0.2	-0.7	-0.7	1.9	-3.9	-2.4	-2.1	

**Table 9.3**

**Projected Commercial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed																
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	2810	2745																
1987	2914	2786	2761															
1988	3034	2827	2814	3000														
1989	3128	2874	2867	3104	3118													
1990	3194	2925	2920	3210	3220	3237												
1991	3345	2973	2972	3274	3325	3343	3284											
1992	3374	3020	3024	3349	3429	3450	3362	3445										
1993	3523	3069	3076	3442	3532	3559	3441	3538	3621									
1994	3624	3119	3128	3533	3633	3669	3522	3648	3721	3640								
1995	3782	3168	3180	3626	3734	3780	3604	3733	3824	3706	3741							
1996	3836		3232	3710	3832	3892	3688	3823	3911	3826	3834	3856						
1997	3833			3784	3929	4004	3773	3905	3989	3935	3942	3950	3950					
1998	3993				4023	4118	3859	3988	4067	4034	4049	4055	4055	4080				
1999	4137					4232	3946	4072	4151	4128	4147	4161	4161	4163	4039			
2000	4265							4035	4158	4222	4199	4223	4271	4271	4270	4215	4182	
2001	4360								4245	4285	4256	4272	4347	4347	4339	4313	4225	4326
2002										4366	4340	4350	4430	4430	4393	4401	4275	4395
2003											4450	4434	4501	4501	4457	4443	4329	4449
2004												4556	4588	4588	4557		4397	4517
2005													4664	4664	4630			4571
2006														4756	4707			
2007															4779			
2008																		

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	-2.3																
1987	-4.4	-5.3															
1988	-6.8	-7.3	-1.1														
1989	-8.1	-8.3	-0.8	-0.3													
1990	-8.4	-8.6	0.5	0.8	1.3												
1991	-11.1	-11.2	-2.1	-0.6	-0.1	-1.8											
1992	-10.5	-10.4	-0.7	1.6	2.3	-0.4	2.1										
1993	-12.9	-12.7	-2.3	0.3	1.0	-2.3	0.4	2.8									
1994	-13.9	-13.7	-2.5	0.2	1.2	-2.8	0.7	2.7	0.4								
1995	-16.2	-15.9	-4.1	-1.3	-0.1	-4.7	-1.3	1.1	-2.0	-1.1							
1996		-15.7	-3.3	-0.1	1.5	-3.9	-0.3	2.0	-0.3	-0.1	0.5						
1997			-1.3	2.5	4.5	-1.6	1.9	4.1	2.7	2.8	3.1	3.1					
1998				0.7	3.1	-3.4	-0.1	1.8	1.0	1.4	1.5	1.5	2.2				
1999					2.3	-4.6	-1.6	0.3	-0.2	0.3	0.6	0.6	0.6	-2.4			
2000						-5.4	-2.5	-1.0	-1.5	-1.0	0.1	0.1	0.1	-1.2	-1.9		
2001							-2.6	-1.7	-2.4	-2.0	-0.3	-0.3	-0.5	-1.1	-3.1	-0.8	

**Table 9.4**

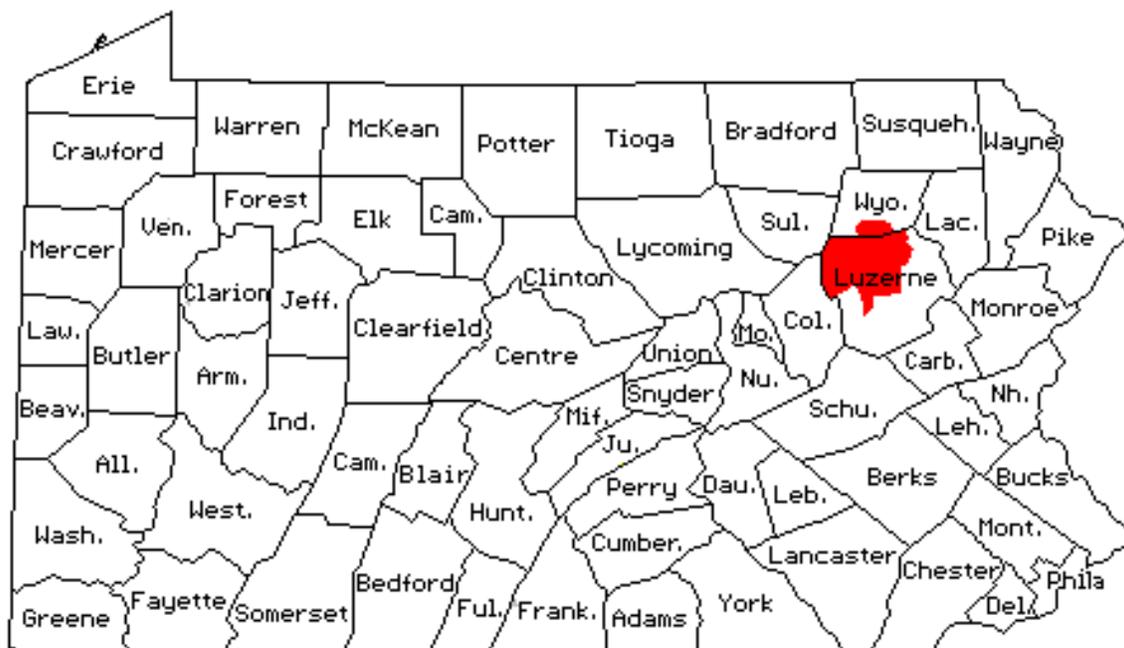
**Projected Industrial Energy Demand  
(Gigawatthours)**

Year	Actual Energy Demand	Year Forecast Was Filed															
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1986	6218	6425															
1987	6408	6539	6308														
1988	6589	6631	6397	6309													
1989	6514	6702	6442	6348	6746												
1990	6714	6759	6511	6419	7003	6841											
1991	6643	6818	6554	6521	7057	7121	6609										
1992	7059	6873	6577	6568	7051	7171	6867	6915									
1993	7115	6877	6610	6599	7070	7118	7087	7220	7392								
1994	7426	6857	6623	6688	7142	7143	7188	8380	7549	7604							
1995	7858	6844	6632	6799	7251	7260	7237	8505	7733	7854	7659						
1996	7974		6681	6858	7360	7371	7323	8683	7995	7985	7981	8204					
1997	8046			6906	7439	7420	7338	8718	8143	8235	8232	8427	8427				
1998	8226				7558	7457	7408	8790	8304	8426	8429	8755	8755	8608			
1999	8237					7499	7511	8885	8396	8618	8502	8855	8855	8808	8575		
2000	8383						7600	8959	8499	8781	8609	8976	8976	8997	8830	7942	
2001	7955							9037	8621	8934	8664	9052	9052	9070	8975	8120	8481
2002									8727	9191	8767	9156	9156	9136	9167	8230	8597
2003										9322	8874	9241	9241	9264	9161	8353	8663
2004											9010	9367	9367	9448		8477	8729
2005												9450	9450	9561			8799
2006													9566	9660			
2007														9768			
2008																	

**Deviation From Actual  
(%)**

Year	Year Forecast Was Filed																
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
1986	3.3																
1987	2.0	-1.6															
1988	0.6	-2.9	-4.2														
1989	2.9	-1.1	-2.5	3.6													
1990	0.7	-3.0	-4.4	4.3	1.9												
1991	2.6	-1.3	-1.8	6.2	7.2	-0.5											
1992	-2.6	-6.8	-7.0	-0.1	1.6	-2.7	-2.0										
1993	-3.3	-7.1	-7.3	-0.6	0.0	-0.4	1.5	3.9									
1994	-7.7	-10.8	-9.9	-3.8	-3.8	-3.2	12.8	1.7	2.4								
1995	-12.9	-15.6	-13.5	-7.7	-7.6	-7.9	8.2	-1.6	0.0	-2.5							
1996		-16.2	-14.0	-7.7	-7.6	-8.2	8.9	0.3	0.1	0.1	2.9						
1997			-14.2	-7.5	-7.8	-8.8	8.3	1.2	2.3	2.3	4.7	4.7					
1998				-8.1	-9.4	-9.9	6.9	0.9	2.4	2.5	6.4	6.4	4.6				
1999					-9.0	-8.8	7.9	1.9	4.6	3.2	7.5	7.5	6.9	4.1			
2000						-9.3	6.9	1.4	4.8	2.7	7.1	7.1	7.3	5.3	-5.3		
2001								13.6	8.4	12.3	8.9	13.8	13.8	14.0	12.8	2.1	6.6

## **UGI Utilities, Inc.**



UGI Utilities, Inc. - Electric Service Division Service Territory

### **Number of Customers**

The Electric Division of UGI Utilities, Inc. (UGI) provides electric service to nearly 62,000 customers in northwestern Luzerne and southern Wyoming counties, Pennsylvania.

