

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC UTILITY COMMISSION  
v.  
PECO ENERGY COMPANY - ELECTRIC DIVISION**

**DOCKET NO. R-2010-2161575**

**VOLUME X**

**Supplemental Data Responses  
Cost of Service**

- Q. SDR-COS-1 Please provide, in hard copy and on a computer disk, for each month of the most recent 10-year period, if available, for each rate class in the class cost of service study, the following:
- a. generation level demand coincident with the system peak
  - b. generation level maximum class demand (i.e., non-coincident peak demand) for annual peak
  - c. number of customers, and
  - d. annual kWh at generation.

For the same period, provide:

- e. date, time and level of monthly peak demand for both PA jurisdiction and total Company system loads covered by an integrated dispatch and total of all classes covered by the cost-of-service study.
- A. SDR-COS-1 Not applicable. PECO does not own any generation but instead purchases from others the power used to serve its default service customers.

- Q. SDR-COS-2 Please provide workpapers showing the development of each allocator (for those not already provided elsewhere) and direct assignment in the class cost-of-service study. Provide descriptions of the methods, the underlying data and calculations that show development of the allocator or direct assignment from the raw data. For any normalization (e.g., weather) please provide description of the normalization and equations used.
- A. SDR-COS-2 Refer to Exhibit HSG-5A, Exhibit HSG-5B and Exhibit HSG-5C, for development of allocation factors for functionalization, classification and class allocation, respectively. Refer to Exhibit HSG-6 for development of external allocators. Refer to direct testimony and exhibits of Company witness Howard S. Gorman, PECO Statement No. 8, for descriptions of methods used in development of the allocators.

- Q. SDR-COS-3 Please describe the functionalization of plant into two or more functional components (e.g., distribution plant into demand and customer components) and provide all workpapers supporting the separation. If divisions are made separating plant into sub classification (e.g., primary and secondary distribution), describe the basis for the separation and provide workpapers supporting the division.
- A. SDR-COS-3 Refer to direct testimony and exhibits of Company witness Howard S. Gorman, PECO Statement No. 8, for description of functionalization of plant and classification (e.g. distribution plant into demand and customer components). Refer to Exhibit HSG-5A and Exhibit HSG-5B for development of allocation factors for functionalization and classification, and to Exhibit HSG-6 for development of basis of separation.

Q. SDR-COS-4 Please provide the analysis used to develop the class demands relied on in the preparation of the demand allocators for the class that are (or nearly are) 100 percent recorded by time of use. For other classes, provide explanation of method used to estimate class loads and supporting workpapers.

A. SDR-COS-4 The demand allocators used in cost allocation study (are shown in Exhibit HSG-6, page 21). The load study used to develop those allocators was conducted over the period 4/1/2008 through 3/31/2009. PECO was able to use hourly load interval data from its currently installed Automated Meter Reading (AMR) system. In addition, actual hourly load data was used for all of PECO's largest customers currently metered using an MV-90 system. For the AMR metered customers, this process enabled PECO to include data from over 2,700 interval meters to ensure an accurate sample. PECO engaged a consultant, DataRaker, to collect and analyze the data to develop the load study.

See Attachment SDR-COS-4, which provides an overview of the load study results.

**ATTACHMENT  
SDR-COS-4**

# Final Findings for PECO Load Study

September 2009



*Advanced analytic solutions that create value from smart metering  
networks in electric, gas, and water.*

## Summary

- DataRaker collected and analyzed interval data for PECO load research meters for the time period 4/1/08-3/31/09.
- DataRaker utilized the technique known as Ratio Expansion to estimate rate class hourly loads for seven tariff classes (R, RH, OP, GS No Demand, GS Demand, HT, PD). In addition, tariff class hourly loads were estimated for three of the tariff classes (GS Demand, HT, and PD) after eliminating all customers with demand greater than 500 kW.
- Because of the availability of AMR data collected on a daily interval for essentially all population meters, DataRaker used the ratio of hourly load to daily load to estimate the hourly loads for each tariff class. This resulted in excellent confidence intervals for the estimates.

## Summary (continued)

- The study derived average use per customer by hour for the study period. Regression analysis was performed to derive weather response functions.
  - Weather Response Functions are the relationship between hourly load and weather, season, and day-type.

## Sample Data Collection

- The sample interval data was collected by the AMR system using an approach known as “interval-lite”. This approach collects all available data for each sample point without reinforcing the AMR network. The result is more missing data than would be the case with the more expensive approach with network reinforcement. For this reason, the population was over sampled (by a factor of 4).
- For this study, DataRaker only used sample meters that had 90% of intervals collected (or 92% of intervals in the best 11 months).
  - Because of data problems and a small sample, meters that had 50% or more of intervals collected were used for Tariff Class OP
- Further, DataRaker only used sample meters that did not switch tariff class between sample design (January 08) and the end of the study (April 09).

## Sample Size

R	1846	1579	857	836
RH	405	362	198	169
GS	2140	1673	990	988 (51 No Demand)
OP		205	21	106
HT		746	499	417
PD		159	109	106

- Original Design means sample design. This sample was stepped up about four times to reflect the fact that data was collected using “interval lite” approach.
- Actual Meters means actually put in field as interval
- Quality Meters means enough interval data collected
- Final Sample means used in study
- < 500 kW means used in study for additional tariff profiles

### Resulting Average Confidence Intervals

GS Dem	3.064045087	5.2	6.1
GS No Dem	9.327514662	15.8	18.7
OP	18.01368038	30.4	36.0
R	2.227425472	3.8	4.5
RH	4.874453731	8.2	9.7
HT	0.830865479	1.4	1.7
PD	2.745344853	4.6	5.5

- Example: Average 90% Confidence Interval for R is +/- 3.8%
- General target for 90% Confidence is 10% or less

## Creating Weather Response Functions

- Model is created for each hour of day
- Data can use up to 4 Seasons
  - Winter (December – February)
  - Spring (March – May)
  - Summer (June – August)
  - Fall (September – November)
- Data can use up to 3 Day-types
  - Weekdays
  - Saturday
  - Sunday
- Modeling determines final structure

## Impact of Different Weather Variables

**GS DEM**

Season	Temper APE	EffTemp APE	LagEffTp APE
Winter	3.0%	3.9%	3.6%
Spring	2.7%	2.8%	2.6%
Summer	2.7%	2.6%	2.4%
Fall	3.1%	3.2%	3.0%

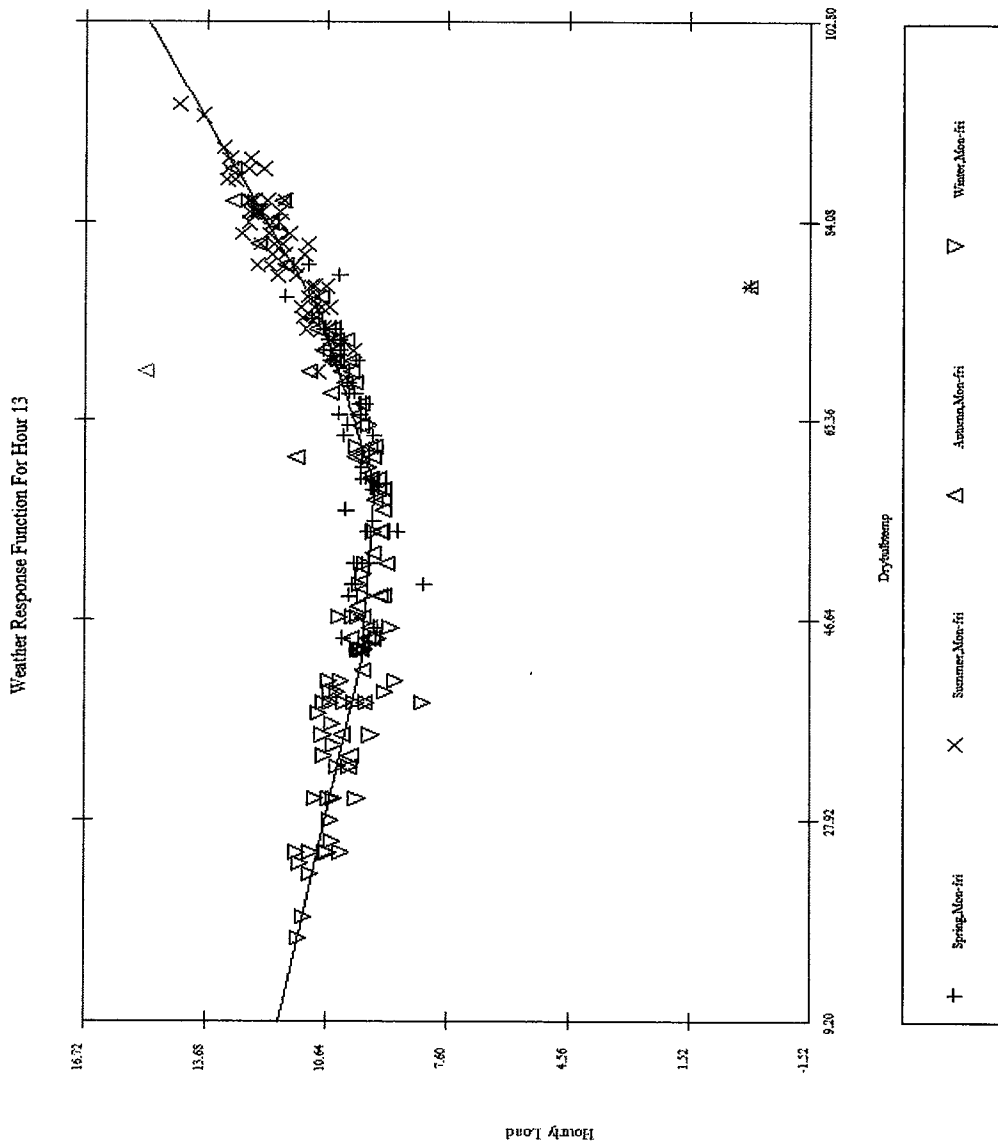
**R**

Season	Temper APE	EffTemp APE	LagEffTp APE
Winter	5.3%	5.9%	5.4%
Spring	5.7%	5.7%	5.0%
Summer	7.6%	7.3%	5.7%
Fall	6.1%	7.2%	6.1%