### **Energy Sales**

In 2001, UGI had energy sales totaling 931.6 million kilowatthours (KWH) -- up 0.9% from 2000. Residential sales continued to dominate UGI's market with 51.7% of the total sales, followed by commercial (35.6%) and industrial (12.2%).

Between 1986 and 2001, UGI experienced an average growth in total sales of 1.9%, which includes a residential growth rate of 1.3%, a commercial rate of 2.8% and an industrial rate of 2.6%.

### **Peak Load**

Peak demand on the UGI system occurred on August 9, 2001, and totaled 181 megawatts (MW), or 1.6% above the December 2000 winter peak load and 13.8% above the 2000 summer peak load of 159 MW. The 2001 winter peak of 176 MW was 4.3% lower than the 2000 winter peak of 184 MW.

## **Projected Load Growth**

Over the 5-year planning horizon, UGI expects growth in energy demand to average 2.0%. This includes a residential growth rate of 0.9%, a commercial rate of 2.6% and an industrial rate of 4.5%. The 5-year peak load forecast indicates an average growth rate of 1.7%. Peak load is projected to increase to 196 MW by the winter of 2006/07. See Figure 10.1.

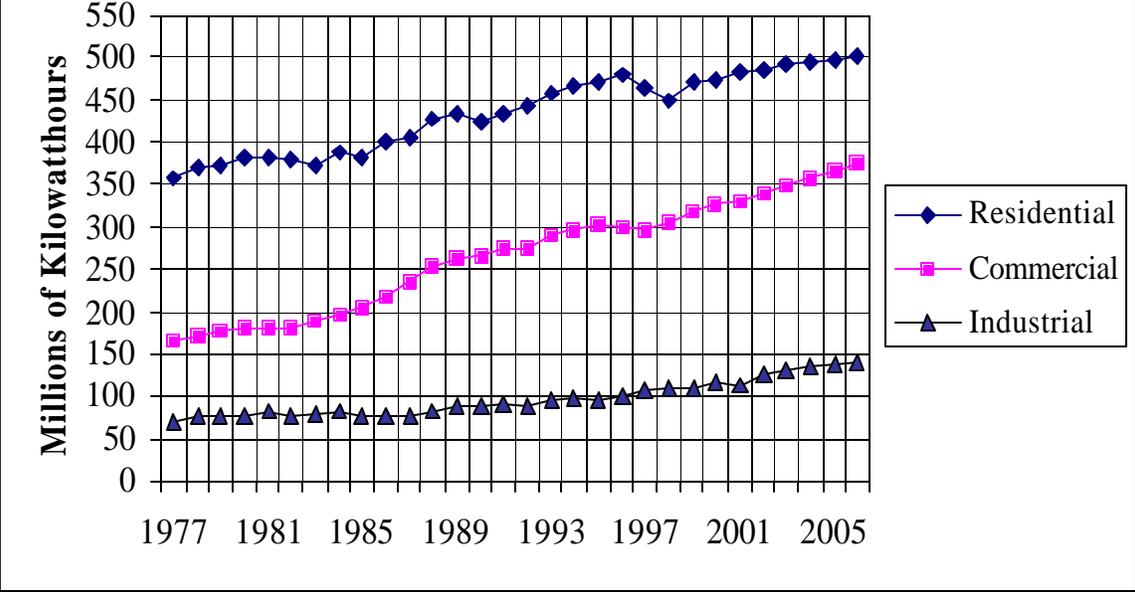
## **Additional Information**

In 2001, 7 electric generation suppliers provided nearly 9.8 million KWH to UGI's retail customers who chose an alternate supplier. This represents about 1.0% of total sales, down from 3.2% in 2000. UGI does not own electric generation supply and will meet its customers' energy requirements by making wholesale purchases in various markets.

As of December 31, 2001, 105 UGI customers were taking generation service from two different suppliers, comprising an aggregate load of 0.5 MW. Of those, approximately 76% were residential customers.

During the summer of 2001, UGI offered a voluntary load reduction program to its largest commercial and industrial customers. The program centers on a customer's ability to reduce its demand during peak periods, thereby enhancing system reliability and increasing the economic efficiency of the wholesale and retail markets. One commercial customer participated in the program, resulting in a total load reduction of 22.5 MWH.

**Figure 10.1**  
**Historic & Forecast Energy Demand**



# Section 3

## Regional Reliability Assessments

The passage of the Electricity Generation Customer Choice and Competition Act substantially changed the Commission's jurisdiction as well as our ability to compile data from this sector. At this time, all information on generation and transmission capacity is regional. Therefore, this section summarizes the regional reliability assessments of MAAC, ECAR and PJM for generation and transmission capability. The regional reports find that there is sufficient generation and transmission capacity in PA to meet the needs of electric consumers for the foreseeable future.

### Generation

Pennsylvania's open policy towards the siting of new generation coupled with retail and wholesale competitive opportunities has led to a substantial increase in generating capacity and to the development of nonconventional technologies in the state.

The regional growth of generating capacity within the PJM Region has increased at a rate equal to or faster than the rate of load growth in Pennsylvania. The regional reliability assessments indicate that generation resources will be adequate for the next 5 to 10 years.

Development of nonconventional technologies is anticipated to continue, particularly as governmental entities and businesses continue to allocate a percentage of energy portfolios to "renewable" energy. Nonconventional technologies are defined by the section as renewables, including but not limited to solar, wind, biomass, geothermal and other small power technologies, including, for example, microturbines and battery storage systems

Among the highest visibility projects as well as most likely to contribute a substantial amount of power to the grid, comparatively speaking, are wind farms. To date, wind generation has brought 34.5 MW of additional generation to PA and the PJM grid. Wind farms planned for the next 5 years are projected to bring 80 MW of renewable energy to Pennsylvania and to the PJM grid.<sup>1</sup>

Conservation or demand-side response at the retail level, motivated by an economic incentives, is a topic of increasing importance to consumers and suppliers of Pennsylvania and the mid-Atlantic region. With respect to load shifting

---

<sup>1</sup> Source: American Wind Energy Association

from peak to off-peak periods, the Commission and most of the incumbent utilities publish load conservation material during the peak summer and winter seasons. In times of coincident weather and demand spikes, both the Commission and utilities in addition to PJM LLC have publicly requested conservation. The Commission has, over the past two years, conducted an ongoing working group dedicated to exploring the possibilities of Demand Side Response (or DSR) during peak periods. PJM has initiated a peak shaving incentive program at the wholesale level for those commercial and industrial users who can and wish to voluntarily curtail load in exchange for financial credits.

Several EDCs have already deployed metering technology that is DSR friendly-From the Commission's perspective, the emerging issues with respect to DSR programs include consumer education and acceptance, cost effectiveness and, cost recovery of implementing and maintaining the programs.