## Lag Improves Results

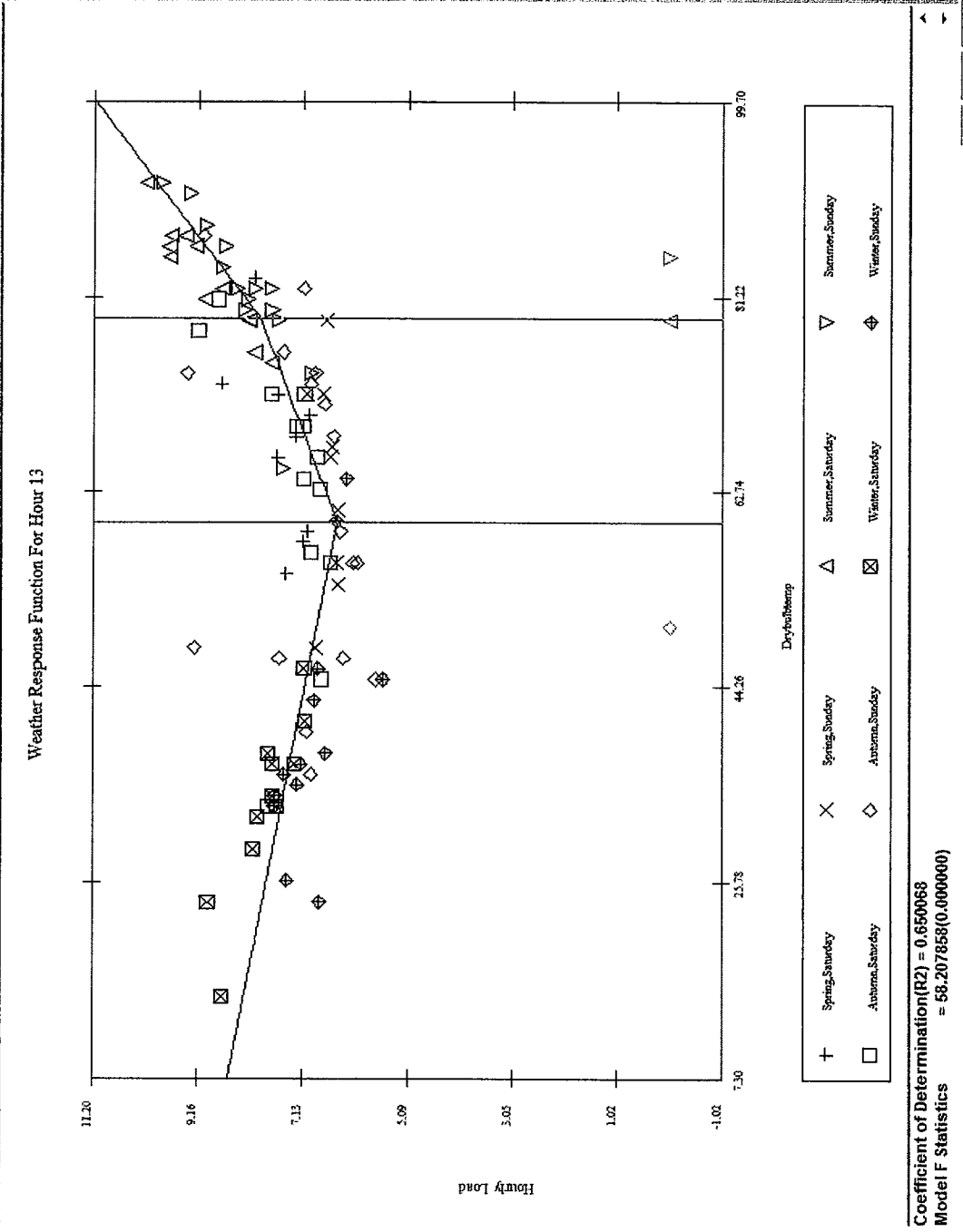
- Effective Temperature includes Relative Humidity in summer, and Wind Speed in winter.
- Lag weighs current (.7), 24 hour prior (.2), and 48 hour prior (.1)
- Final weather variable varies by time of year:
  - Summer (June-September) – Lagged Effective Temperature
  - Non-Summer - Lagged Dry Bulb Temperature

# GS Demand - Weekdays

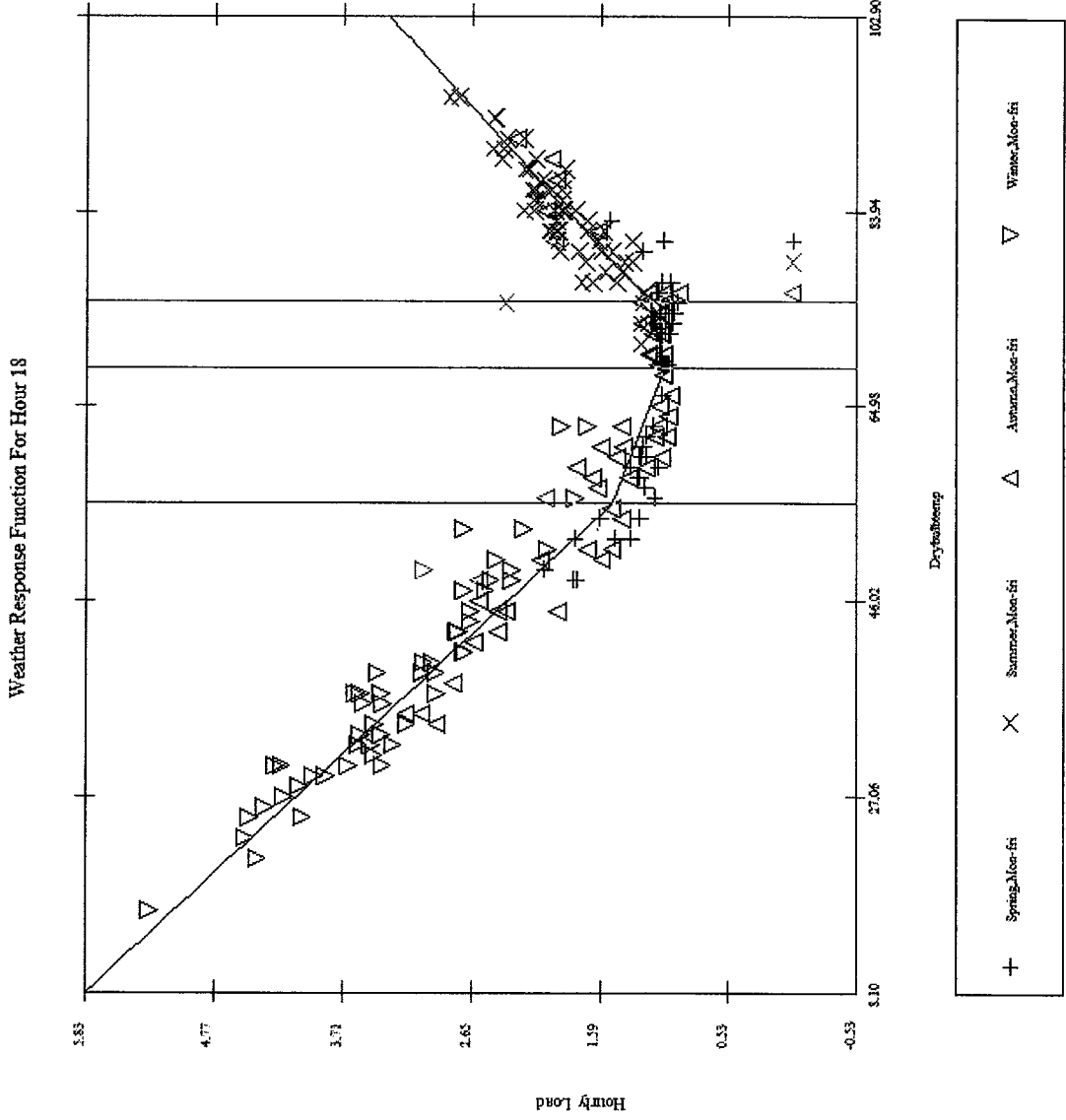


Coefficient of Determination(R2) = 0.872295  
 Model F Statistics = 360.308916(0.000000)