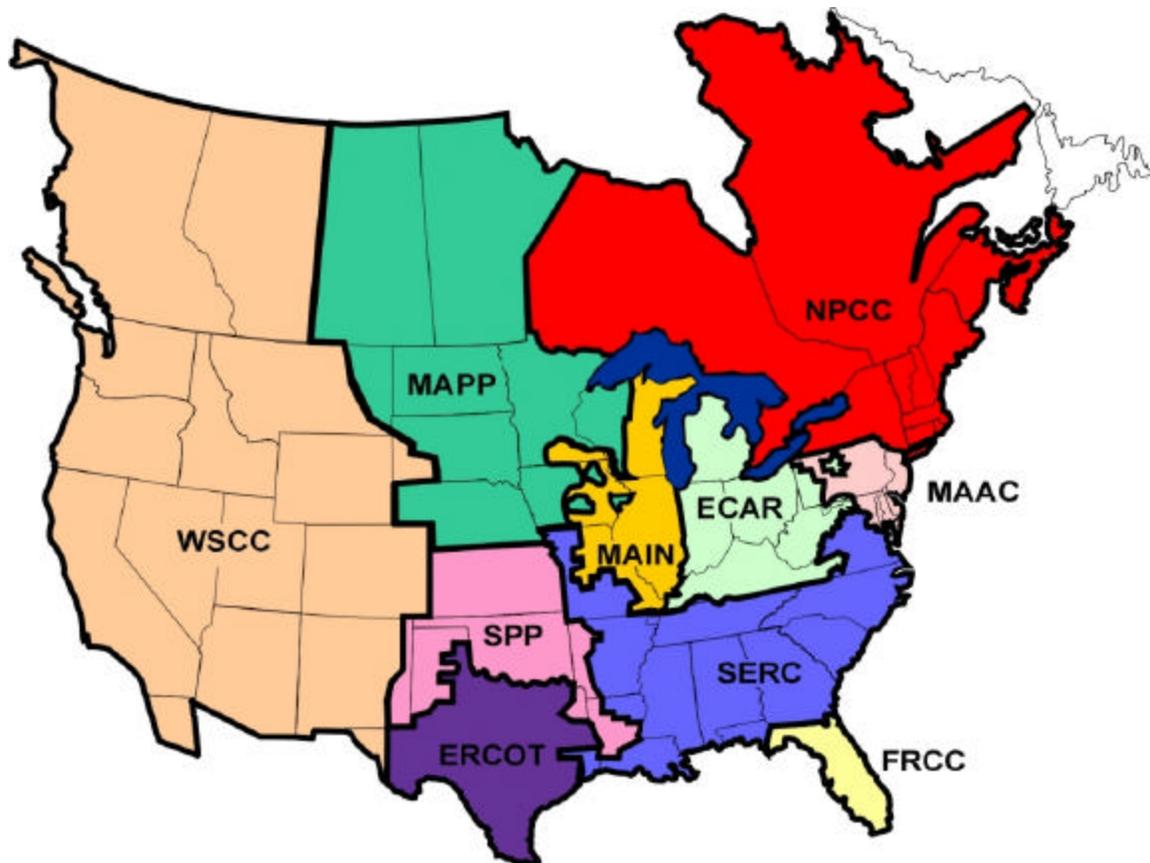
## **Transmission**

Transmission congestion is a growing national concern in new competitive markets. In some parts of the country, load growth is increasing at a faster rate than transmission capacity growth, which can jeopardize reliability and cost efficiencies. The FERC Orders 888 and 2000 opened the transmission system to alternative suppliers, and now more power is flowing between regions, causing congestion in some areas. Higher congestion can lead to higher prices for consumers as more expensive local power is substituted for cheaper imported power.

The outlook for Pennsylvania's transmission reliability is based on a regional perspective. In the summer of 2002, the EDCs and PJM experienced significant load growth, which caused transmission congestion in some areas of the power grid. The regions of MAAC and ECAR are currently implementing regional expansion plans that will both upgrade and expand the transmission facilities to improve both regional and state electric systems and lower transmission costs. While MAAC reports that the transmission capability adequately meets reliability standards, it also recognizes the need for expansion and reinforcement projects over the next 5 years. As a result, several transmission reinforcement projects are expected to be in service by 2005. There are transmission upgrades and expansions planned for the ECAR Region as well.

According to the reliability assessments of MAAC and ECAR, there is sufficient transmission capacity to meet the needs of electric consumers in Pennsylvania for the foreseeable future.

## NERC



Source: <http://www.nerc.com>

In 1968, electric utilities formed the North American Electric Reliability Council (NERC) to promote the reliability of the electricity supply for North America. Since its formation, NERC has operated as a voluntary organization, dependent on reciprocity and mutual self-interest. Due to the restructuring of the electric utility industry, NERC is being transformed from a voluntary system of reliability management to one that is mandatory, with the backing of U.S. and Canadian governments. The mission of the new NAERO (North American Electric Reliability Organization) will be to develop, promote and enforce reliability standards.

NERC's members are 10 regional reliability councils. Members of these regional councils include investor-owned utilities, federal, rural electric cooperatives, state/municipal and provincial utilities, independent power producers and power

marketers. The regional councils operating in Pennsylvania are the Mid-Atlantic Area Council (MAAC) and the East Central Area Reliability Council (ECAR).

## **Compliance Standards**

On March 30, 2001, NERC changed its governance to a new, ten-member independent Board of Trustees, replacing a 47-member Board, which comprised both stakeholders and independent members. Additionally, NERC has initiated an Agreement for Regional Compliance and Enforcement Programs under which the Regional Councils will monitor and enforce certain NERC reliability standards, including the imposition of financial penalties.

NERC believes that compliance with reliability standards must be mandatory.

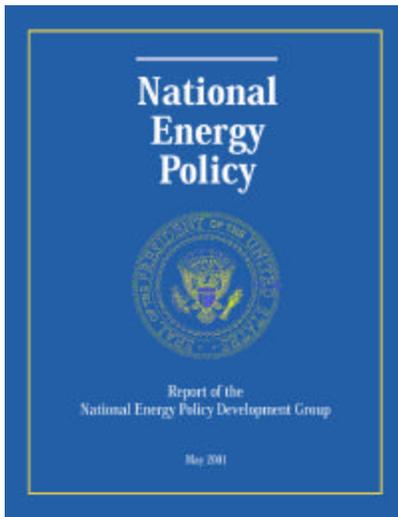
*“As more competition is introduced into the North American electric industry, the number and complexity of transactions are increasing. As a result, there is increasing tension between market economics and maintaining system reliability. Maintaining the reliability of the power system is necessary, both to ensure a robust competitive marketplace for electricity and to protect the health, welfare and safety of the public. The interconnected bulk electric grid is highly integrated and an unforeseen operating event on one part of the system may negatively impact the operation of the grid and markets in a broader region. Failure to comply with NERC standards could place markets and end-use customers at risk and jeopardize the security of the interconnected electric systems. For these reasons, compliance with NERC standards must be mandatory and enforceable.”*

(See <http://www.nerc.com/~comply/>.)

The Report of the National Energy Policy Development (NEPD) Group, submitted to President Bush on May 16, 2001, had this to say about the need for reliability legislation (which NERC has supported and encouraged):

*One factor limiting reliability is the lack of enforceable reliability standards. Since 1968, the reliability of the U.S. transmission grid has depended entirely on voluntary compliance with reliability*

*standards. There is a broad recognition that voluntary adherence with reliability standards is no longer a viable approach in an increasingly competitive electricity market. There is a need to provide for enforcement of mandatory reliability standards. Broad support has emerged for development of these standards by a self-regulating organization overseen by FERC.*



In this regard, the report stated:

*The NEPD Group recommends that the President direct the Secretary of Energy to work with FERC to improve the reliability of the interstate transmission system and to develop legislation providing for enforcement by a self-regulatory organization subject to FERC oversight.*

### **Reliability Assessment**

According to NERC's *Reliability Assessment 2001-2010* report, the average annual peak demand growth rate over the next 10 years is projected to be 2.0% in the United States, down from the 1.9% forecast last year. Over the next 10 years, capacity adequacy in North America will be highly dependent upon the timely construction of new generation facilities by merchant power plant developers. The merchant generators have announced plans for over 290,000 MW of new capacity over the next ten years.

Projected capacity margins show a sharp increase from 2001 to 2005, reaching over 20%, then decreasing to about 15% as demand continues to grow and reported capacity additions dwindle. Near term generation adequacy is deemed by NERC to be satisfactory throughout most of North America, provided new generating facilities are constructed as planned.

In the near term, transmission congestion is expected to continue. Absent new transmission facilities, electricity transactions will continue to be curtailed.

Coal remains the predominant fuel for electric generation; however, nearly all recently built power plants and those proposed use natural gas as their primary fuel.

By 2009, natural gas-fired capacity is projected to generate approximately 20% of North America's electricity, compared to 8% in 1991. Thus, the adequacy and security of natural gas supply resources and the transportation of those resources will become critical to the reliability of the electric systems.

Demands, resources and reserve margins as reported by each region for the summers of 2001 and 2005 are provided in Tables 11.1 and 11.2.

**Table 11.1**  
**Reliability Assessment of the**  
**Regional Reliability Councils**  
**Summer 2001**

<b>Region</b>	<b>Projected Total Internal Demand (MW)</b>	<b>Projected Net Internal Demand (MW)</b>	<b>Planned Net Capacity Resources (MW)</b>	<b>Reserve Margins (% of Net Internal Demand)</b>
<b>ECAR</b>	102,161	98,651	115,379	17.0
<b>ERCOT</b>	63,480	53,649	69,622	29.8
<b>FRCC</b>	38,478	35,666	43,083	20.8
<b>MAAC</b>	52,977	51,358	60,679	18.1
<b>MAIN</b>	55,368	51,845	64,170	23.8
<b>MAPP – US</b>	29,814	28,006	34,236	22.2
<b>MAPP – Canada</b>	5,450	5,291	7,888	49.1
<b>NPCC – US</b>	54,351	54,270	63,376	16.8
<b>NPCC – Canada</b>	45,452	44,139	66,684	51.1
<b>SERC</b>	159,930	151,527	169,760	12.0
<b>SPP</b>	40,522	39,056	46,109	18.0
<b>WSCC – US</b>	118,887	116,913	141,640	21.1
<b>WSCC – Canada</b>	14,592	14,067	22,477	59.8
<b>WSCC – Mexico</b>	1,707	1,707	2,152	26.1
<b>NERC Total</b>	840,085	746,145	885,704	18.7

<b>Table 11.2</b>				
<b>Reliability Assessment of the</b>				
<b>Regional Reliability Councils</b>				
<b>Summer 2005</b>				
<b>Region</b>	<b>Projected Total Internal Demand (MW)</b>	<b>Projected Net Internal Demand  (MW)</b>	<b>Planned Net Capacity Resources (MW)</b>	<b>Reserve Margins (% of Net Internal Demand)</b>
<b>ECAR</b>	109,905	106,213	117,950	11.1
<b>ERCOT</b>	63,480	61,827	83,242	34.6
<b>FRCC</b>	42,644	39,898	49,119	23.1
<b>MAAC</b>	56,412	54,793	83,450	52.3
<b>MAIN</b>	59,157	55,656	70,896	27.4
<b>MAPP – US</b>	31,930	29,892	34,402	15.1
<b>MAPP – Canada</b>	5,673	5,486	8,400	53.1
<b>NPCC – US</b>	57,796	57,694	73,945	28.2
<b>NPCC – Canada</b>	48,197	47,343	69,759	47.3
<b>SERC</b>	173,496	165,476	189,877	14.7
<b>SPP</b>	43,932	42,279	47,684	12.8
<b>WSCC – US</b>	129,199	127,895	187,209	46.4
<b>WSCC – Canada</b>	16,126	15,601	26,391	69.2
<b>WSCC – Mexico</b>	2,138	2,138	2,806	31.2
<b>NERC Total</b>	840,085	812,191	1,024,101	26.1

Source: *Reliability Assessment 2001-2010*, NERC, October 2001.

## **Definitions of Reliability Councils:**

- **ECAR – East Central Area Reliability Council**
- **ERCOT – Electric Reliability Council of Texas**
- **FRCC – Florida Reliability Coordination Council**
- **MAAC – Mid-Atlantic Area Council**
- **MAIN – Mid-America Interconnected Network**
- **MAPP – Mid-Continent Area Power Pool**
- **NPCC – Northeast Power Coordinating Council**
- **SERC – Southeastern Electric Reliability Council**
- **SPP – Southwest Power Pool**
- **WSCC – Western Systems Coordinating Council**

(See NERC map on page Regional – 1)

## **MAAC**

The Mid-Atlantic Area Council (MAAC) is one of 10 regional reliability councils comprised of investor-owned electric utilities, power marketers and independent power producers. MAAC serves over 23 million people in a nearly 50,000 square mile area, which includes all of Delaware and the District of Columbia, major portions of Pennsylvania, New Jersey and Maryland, and a small part of Virginia. MAAC comprises less than 2% of the land area of the contiguous United States but serves about 8% of the electrical load.

MAAC was established in December 1967 to augment the reliability of the bulk electric supply systems of its members through coordinated planning of generation and transmission facilities. PJM Interconnection, L.L.C., (PJM) is the only control area in MAAC. The MAAC signatory systems operate on a "free flowing ties" basis under the PJM Operating Agreement and in accordance with the PJM Open Access Transmission Tariff filed at FERC.

MAAC signatories participate in the PJM energy and capacity market, obtain transmission service through the PJM OASIS, enter into bilateral transactions coordinated between PJM and other control areas and participate in PJM emergency procedures. Under the MAAC Agreement and the PJM Operating Agreement, MAAC and PJM members are obligated to comply with MAAC and NERC operating and planning principles and standards.

A new MAAC Agreement went into effect on January 1, 2001, whereby all members of the PJM Interconnection became members of MAAC. As of March 22, 2001, MAAC had 202 members. Funding for MAAC and NERC will now be collected under a new schedule of the PJM Open Access Transmission Tariff. Full members include Allegheny Electric Cooperative, Inc., Baltimore Gas and Electric Company, Citizens Power Sales, Conectiv, Dynegy Power Marketing, Inc., GPU Energy, PECO Energy Company, Potomac Electric Power Company, PPL, Inc., Public Service Electric and Gas Company, UGI Utilities, Inc. U.S. Generating Company and Vineland Municipal Electric Utility. Operation of the MAAC region is coordinated from the PJM Interconnection Control Center located near Valley Forge, Pennsylvania.

The 2001 MAAC aggregate coincident system summer peak load of 54,014 MW, which occurred on August 9, 2001, was 9.2% higher than the 2000 summer peak of 49,477 MW. Net energy for load in 2001 increased 1,521 GWH (0.6%) from 2000. The regional total internal summer peak demand (including direct control load management and interruptible demand) is projected to increase to 57,809 MW by 2006 at an average annual growth rate of about 0.7%.

### **Compliance Standards**

The MAAC reliability standards require that sufficient generating capacity be installed to insure that the probability of system load exceeding available capacity is no greater than one day in 10 years. Load serving entities that are members of MAAC have a capacity obligation determined by evaluating individual system load characteristics and unit size and operating characteristics. These obligation reserves must be met by all load-serving entities in PJM as signatories to the Reliability Assurance Agreement.

Net capacity resources are projected to increase by 13,427 MW between 2001 and 2006 or 22.6%. The majority of the capacity additions are expected to be natural gas-fueled combined-cycle units. It must be noted that some of this capacity is speculative and may never be built.

### **Reliability Assessment**

MAAC's self assessment contained in NERC's *Reliability Assessment 2001-2010 Report* states that resources will be adequate to maintain regional reliability.

*“Generation resources are expected to be adequate in the MAAC Region over the next ten years. Consistent with the MAAC Reliability Principles and Standards and in accordance with the PJM Open Access Tariff,*

*PJM is currently evaluating generator interconnection requests for over 48,000 MW of new generating capacity expected by 2005. MAAC believes that sufficient capacity will be added to meet the MAAC adequacy objective that the probability of demand exceeding available resources will be no greater, on the average, than one day in ten years.*

*“Based on identified system enhancements, the transmission capability over the next five years is expected to meet MAAC Criteria requirements. In addition to the direct connect transmission facilities associated with new generating capacity, several transmission reinforcement projects are expected to be in service by 2005. These projects are currently being evaluated by PJM, through the PJM Regional Transmission Expansion Planning Process. It is reasonable to expect sufficient transmission will be added to meet the MAAC Criteria.”*

One concern that MAAC has is the potential adverse impact of Environmental Protection Agency regulations which require abatement of NOx by 2003 in all states within the MAAC Region. These regulations may result in retirement of existing generating units or extended outages of existing units for capital modifications. Another concern is the effect of off-system sales on the availability of resources for load-serving entities, particularly during peak periods.

See Appendix A for additional data on capacity and demand projections.

## **PJM Interconnection L.L.C.**

The PJM Interconnection L.L.C. is a limited liability corporation formed in Delaware on March 31, 1997. The PJM region is highly urbanized with 8.7% of the US population. In order to meet its customers electric demand needs, PJM has at its disposal an estimated 58,000 MW of generating capacity. The organization itself has the overall responsibility of operating and managing the bulk power electric system throughout much of the five-state Mid-Atlantic region, which also encompasses the District of Columbia.

PJM, established in 1927, is the largest centrally dispatched electric control area in North America and third largest in the world.

On January 1, 1998, PJM became the first operational Independent System Operator (ISO) in the US. With the initiation of its Open Access Transmission Tariff, PJM became the nation's first regional, bid-based energy market. Market participants can buy and sell energy, schedule bilateral transactions and reserve transmission service.

An Independent Board of Managers administers the ISO. The Board is responsible for the appointment of the President and CEO who have the charge of handling day-to-day operations. A PJM Members committee has been developed in order to advise the Board of Managers concerning business practices and policy issues.

PJM coordinates with its member companies to meet the load requirements of the region. PJM also uses bilateral contracts and the spot energy market to secure power to meet electric load. In order to reliably meet its load requirement, PJM must monitor and assess its 8,000 miles of transmission lines for congestion concerns or physical capability problems.