# GS Demand – Saturdays and Sundays

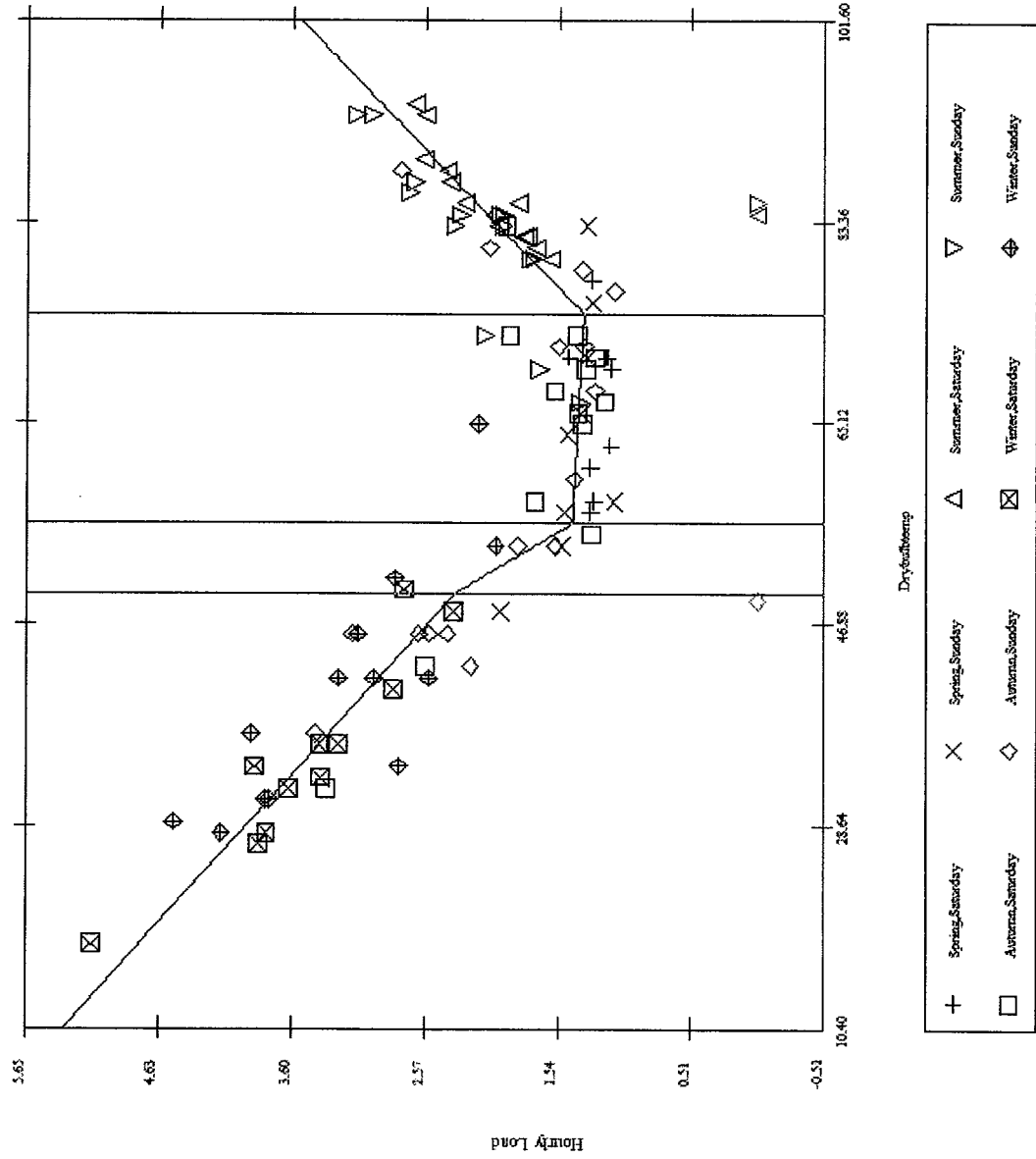


# RH – Spring and Fall Weekdays are Different

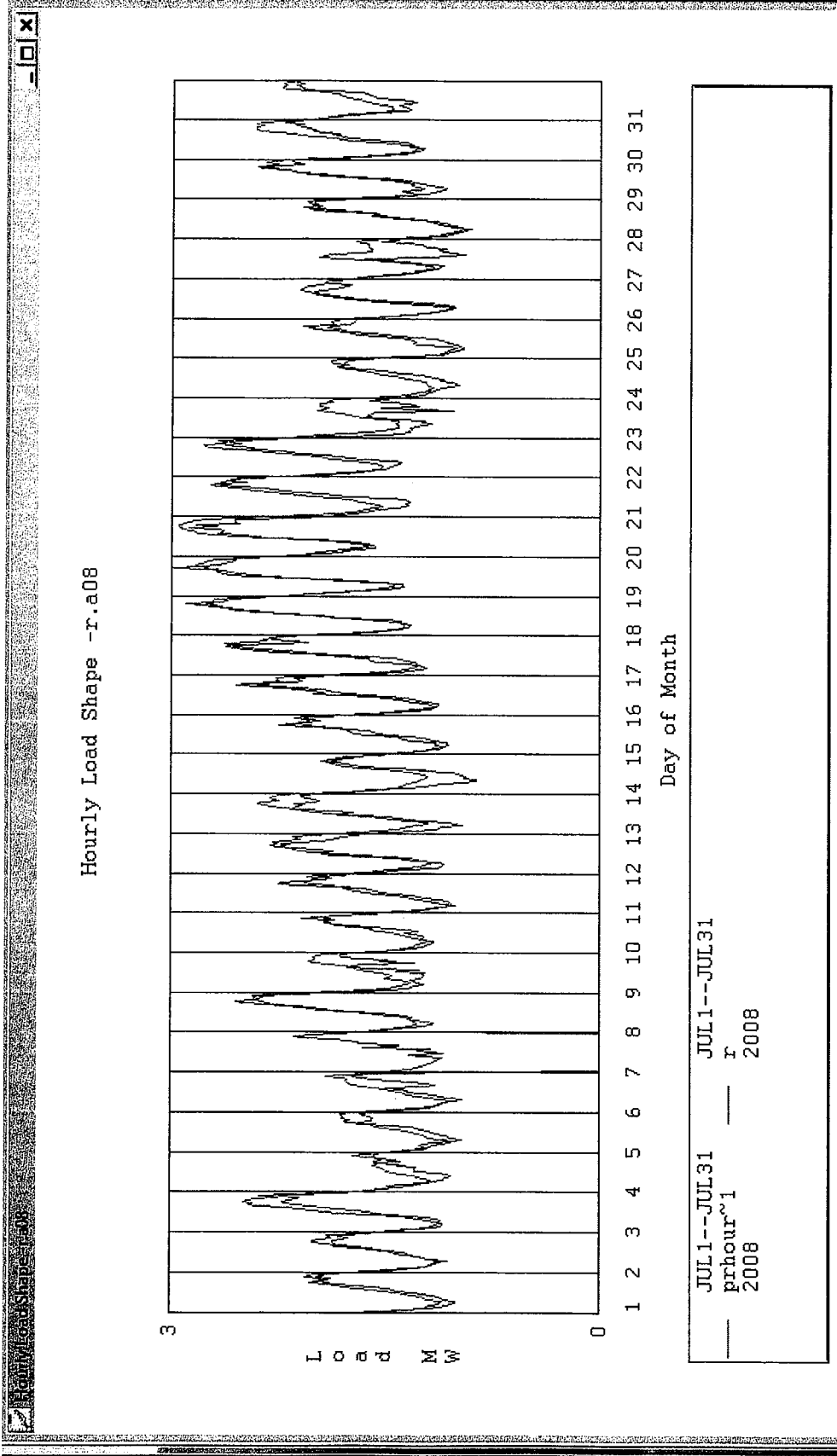


# RH Winter Weekends are different

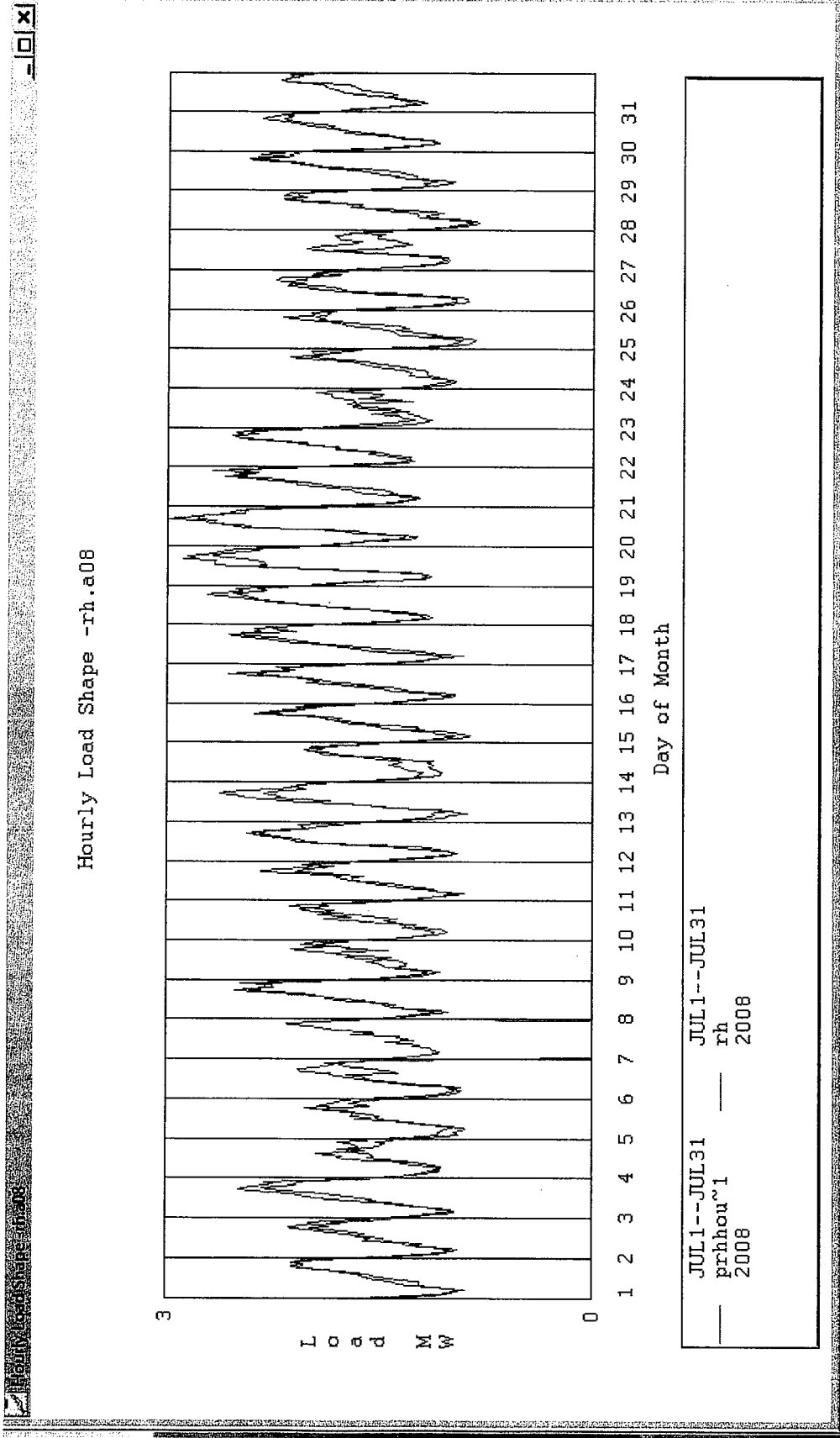
Weather Response Function For Hour 18



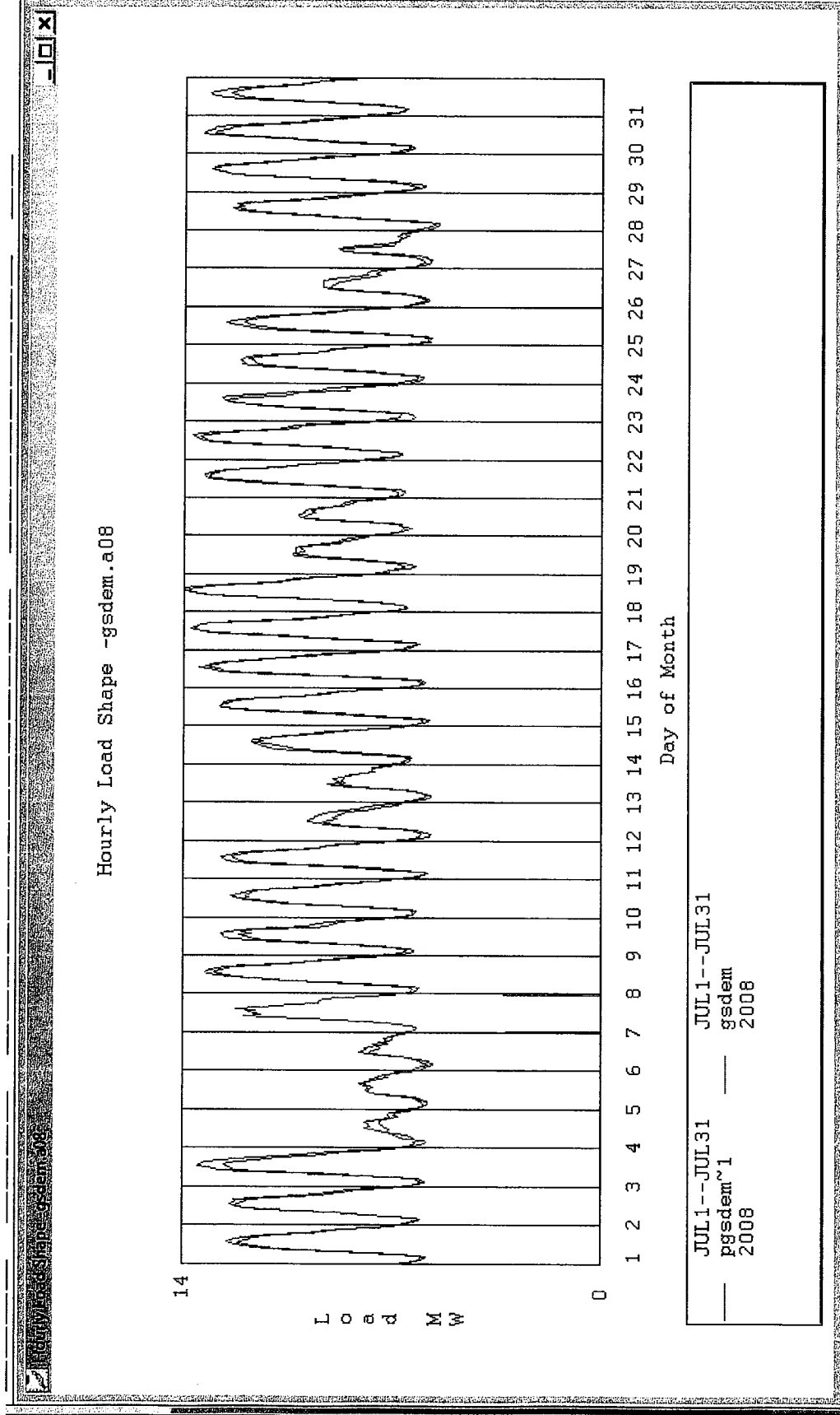