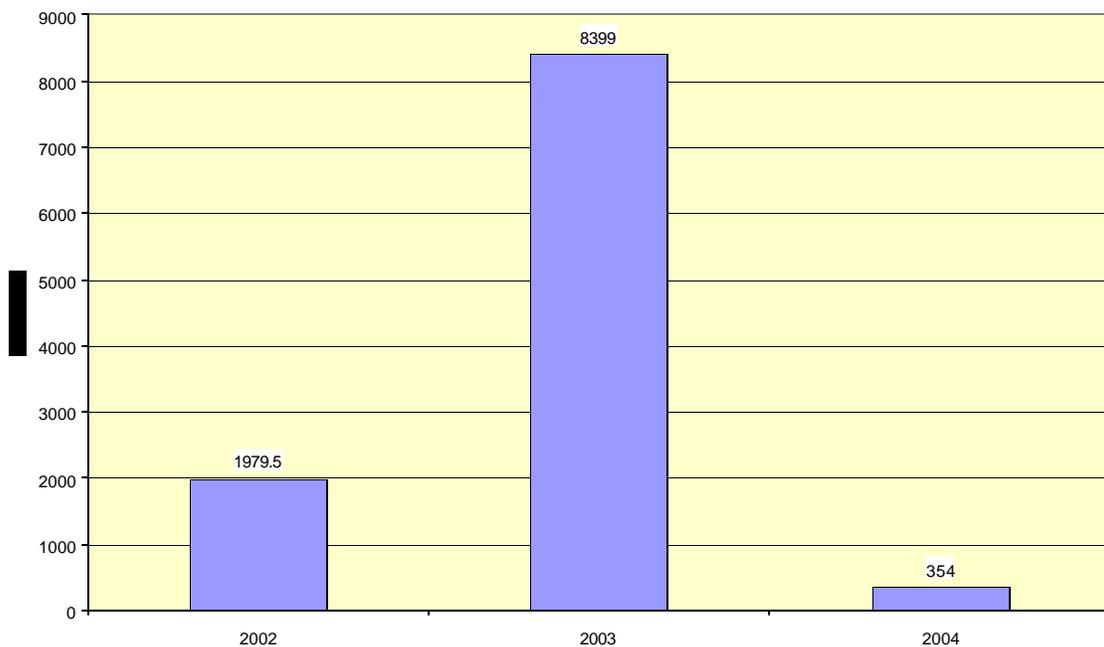
On March 15, 2001, PJM and Allegheny Energy jointly submitted a filing with FERC to establish PJM as the Regional Transmission Organization (RTO) for Allegheny pursuant to an arrangement known as "PJM West." PJM West will continue to be a separate control area, within the ECAR Region, but will operate under the direction of the PJM Board of Managers. This will expand the scope of PJM's operations in Pennsylvania, Maryland and Virginia and extend PJM's operations into West Virginia and Ohio. The expansion of PJM's operations will provide greater resources to maintain both short-term and long-term reliability at a lower overall cost and environmental impact. Duquesne Light Company anticipates joining PJM West after certain issues are resolved concerning the impact of RTO participation on its provider-of-last-resort settlement. PJM West became operational on April 1, 2002. Table 11.3 provides the combined statistics for PJM and PJM West.

<b>Table 11.3</b>	
<b>PJM and PJM West Statistics</b>	
Generating Units	594
Generating Capacity	72,712 MW
Peak Load	60,696 MW (projected)
Annual Energy	298,011 GWH
Transmission Miles	13,000
Area	79,000 square miles
Number of Customers	11 million
Population Served	25.1 million

A portion of the Rockland Electric Company load located in New Jersey was integrated into the PJM system in early March of 2001, which added approximately 423 MW of Rockland's net peak demand to the MAAC/PJM 2002 summer forecast net peak demand. See Appendix B for a map of the PJM RTO Transmission Zones.

For 2002, PJM expects to have about 2,000 MW of capacity additions and nearly 8,800 MW of capacity additions in 2003-2004. See Figure 11.1.

**Table 11.1. PJM Generation Additions**



On July 3, 2002, during a heat wave, PJM served a combined coincident demand of about 62,500 MW.

Dominion Resources, Inc. and PJM announced June 25, 2002, the companies have executed an agreement to have Dominion's 6,000 miles of transmission lines operated on a regional basis by PJM. Under the terms of the agreement, Dominion would establish PJM South and would allow Dominion's control area to be operated separately under the single PJM energy market, similar to PJM West. Dominion, headquartered in Richmond, Virginia, has nearly 24,000 MW of generating capacity and serves 3.9 million electric and natural gas customers in five states.

Earlier this year, PJM and the Midwest ISO announced that they executed a “Letter of Intent” to develop a single wholesale market for electricity producers and consumers in all parts of 27 mid-west and mid-Atlantic states, the District of Columbia and the Canadian province of Manitoba. The Letter of Intent states, “Such a Market, extending over a large geographic area, will be designed and operated to serve the needs of the public, the individual states and governmental entities, to benefit the economies in the regions encompassed by the Market.” The Mid-West ISO serves 17.5 million customers and operates 125,000 MW of generating capacity and 118,000 miles of transmission lines.

According to the PJM State of the Market Report – 2001, PJM’s Demand-Side Management (DSR) program resulted in a maximum hourly reduction in load of 1,858 MWH during 2001. The average hourly load reduction during hours when a PJM DSM program was called upon was about 1,200 MW or about 2.2% of peak load. The average price impact of this load reduction was about \$135 per MWH. An additional load reduction of 2,000 MW would have resulted in a further reduction in price of about \$300 per MWH. A permanent Emergency Load Response Program and a permanent Economic Load Response Program were approved by FERC earlier this year. The programs were scheduled to be implemented June 1, 2002.

In addition to the direct connect transmission facilities associated with new generating capacity, several transmission reinforcement projects are expected to be in service by 2006. These projects were evaluated by PJM through the PJM Regional Transmission Expansion Planning Process. PJM conducted a comprehensive load flow analysis of the ability of the PJM system as planned for 2006 to meet single contingency, second contingency and multiple facility outage contingency tests. Five areas of the system as planned through 2006 were found to be non-compliant with applicable NERC and MAAC reliability standards without additional reinforcement.

## **ECAR**

The East Central Area Reliability Council (ECAR) is one of 10 regional reliability councils comprised of investor-owned electric utilities, power marketers and independent power producers. ECAR was formed in 1967 to augment bulk power supply reliability through coordination of planning and operation of member companies' generation and transmission facilities. Full members currently includes 20 systems serving either all or parts of the states of Indiana, Kentucky, Maryland, Michigan, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia, serving more than 36 million people. These are: Allegheny Power (Monongahela Power Company The Potomac Edison Company and West Penn Power Company), American Electric Power (Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company

and Ohio Power Company), Big Rivers Electric Corp., Cinergy Corp. (The Cincinnati Gas & Electric Company and PSI Energy, Inc.), Consumers Energy, The Dayton Power and Light Company, The Detroit Edison Company, Duke Energy North America, Duquesne Light Company, DTE Energy, East Kentucky Power Cooperative, Inc., FirstEnergy (The Cleveland Electric Illuminating Company, Ohio Edison Company, Pennsylvania Power Company and The Toledo Edison Company), Hoosiers Energy Rural Electric Cooperative, Inc., Indianapolis Power & Light Company, LG&E Energy Corp. (Kentucky Utilities Company and Louisville Gas & Electric Company), Northern Indiana Public Service Company, Ohio Valley Electric Corp. (Indiana-Kentucky Electric Corp.), Orion Power Midwest, Reliant Energy Services, Inc. and Vectren Energy Delivery of Indiana. There are also 30 associate members of ECAR.

Control of the generating units and the bulk power transmission networks within the ECAR region is directed by 19 Power Control Centers which include Allegheny Power (of which West Penn Power Company is a subsidiary), Duquesne Light Company and FirstEnergy (of which Pennsylvania Power Company is a subsidiary).

The 2001 aggregate (non-coincident) summer peak load of 100,235 MW was 8,202 MW or 8.9% higher than the summer peak of 2000. This load was also 1,584 MW or 1.6% higher than the forecast. Total generating capacity at the time of the peak was 113,136 MW. Net energy for load in 2001 was 546.2 billion KWH or 0.04% higher than that of the previous year.

The regional non-coincident internal peak load is projected to increase to 109,113 MW by the summer of 2006 at an average annual growth rate of 1.8%. Peak load reductions from direct load control programs and interruptible customers are expected to reach 2,896 MW by 2006. Energy demand is expected to grow at a rate of 2.1% per year.