# Backcast - R



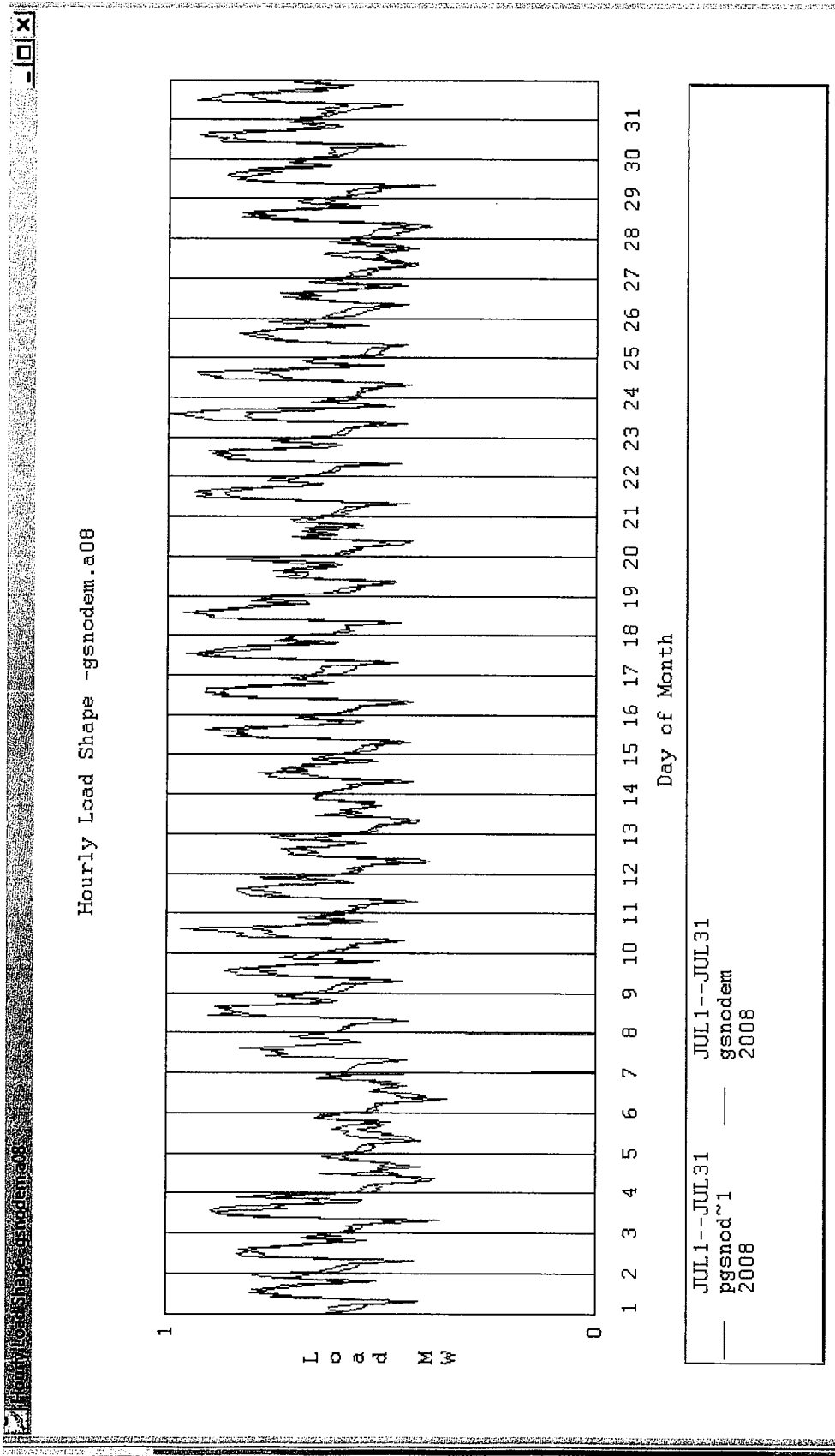
# Backcast RH



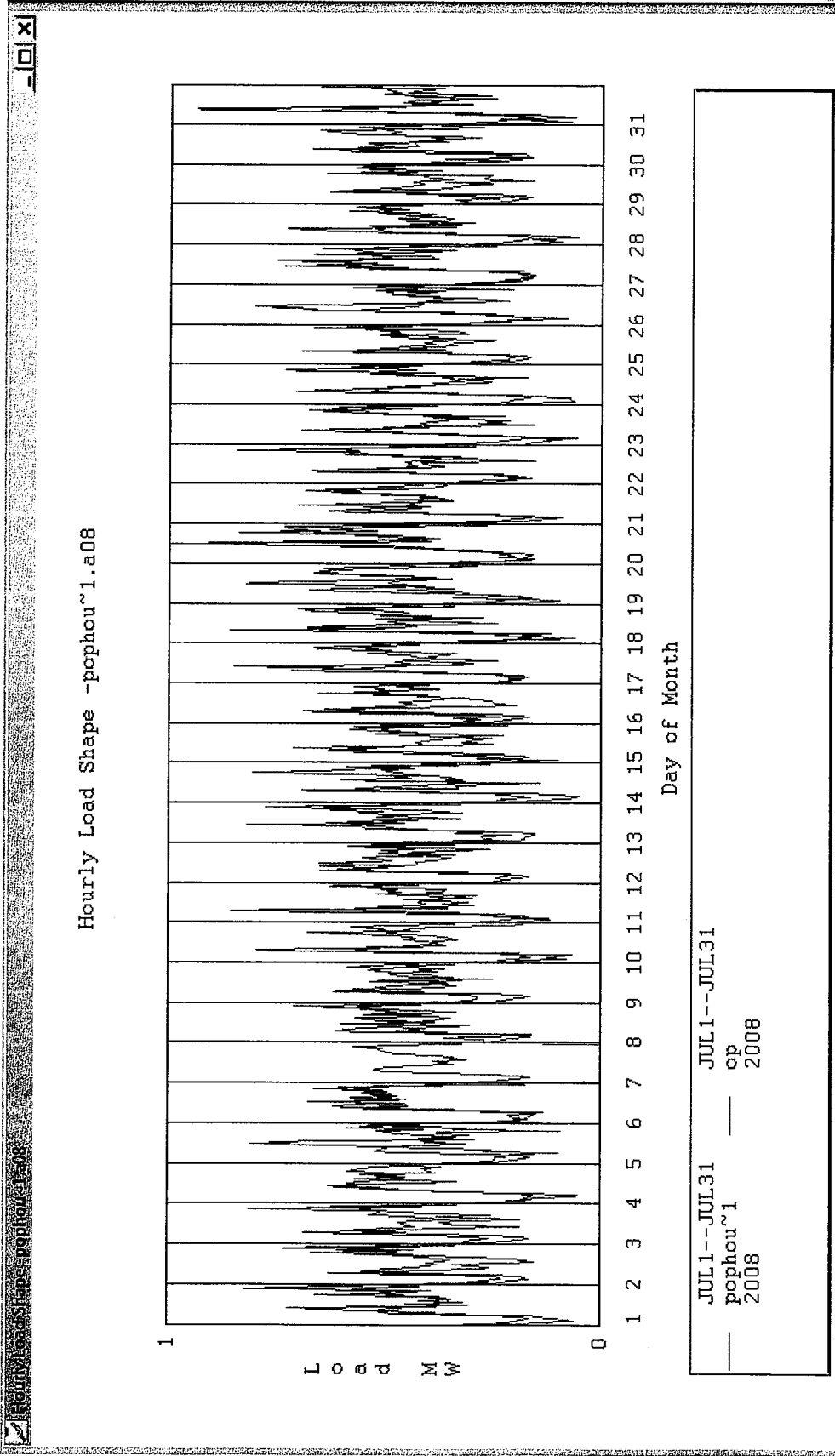
# Backcast – GS Demand



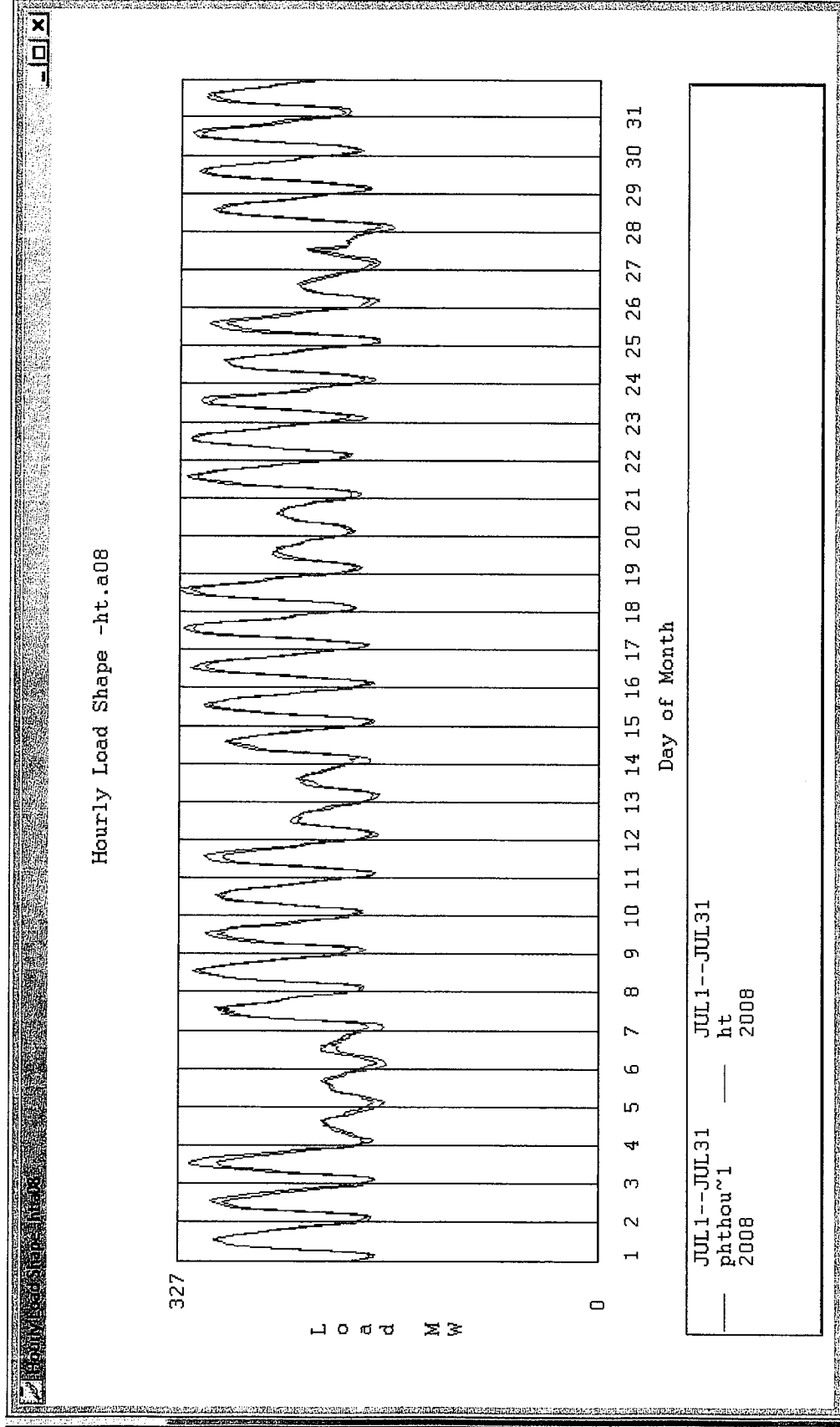
# Backcast GS No Demand



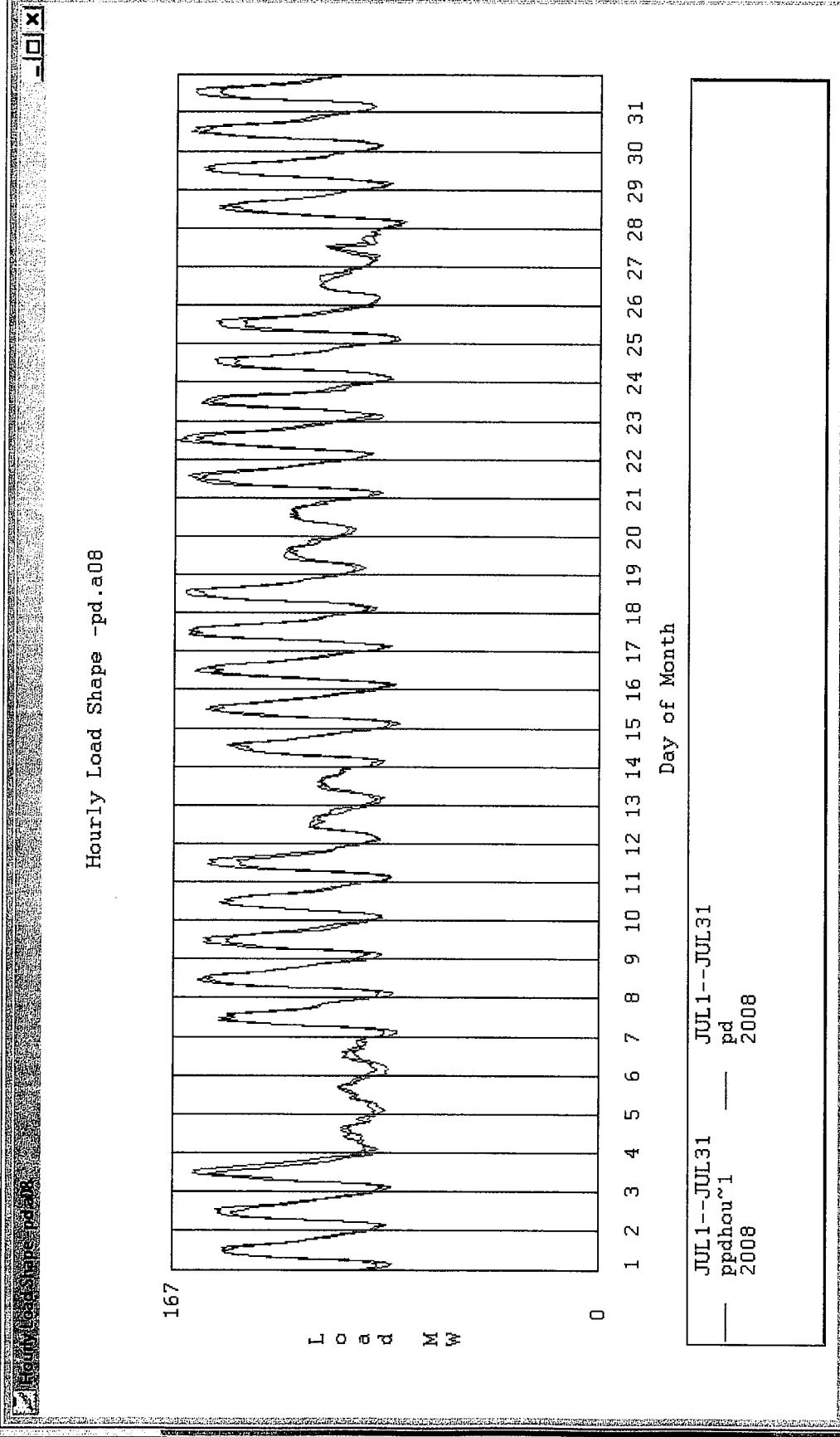
# Backcast OP



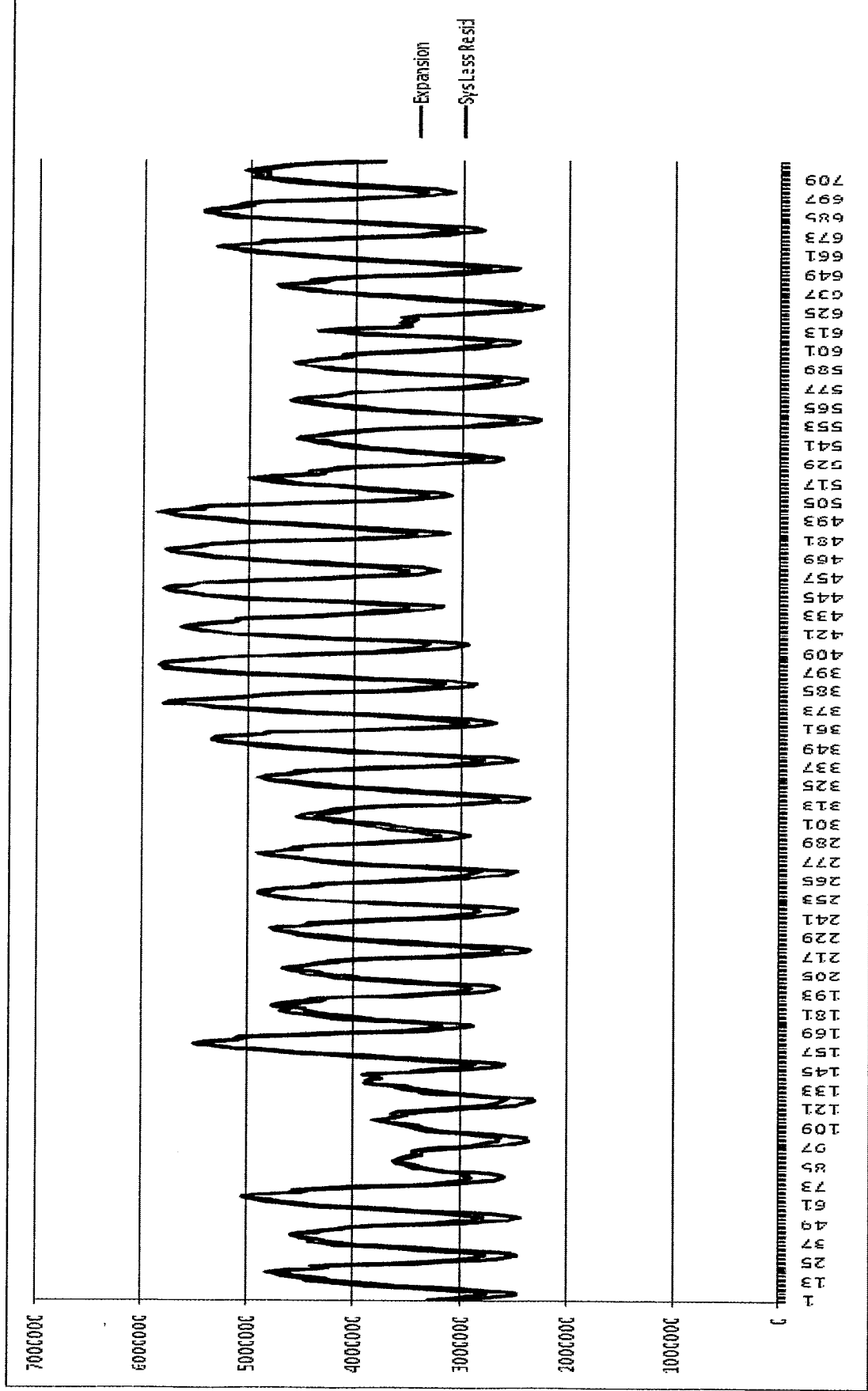
# Backcast HT



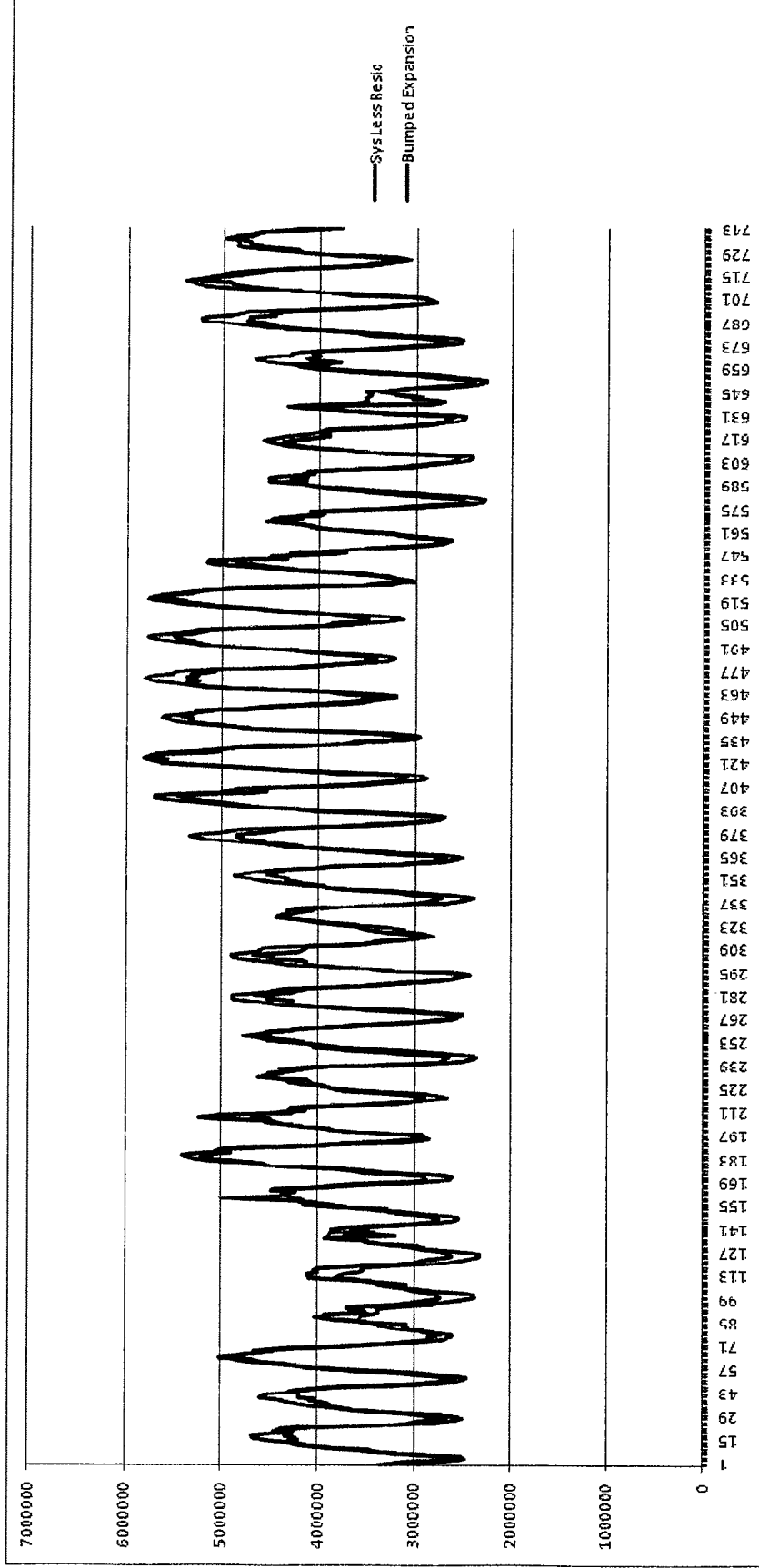
# Backcast PD



# System Reconciliation Using Customer Count – July 2008



# System Reconciliation using Billing Data – July 2008



---

## Deliverable

- DataRaker has delivered the WRFs and Load Shapes (hourly use per customer, 4/1/08-3/31/09) for 10 different groups of customers:
  - R
  - RH
  - OP
  - GS No Demand
  - GS Demand
  - GS Demand, <500 kW
  - HT
  - HT, <500 kW
  - PD
  - PD, <500 kW

- Q. SDR-COS-5 Please provide the most recent Annual Resource Planning Report prepared for the Company, and all cost analysis covering selection of alternative forms of generating capacity if not already provided therein.
- A. SDR-COS-5 Please see Attachment SDR-COS-5 for the most recent Annual Resource Planning Report.

**ATTACHMENT  
SDR-COS-5**

FORM	SECTION	DATA REQUESTED	APPLICABILITY
<u>ARPR 1</u>	57.142(a)	Historical and Forecast Energy Demand	EDC
<u>ARPR 2</u>	57.142(b)	Historical and Forecast Connected Peak Load	EDC
<u>ARPR 3</u>	57.142(c)	Historical and Forecast Number of Connected Customers	EDC
<u>ARPR 4</u>	57.142(d)	Historical and Forecast Peak Load and Energy Demand	Control Area
<u>ARPR 5</u>	57.143(a)	Existing Generating Capability	EDC & Control Area
<u>ARPR 6</u>	57.143(a)	Future Generating Capability Installations, Changes and Removals	EDC & Control Area
<u>ARPR 7</u>	57.143(a)	Projected Capacity and Demand	Control Area
<u>ARPR 8</u>	57.145	Qualifying Facility and Independent Power Production Facilities	EDC
<u>ARPR 9</u>	57.147	Scheduled Imports and Exports	Control Area
<u>ARPR 10</u>	57.148	Summary of Demands, Resources and Energy for the Previous Year	EDC
<u>ARPR 11</u>	57.144	Transmission Line Projection	EDC
<u>ARPR 12</u>	57.149	Conservation and Load Management Program Description	EDC

Current Year = 2009

**ARPR 1. Historical and Forecast Energy Demand (MWH)**

Index Year (a)	Actual Year (b)	Residential (c)	Commercial (d)	Industrial (e)	Other* (f)	Sales For Resale (g)	Total Consumption (h)	System Losses (i)	Company Use (j)	Net Energy For Load (k)
-1	2008	13,317,085	8,700,237	16,533,639	908,982	554,752	40,014,695	1,941,212	47,774	40,062,469
0	2009	13,583,427	8,874,242	16,864,312	891,490	559,190	40,772,661	2,242,496		40,772,661
1	2010	13,855,095	9,051,727	17,201,598	891,671	563,664	41,563,754	2,286,006		41,563,754
2	2011	14,132,197	9,232,761	17,545,630	891,851	568,173	42,370,612	2,330,384		42,370,612
3	2012	14,414,841	9,417,416	17,896,543	892,032	572,718	43,193,550	2,375,645		43,193,550
4	2013	14,703,138	9,605,765	18,254,473	892,214	577,300	44,057,421	2,423,158		44,057,421

\* "Other" sales include public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

**ARPR 2. Historical and Forecast Connected Peak Load (MW)**

Index Year (a)	Actual Year (b)	Summer*		Winter*		Annual Peak Load (g)	Annual Load Factor (h)
		Peak Load (c)	Date & Time (d)	Peak Load (e)	Date & Time (f)		
-1	2008	8824	6/10 @ 1700	6777	12/22 @ 1900	8824	51.8%
0	2009	8956	n/a	6845	n/a	8956	52.0%
1	2010	9091	n/a	6913	n/a	9091	52.2%
2	2011	9227	n/a	6982	n/a	9227	52.4%
3	2012	9365	n/a	7052	n/a	9365	52.6%
4	2013	9506	n/a	7123	n/a	9506	52.9%

\* The winter peak follows the summer peak. The summer season is June through September and the winter season is December through March of the following year.

**ARPR 3. Historical and Forecast Number of Connected Customers  
(Year End)**

Index Year (a)	Actual Year (b)	Residential (c)	Commercial (d)	Industrial (e)	Other* (f)	Total Customers (g)
-1	2008	1,407,573	158,553	3,081	1,087	1,570,294
0	2009	1,418,834	159,948	3,143	1,087	1,583,011
1	2010	1,430,184	161,356	3,205	1,087	1,595,833
2	2011	1,441,626	162,776	3,270	1,087	1,608,758
3	2012	1,453,159	164,208	3,335	1,087	1,621,789
4	2013	1,464,784	165,653	3,402	1,087	1,634,926

\* "Other" sales include public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

PaPUC

**ARPR 4. Historical and Forecast Peak Load and Energy Demand\*  
(MW & MWH)**

Control Area or Region (if applicable):

Index Year (a)	Actual Year (b)	Summer**		Winter**		Net Energy For Load (g)
		Peak Load (c)	Date & Time (d)	Peak Load (e)	Date & Time (f)	
-1	2008					
0	2009					
1	2010					
2	2011					
3	2012					
4	2013					

\* In lieu of this form, EDCs may submit a copy of EIA-411 or its equivalent.

\*\* The winter peak follows the summer peak. The summer season is June through September and the winter season is December through March of the following year.

ARPR 5. Existing Generating Capability (as of January 1 of current year)

Control Area or Region (if applicable):

Station and Unit No. (a)	Location (b)	Date Installed (c)	Unit Type (d)	Primary Fuel		Alternate Fuel		Net Capability-MW		Changes During Past Year		% Ownership Share (m)	Notes (n)
				Fuel Type (e)	Transp. Method (f)	Fuel Type (g)	Transp. Method (h)	Summer (i)	Winter (j)	MW (k)	Reason (l)		
Chester 7	Chester, PA	2/7/69	GT	OIL	TK			13	18			100.00%	
Chester 8		5/20/69	GT	OIL	TK			13	18			100.00%	
Chester 9		3/6/69	GT	OIL	TK			13	18			100.00%	
Conemaugh 1	Indiana Co., PA	5/21/70	ST	COL	CV			176.1	176.1			20.72%	
Conemaugh 2		5/27/71	ST	COL	CV			176	176			20.72%	
Conemaugh D		2/1/70	IC	IC	TK			2.2	2.2			20.72%	
Conowingo 1	Conowingo, MD	3/1/28	HY	WAT				48	48			100.00%	
Conowingo 2		3/1/38	HY	WAT				36	36			100.00%	
Conowingo 3		3/6/28	HY	WAT				48	48			100.00%	
Conowingo 4		4/5/28	HY	WAT				48	48			100.00%	
Conowingo 5		6/1/28	HY	WAT				36	36			100.00%	
Conowingo 6		7/1/28	HY	WAT				48	48			100.00%	
Conowingo 7		8/1/28	HY	WAT				48	48			100.00%	
Conowingo 8		3/10/84	HY	WAT				65	65			100.00%	
Conowingo 9		3/25/64	HY	WAT				65	65			100.00%	
Conowingo 10		3/25/64	HY	WAT				65	65			100.00%	
Conowingo 11		5/4/84	HY	WAT				65	65			100.00%	
Cromby 1	Phoenixville, PA	7/23/54	ST	COL	RR			144	147			100.00%	
Cromby 2		9/26/55	ST	NG/OIL	PL/TK			201	211			100.00%	
Cromby D		6/6/67	IC	OIL	TK			2.7	2.7			100.00%	
Croydon 11	Croydon, PA	5/18/74	GT	OIL	WA			49	64			100.00%	
Croydon 12		6/18/74	GT	OIL	WA			49	64			100.00%	
Croydon 21		6/18/74	GT	OIL	WA			45	59			100.00%	
Croydon 22		6/18/74	GT	OIL	WA			49	64			100.00%	
Croydon 31		8/8/74	GT	OIL	WA			49	64			100.00%	
Croydon 32		8/8/74	GT	OIL	WA			47	64			100.00%	
Croydon 41		7/24/74	GT	OIL	WA			49	64			100.00%	
Croydon 42		7/24/74	GT	OIL	WA			49	64			100.00%	
Delaware 9		7/24/70	GT	OIL	TK			17	20			100.00%	
Delaware 10		5/7/69	GT	OIL	TK			13	18			100.00%	
Delaware 11		4/19/69	GT	OIL	TK			13	18			100.00%	
Delaware 12		5/2/69	GT	OIL	TK			13	18			100.00%	
Eddystone 1	Eddystone, PA	2/5/60	ST	COL	RR			279	288			100.00%	
Eddystone 2		10/7/60	ST	COL	RR			309	311			100.00%	
Eddystone 3		9/24/74	ST	NG/OIL	PL/WA			380	380			100.00%	
Eddystone 4		6/29/76	ST	NG/OIL	PL/WA			380	380			100.00%	
Eddystone 10		5/20/67	GT	OIL	TK			13	18			100.00%	
Eddystone 20		10/11/67	GT	OIL	TK			13	18			100.00%	
Eddystone 30		3/7/70	GT	OIL	TK			17	20			100.00%	
Eddystone 40		6/21/70	GT	OIL	TK			17	20			100.00%	
Fairless Hills A	Fairless Hills, PA	1/30/87	ST	NG	PL			30	30			100.00%	
Fairless Hills B		1/30/87	ST	NG	PL			30	30			100.00%	
Falls 1	Falls Twp., PA	5/22/70	GT	OIL	TK			17	20			100.00%	
Falls 2		6/10/70	GT	OIL	TK			17	20			100.00%	
Falls 3		6/28/70	GT	OIL	TK			17	20			100.00%	
Keystone 1	Armstrong Co., PA	8/24/67	ST	COL	CV			178.5	178.5			20.99%	
Keystone 2		7/23/68	ST	COL	CV			178.5	178.5			20.99%	
Keystone D		11/23/68	IC	OIL	TK			2.3	2.3			20.98%	
Limerick 1	Limerick, PA	2/1/88	NB	UR	TK			1130	1175			100.00%	
Limerick 2		1/8/80	NB	UR	TK			1134	1179			100.00%	
Moser 1	Potstown, PA	6/9/70	GT	OIL	TK			17	20			100.00%	
Moser 2		5/29/70	GT	OIL	TK			17	20			100.00%	
Moser 3		6/11/70	GT	OIL	TK			17	20			100.00%	
Muddy Run 1	Drumore Twp., PA	4/10/67	PS	WAT				134	134			100.00%	
Muddy Run 2		4/10/67	PS	WAT				133	133			100.00%	
Muddy Run 3		6/1/67	PS	WAT				134	134			100.00%	
Muddy Run 4		6/1/67	PS	WAT				134	134			100.00%	
Muddy Run 5		10/11/67	PS	WAT				134	134			100.00%	
Muddy Run 6		10/11/67	PS	WAT				133	133			100.00%	
Muddy Run 7		2/10/68	PS	WAT				134	134			100.00%	
Muddy Run 8		2/10/68	PS	WAT				134	134			100.00%	
Peach Bottom 2	Peach Bottom, PA	7/5/74	NB	UR	TK			556	569			50.00%	
Peach Bottom 3		12/23/74	NB	UR	TK			556	569			50.00%	
Pennsbury 1	Pennsbury, PA	09/30/86	GT	NG	PL			3	3			100.00%	
Pennsbury 2		09/30/86	GT	NG	PL			3	3			100.00%	
Richmond 91	Philadelphia, PA	6/7/73	GT	OIL	TK			48	66			100.00%	
Richmond 92		6/7/73	GT	OIL	TK			48	66			100.00%	
Salem 1	Salem, NJ	6/30/77	NP	UR	TK			500	510			42.59%	
Salem 2		10/13/81	NP	UR	TK			481.3	508			42.59%	
Salem 3		6/17/71	GT	OIL	TK			16.2	20			42.59%	
Schuylkill 1	Philadelphia, PA	7/25/58	ST	OIL	PL			166	175			100.00%	
Schuylkill 10		5/30/69	GT	OIL	TK			13	18			100.00%	
Schuylkill 11		6/11/71	GT	OIL	TK			17	20			100.00%	
Schuylkill D		7/6/67	IC	OIL	TK			2.8	2.8			100.00%	
Southwark 3	Philadelphia, PA	6/14/67	GT	OIL	TK			13	18			100.00%	
Southwark 4		10/9/67	GT	OIL	TK			13	18			100.00%	
Southwark 5		7/26/67	GT	OIL	TK			13	18			100.00%	
Southwark 6		11/7/68	GT	OIL	TK			13	18			100.00%	