ECAR's members project additions of 42,530 MW of new generating capacity by 2006, which includes 34,892 MW of uncommitted resources. A majority of this new capacity is projected to be short lead-time, gas-fired combustion turbine and combined cycle units (83.3%). Capacity margins for net internal demand are expected to be between 11.9% and 21.7% in the 2002-2006 timeframe.

### **Compliance Standards**

ECAR's standard for evaluating the reliability of the generation component of the bulk power supply involves the computation of the number of days per year that the ECAR Region is expected to rely on (a) generating resources outside of ECAR and (b) reducing area load to the extent that such resources are not available. The member companies use this measure of performance, the Dependence on

Supplemental Capacity Resources (DSCR), to identify critical bulk power supply situations for appropriate response.

### **Reliability Assessment**

ECAR's self assessment contained in NERC's *Reliability Assessment 2001-2010* report states that resources planned for the ECAR Region should be adequate.

*“The bulk electric systems in ECAR will continue to perform well in meeting the forecast demand obligations over a wide range of anticipated system conditions as long as established operating limits and procedures are followed and proposed projects are completed in a timely manner. There remains particular concern about the certification difficulties of American Electric Power’s 765 kV project in southeastern ECAR, which is needed to guard against the potential for widespread interruptions. The Region’s criteria for resource adequacy will be satisfied through 2005 if at least 3,650 MW of the announced capacity resource projects within ECAR go into service to supplement the capacity presently in service or under construction. This assumes that capacity resources are available outside the ECAR Region when needed, and that the average annual generating unit availability is maintained at or above levels experienced in recent years.”*

See Appendix A for additional data on capacity and demand projections.

# Section 4

## Conclusions

The primary purpose of this annual report is to provide a technical and operational appraisal of the electric power system in Pennsylvania as required by the Public Utility Code. To put this into proper perspective, a cursory review of the region's electric system reliability is appropriate.

Electric system reliability has been an important issue since the Northeast blackout which occurred on November 9, 1965. At that time, demand was growing at about 7% per year, outpacing the addition of generating resources. The Commission worked with other state commissions and the federal government to encourage the electric utility industry to develop plans for increasing generating capacity to meet projected increases in demand. As a result, capacity reserves increased from 9% in 1965 to 21% reserves in 1972.<sup>2</sup>

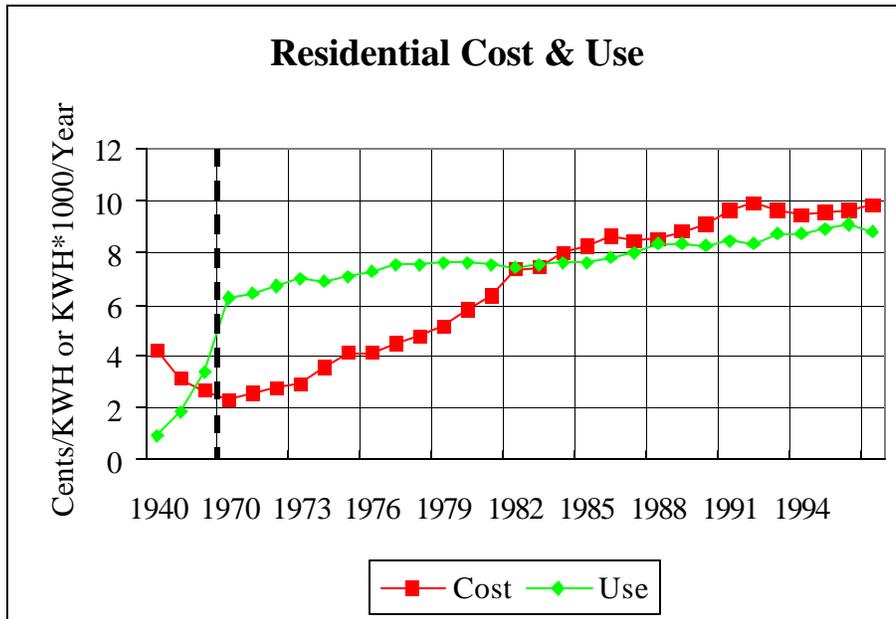
Subsequently, the Commission determined that a continuous monitoring of the electric supply and demand situation in the Commonwealth was in the public interest. Since then, the Commission has been reporting annually on the current status and projections of system reliability. Other concerns have included more stringent environmental regulations and the threat of circumstances leading to shortages of fuel supplies. As MAAC points out, it is currently concerned about the potential adverse impact of Environmental Protection Agency regulations, which require abatement of NOx by 2003, since these regulations may result in the premature retirement of existing generating units or extended outages of existing units for capital modifications. ECAR is also concerned about the impact of these requirements on reliability.

For many years, Pennsylvania has benefited from a high level of electric service reliability. Load growth has dramatically decreased from the 7% rate experienced in the 1960's to less than 2%. The price of electricity and appliance saturation have had a major influence on the slowing of average consumption growth rates, with average residential revenue per kilowatthour increasing from 2.75 cents in 1972 to 9.76 cents in 1997, an increase of 255% or about 10% per year. During the same period, average usage increased only 30% or about 1% per year. See Figure 1.

---

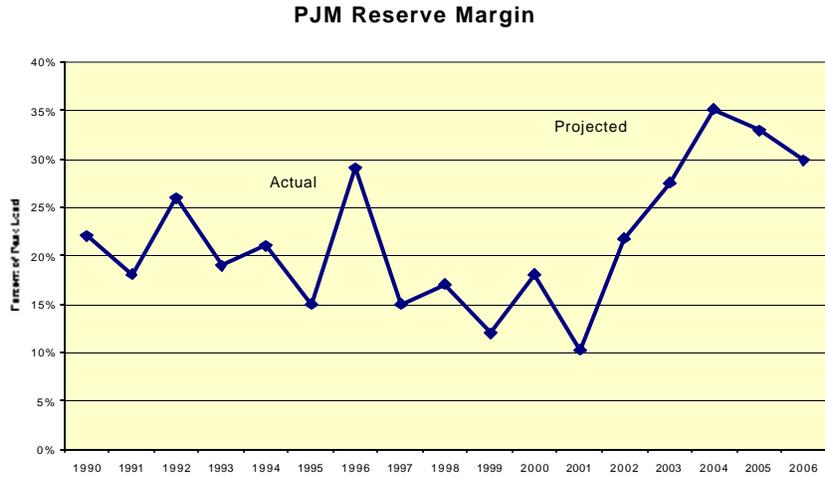
<sup>2</sup> Investigation Docket No. 138, Order dated March 13, 1972.

Figure 1



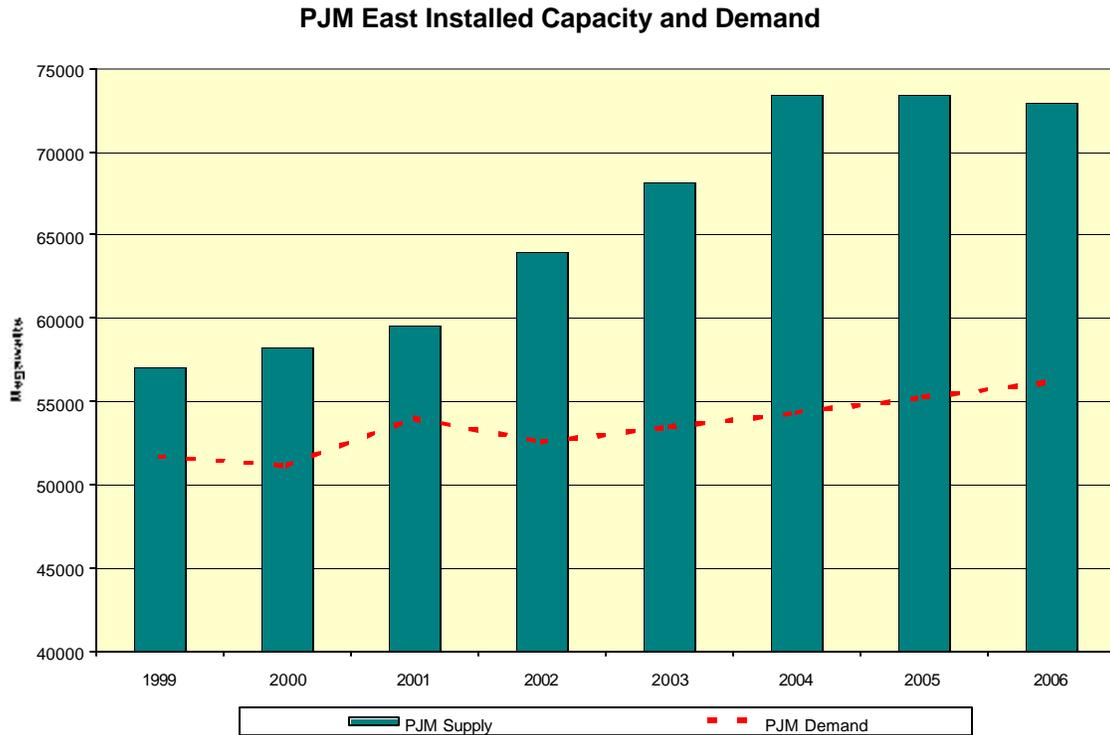
Between 1965 and 1975, installed generating capacity in Pennsylvania more than doubled, increasing from 11,236 megawatts to 23,143 megawatts at an annual rate of 7.4%. From 1975 to 1985, new capacity was added at an average of 410 megawatts per year. With the decrease in demand growth and an abundant supply of generating capacity, the addition of new capacity slowed to a rate of about 200 megawatts per year. Pennsylvania's reserves are currently about 20% of peak load. See Figure 2.

**Figure 2**



The Mid-Atlantic Area Council (MAAC) and the East Central Area Reliability Council (ECAR) regions covering Pennsylvania continue to have sufficient generating resources to maintain a high level of reliability during the summer of 2002 and beyond. Load growth in the mid-Atlantic is expected to be moderate. Thousands of megawatts of new capacity are proposed to be in service between 2002 and 2006, and it is anticipated that generation capacity will match or somewhat outstrip demand. This new capacity will help to ensure the reliability of electric service in the state and will increase the robustness of the competitive energy markets. The deregulation of retail energy markets in Pennsylvania has spawned a fertile environment for economic growth in the electric utility industry with benefits for all consumers. Figure 3 depicts projected growth in installed capacity for PJM East.

**Figure 3**



Thus, there is sufficient generation, transmission and distribution capacity in Pennsylvania to meet the needs of electric consumers for the foreseeable future. Further, both the rate caps set forth in the Electricity Generation Customer Choice and Competition Act and restructuring settlements, and the oversight authority that still resides with the Commission, will work to prevent the price spikes experienced in the past by some regions. The Commission has also launched a demand side response initiative to address ways to encourage customers to respond to peak period wholesale prices by reducing their demand. In the long term, this initiative will improve overall energy efficiency.

\* \* \*

To summarize the relevant statistics in this report, aggregate sales in 2001 totaled 134.2 billion kilowatthours (KWH), a 2.3% increase from that of 2000 and 4.0% of the United States' total. Industrial sales accounted for 35.1% of the total sales, followed by residential (32.6%) and commercial (29.7%).

Between 1986 and 2001, the state's energy demand grew an average of 1.9% annually. Residential sales grew at an annual rate of 1.9%, commercial at 3.3% and industrial at 0.8%. The current aggregate 5-year projection of growth in

energy demand is 1.6%. This includes a residential growth rate of 1.4%, a commercial rate of 2.0% and an industrial rate of 1.4%.

MAAC's reliability standards require that sufficient generating capacity be installed to insure that the probability of system load exceeding available capacity is no greater than one day in 10 years. According to information provided by MAAC members, MAAC meets the 1-in-10 standard through the 2005/2006 planning period.

ECAR's standard for evaluating the reliability of the generation component of the bulk power supply involves the computation of the number of days per year that the ECAR Region is expected to rely on generating resources outside of ECAR and reducing area load to the extent that such resources are not available. According to ECAR, regional bulk electric systems are expected to perform well in meeting forecast demand obligations. Announced capacity resource projects will satisfy the Region's criterion for resource adequacy through 2006 if at least 3,650 MW of announced capacity resource projects within ECAR go into service to supplement the capacity presently in service or under construction.

The planning and operation of Pennsylvania's electric utilities continues to be forward-looking and reliable. We have confidence in the competitive energy market and in the utilities' ability to make it work.

# **Appendix A**

## **Capacity and Demand Projections Of ECAR and MAAC**

Source: ECAR and MAAC Responses to the 2001 NERC Data Request  
(formerly the EIA-411)

## ECAR Actual and Projected Energy and Peak Demand

<b>Actual Data:</b>	<b>2001</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		82,378	76,913	74,885	68,571	73,226	91,610	96,429	100,235	85,422	68,037	71,440	75,968
<b>Net Energy - GWH</b>		50,133	43,811	46,475	40,630	42,774	46,654	49,875	53,662	43,258	42,220	41,012	45,663

<b>Reporting Year:</b>	<b>2002</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		85,485	82,763	76,862	71,035	79,393	92,524	99,346	98,780	89,029	73,217	77,561	83,903
<b>Net Energy - GWH</b>		50,177	45,280	46,134	42,439	43,904	47,225	51,494	50,932	45,404	43,943	44,517	48,680

<b>Next Year:</b>	<b>2003</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		87,133	84,815	78,857	73,040	81,756	94,977	101,871	101,608	91,356	75,248	79,634	85,799
<b>Net Energy - GWH</b>		51,409	46,274	47,101	43,346	44,814	48,243	52,646	52,200	46,651	45,104	45,680	49,971

<b>Actual Previous Year and 10 Year Projection: Peak Hour Demand - MW - Summer</b>	<b>Actual</b>	<b>Projected</b>									
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	100,235	99,346	101,871	104,548	106,541	109,113	110,637	112,653	114,161	115,742	117,625

<b>Actual Previous Year and 10 Year Projection: Peak Hour Demand - MW - Winter</b>	<b>Actual</b>	<b>Projected</b>									
	<b>01/02</b>	<b>02/03</b>	<b>03/04</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>09/10</b>	<b>10/11</b>	<b>11/12</b>
	85,485	87,133	89,228	90,796	92,586	94,404	96,137	97,750	99,105	100,291	101,684

<b>Actual Previous Year and 10 Year Projection: Net Energy - GWH</b>	<b>Actual</b>	<b>Projected</b>									
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	546,167	560,129	573,439	584,897	594,204	603,254	611,347	621,737	631,173	640,910	650,617

Peak demands are sum of monthly company peaks (non-coincident).

## MAAC Actual and Projected Energy and Peak Demand

<b>Actual Data:</b>	<b>2001</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		41,142	41,017	38,036	35,257	40,378	42,472	52,000	54,015	42,920	34,441	34,595	38,418
<b>Net Energy - GWH</b>		24,168	20,777	22,127	19,298	20,240	23,560	24,171	26,954	20,807	20,298	19,619	21,823

<b>Reporting Year:</b>	<b>2002</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		39,458	38,812	40,151	35,980	39,565	50,031	54,188	51,405	46,231	36,890	39,606	43,107
<b>Net Energy - GWH</b>		24,361	22,279	22,197	19,881	20,542	23,185	25,772	25,636	21,916	20,789	21,044	23,699

<b>Next Year:</b>	<b>2003</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>Peak Hour Demand - MW</b>		44,094	42,560	40,406	35,985	39,570	50,036	54,198	51,415	46,236	36,895	39,606	43,112
<b>Net Energy - GWH</b>		24,501	22,400	22,325	19,883	20,544	23,188	25,775	25,639	21,919	20,791	21,046	23,701

<b>Actual Previous Year and 10 Year Projection:</b>	<b>Actual</b>	<b>Projected</b>									
<b>Peak Hour Demand - MW - Summer</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	54,015	54,188	55,089	55,956	56,872	57,809	58,651	59,526	60,343	61,172	62,495

<b>Actual Previous Year and 10 Year Projection:</b>	<b>Actual</b>	<b>Projected</b>									
<b>Peak Hour Demand - MW - Winter</b>	<b>01/02</b>	<b>02/03</b>	<b>03/04</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>09/10</b>	<b>10/11</b>	<b>11/12</b>
	39,458	44,747	45,367	46,019	46,668	47,288	47,913	48,548	49,140	49,774	50,382

<b>Actual Previous Year and 10 Year Projection:</b>	<b>Actual</b>	<b>Projected</b>									
<b>Net Energy - GWH</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	263,841	271,685	277,383	282,435	286,470	290,907	294,752	298,962	302,687	306,548	310,445







## MAAC Projected Capacity and Demand - Winter

Demand in Megawatts	Actual	Projected									
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Internal Demand	39,458	44,747	45,367	46,019	46,668	47,288	47,913	48,548	49,140	49,774	50,382
Standby Demand	0	0	0	0	0	0	0	0	0	0	0
Total Internal Demand	39,458	44,747	45,367	46,019	46,668	47,288	47,913	48,548	49,140	49,774	50,382
Direct Control Load Management	0	151	151	151	151	151	151	151	151	151	151
Interruptible Demand	0	548	548	548	548	548	548	548	548	548	548
Net Internal Demand	39,458	44,048	44,668	45,320	45,969	46,589	47,214	47,849	48,441	49,075	49,683

Capacity in Megawatts	Actual	Projected									
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Committed Resources	62,174	65,383	74,106	74,410	74,410	74,410	74,410	74,410	74,410	74,410	74,410
Uncommitted Resources	0	0	0	0	0	0	0	0	0	0	0
Total Capacity	62,174	65,383	74,106	74,410	74,410	74,410	74,410	74,410	74,410	74,410	74,410
Nuclear	13,172	13,222	13,222	13,222	13,222	13,222	13,222	13,222	13,222	13,222	13,222
Hydro	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171
Pumped Storage	1,749	1,749	1,749	1,749	1,749	1,749	1,749	1,749	1,749	1,749	1,749
Geothermal	0	0	0	0	0	0	0	0	0	0	0
Steam -- Coal	14,983	14,983	14,983	14,983	14,983	14,983	14,983	14,983	14,983	14,983	14,983
Steam -- Oil	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540
Steam -- Gas	79	79	79	79	79	79	79	79	79	79	79
Steam -- Dual Fuel	11,539	11,539	11,539	11,539	11,539	11,539	11,539	11,539	11,539	11,539	11,539
Combustion Turbine -- Oil	4,904	4,904	4,904	4,904	4,904	4,904	4,904	4,904	4,904	4,904	4,904
Combustion Turbine -- Gas	921	1,119	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120
Combustion Turbine -- Dual Fuel	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124
Combined Cycle -- Oil	0	0	0	0	0	0	0	0	0	0	0
Combined Cycle -- Gas	1,728	4,689	11,411	11,411	11,411	11,411	11,411	11,411	11,411	11,411	11,411
Combined Cycle -- Dual Fuel	2,395	2,395	2,395	2,395	2,395	2,395	2,395	2,395	2,395	2,395	2,395
Other	869	869	869	1,173	1,173	1,173	1,173	1,173	1,173	1,173	1,173
Inoperable Capacity	0	0	0	0	0	0	0	0	0	0	0
Net Operable Capacity	62,174	65,383	74,106	74,410	74,410	74,410	74,410	74,410	74,410	74,410	74,410
Capacity Purchases - Total	1,671	488	488	488	488	488	38	38	38	38	38
Full Responsibility Purchases	0	0	0	0	0	0	0	0	0	0	0
Capacity Sales - Total	240	0	0	0	0	0	0	0	0	0	0
Full Responsibility Sales	0	0	0	0	0	0	0	0	0	0	0
Adjustment to Purchases and Sales	0	0	0	0	0	0	0	0	0	0	0
Net Capacity Resources	63,605	65,871	74,594	74,898	74,898	74,898	74,448	74,448	74,448	74,448	74,448

## ECAR Transmission Line Circuit Miles

		Voltage Class (kV)				Total
		230	345	500	765	
<b>Existing</b>	<b>12/31/01</b>	1,273	12,060	852	2,022	16,207
<b>Under Construction</b>	<b>First 5 Years</b>	17	44	2	92	155
<b>Committed or Planned</b>	<b>Second 5 Years</b>	0	0	0	0	0
		=====	=====	=====	=====	=====
<b>Total</b>	<b>12/31/09</b>	1,290	12,104	854	2,114	16,362

## MAAC Transmission Line Circuit Miles

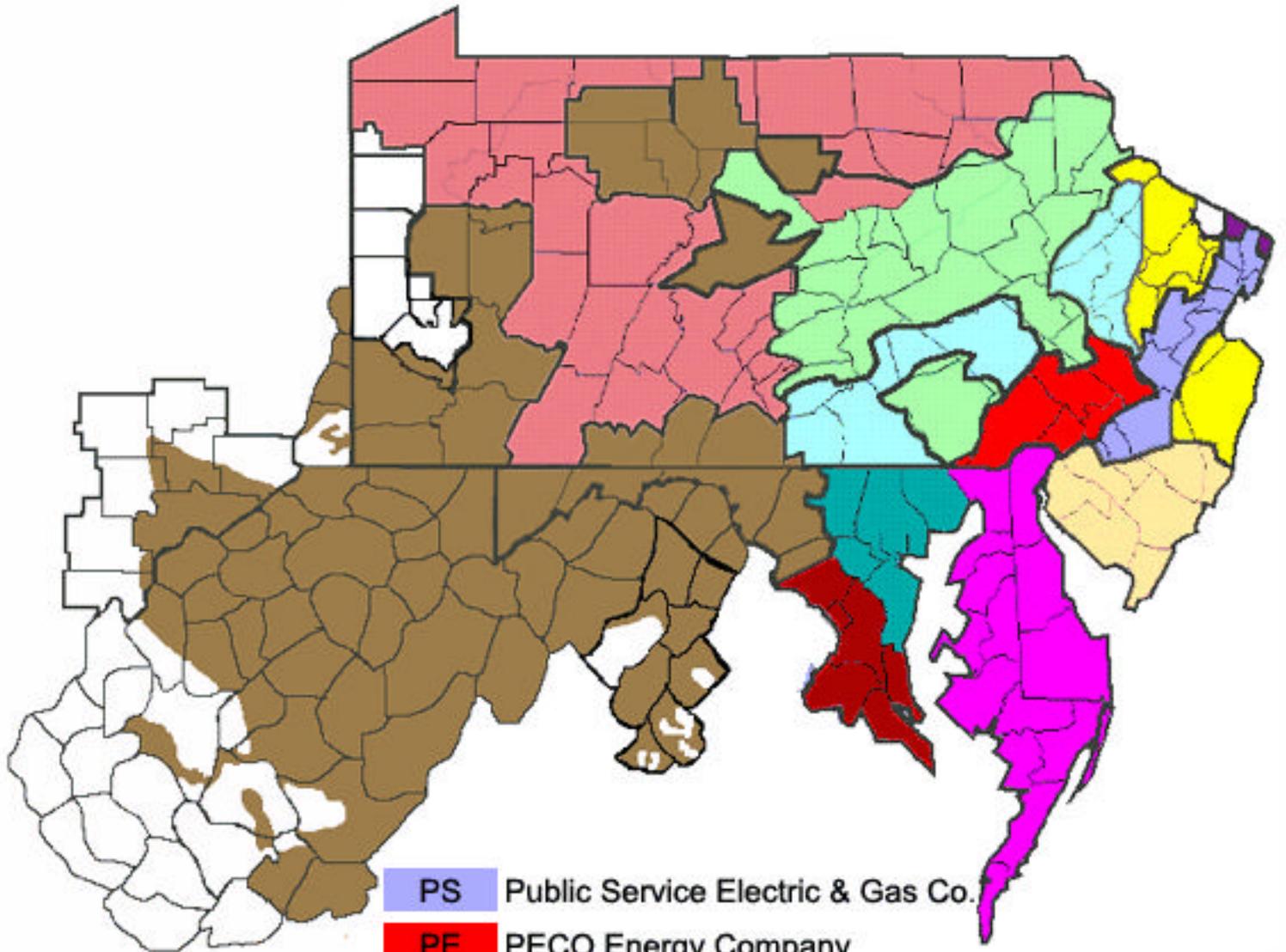
		Voltage Class (kV)				Total
		230	345	500	765	
<b>Existing</b>	<b>1/1/02</b>	5,190	165	1,676	0	7,031
<b>Under Construction</b>	<b>First 5 Years</b>	68	0	0	0	68
<b>Committed or Planned</b>	<b>Second 5 Years</b>	0	0	0	0	0
		=====	=====	=====	=====	=====
<b>Total</b>	<b>12/31/10</b>	5,258	165	1,676	0	7,099

# **Appendix B**

## PJM Transmission Zones

Source: <http://www.pjm.com>

# PJM Transmission Zones



- PS** Public Service Electric & Gas Co.
- PE** PECO Energy Company
- PL** PPL Electric Utilities
- BC** Baltimore Gas & Electric Co.
- PN** Pennsylvania Electric Co.
- ME** Metropolitan Edison Co.
- JC** Jersey Central Power and Light Co.
- PEP** Potomac Electric Power Co.
- DPL** Delmarva Power & Light Co.
- AE** Atlantic Electric Co.
- RECO** Rockland Electric Company
- AP** Allegheny Power