**ARPR 6. Future Generating Capability Installations, Changes and Removals**

Control Area or Region (if applicable):

Station and Unit No. (a)	Location (b)	Unit Type (c)	Primary Fuel		Alternate Fuel		Net Capacity-MW		Effective Date (j)	Status (k)	% Ownership Share (l)	Notes (m)
			Fuel Type (d)	Transp. Method (e)	Fuel Type (f)	Transp. Method (g)	Summer (h)	Winter (i)				
Croydon 21	Croydon, PA	GT	OIL	WA			+ 4	+ 4	6/1/2009		100.00%	update
Croydon 32	Croydon, PA	GT	OIL	WA			+ 1	+ 1	6/1/2009		100.00%	update
Peach Bottom 3	Peach Bottom,	NB	UR	TK			+ 10.4	+ 10.4	1/1/2010		50.00%	update

**ARPR 7. Projected Capacity and Demand (MW)\***

Control Area or Region:

Season:

	Actual	Projected				
	2008	2009	2010	2011	2012	2013
1 Internal Demand						
2 Direct Control Load Management						
3 Interruptible Demand						
4 Net Internal Demand (1-2-3)						
5 Total Owned Capacity						
Nuclear						
Hydro						
Pumped Storage						
Steam						
Coal						
Oil						
Gas						
Dual Fuel						
Combustion Turbine						
Oil						
Gas						
Dual Fuel						
Combined Cycle						
Oil						
Gas						
Dual Fuel						
Other						
6 Inoperable Capacity						
7 Net Operable Capacity (5-6)						
8 Independent Power Producers						
9 Capacity Purchases						
10 Capacity Sales						
11 Total Installed Capacity (5+8)						

\* In lieu of this form, EDCs may submit a copy of EIA-411 or its equivalent.

**ARPR 8. Qualifying Facility and Independent Power Production Facilities**

Facility Name (a)	Location (b)	Energy Source (c)	Purchased Energy (KWH) (d)	Total Generation (KWH) (e)	Contract Capacity (KW) (f)	Total Capacity (KW) (g)	Effective Date(s) (h)	Status and Type (i)
Bio Energy - Pottstown	Pottstown	Landfill Gas	-	30,150,238	N/A	6,000	May-89	OL/S
Delaware Valley Resource	Chester	REF	-	439,035,000	N/A	85,000	Jun-91	OL/S
Merck, Sharpe & Dohme	West Point	NG	37,000	-	N/A	30,250		OL/C
Montenay (MMLP)	Plymouth Twp	REF	199,349,000	199,349,000	28,000	28,000	Mar-92	OL/S
Kimberly-Clark	Chester	BIT	19,439,000	-	N/A	30,000	Jun-86	OL/C
Sun Oil	Marcus Hook	RG	-	37,752,756	N/A	51,800	Nov-87	OL/C
Grays Ferry	Philadelphia	NG	427,665,000	427,665,000	150,000	150,000	Jan-98	OL/C
Silknitter	Coatesville	WAT	22,140	24,525	N/A	32	Nov-87	OL/S
Falls Solar	Falls Twp., PA	Sun	26,000	26,000	3,000	3,000	Dec-08	OL/C

Company Name: PECO Energy

**ARPR 9. Scheduled Imports and Exports (MW)**

Control Area or Region:

Season:

Participant Type Code	Name of Participant	2009	2010	2011	2012	2013
	See Note #1					
	Totals					

Note 1: PECO has entered into a Purchase Power Agreement with Exelon Generation to provide its PLR load through the forecast period.  
PaPUC

**ARPR 10. Summary of Demands, Resources and Energy for the Previous Year**

	Peak Day (MW)		Calendar Year (MWH) 2008	Notes
	Summer 2008	Winter 2007/2008		
<b>Reporting EDC:</b>				
Purchases	8,685	6,706	40,966,190	
Independent Power Producers	139	71	535,044	
Sales	8824	6777	41,501,234	SUMMER 6/10/08 HR END 1600, WINTER 12/22/08 HR END 1900
<b>Electric Generation Suppliers:</b>				
(1) EGS Data - All Inclusive	170	130	645,500	EA-E&GC Data *** winter 2008/09 estimated
(2)				
(3)				
(4)				
(5)				
(6)				
(7)				
(8)				
(9)				
(10)				

PECO Energy

Company Name:

**ARPR 11. Transmission Line Projection**

Transmission Line Name (a)	Location (b)	Design Voltage (c)	Length (d)	Construction Start Date (e)	In Service Date (f)	Line Cost (g)
None						

Company Name: PECO Energy

**ARPR 12. Conservation and Load Management Program Description**

Program Name: Commercial and Industrial Rate Incentives  
 Customer Class: Industrial and Commercial  
 Status: Existing  Proposed

Contact Person: Paul Miles Phone No: 215-841-4082

**Program Objective:**

To serve as consultants to our customers by providing information and advice on energy conservation and demand side management.

**Details of Activity and Implementation Schedule:**

The following rate options have been designed to encourage commercial and industrial customers to manage their energy demands and usage consistent with system capabilities: Night System Rider (Rates GS and HT); Curtailment Rider (Rate HT); Cooling Thermal Storage Rider (HT); Interruptible Rider 1 (IR-1); Interruptible Rider 2 (IR-2); and Large Interruptible Load Rider (LILR). Note: There is a freeze on the LILR.

**Actual and/or Anticipated Results:**

Year	Peak Load Reduction (KW)	Load Shifted to Off-Peak (KW)	Energy Savings				Other Results
			Electric (KWH)	Gas (CCF)	Oil (Gallons)	Coal (Tons)	
2003	180,000		1,400,000				
2004	180,000		1,525,000				
2005	180,000		1,525,000				
2006	180,000		1,525,000				
2007	185,000		1,800,000				
2008	185,000		1,800,000				

**Monetary and Personnel Resources:**

Estimated Workhours	Payroll	Categorized Program Expenses (\$)			Total
		Advertising	Customer Grants	Other	
125	\$15,000				\$15,000
125	\$15,000				\$15,000
200	\$24,000				\$24,000
200	\$24,000				\$24,000
300	\$36,000			\$10,000	\$36,000
2000	\$125,000			\$10,000	\$135,000

**ARPR 12. Conservation and Load Management Program Description**

Program Name: Low-Income Usage Reduction Program  
 Customer Class: Residential  
 Status: Existing  Proposed

Contact Person: Valeria Bullock Phone No: 215-841-6786

**Program Objective:**

The program provides education, conservation, and weatherization measures to assist low income residential customers in reducing their energy usage. The program is offered to both electric and gas residential customers and there is no limit to the number of customers enrolled. LIURP has 2 levels of eligibility, income and program. The income eligibility is at 150% of federal poverty level and the program eligibility is based on usage.

**Details of Activity and Implementation Schedule:**

LIURP services include energy audits, off peak conservations, air conditioners and refrigerator swaps, timers for electric heaters and air conditioning units, and conservation education.

**Actual and/or Anticipated Results:**

Year	Peak Load Reduction (KW)	Load Shifted to Off-Peak (KW)	Energy Savings				Other Results
			Electric (KWH)	Gas (CCF)	Oil (Gallons)	Coal (Tons)	
2007			6,247,450	94,798			

**Monetary and Personnel Resources:**

Estimated Workhours	Payroll	Categorized Program Expenses (\$)			Total
		Advertising	Customer Grants	Other	
2160	\$160,000			\$6,360,000	\$6,475,000

Company Name: PECO Energy

**ARPR 12. Conservation and Load Management Program Description**

Program Name: Customer Assistance Program (CAP)

Customer Class: Residential

Status: Existing  Proposed

Contact Person: Valeria Bullock Phone No: 215-841-6786

**Program Objective:**

The program provides education, conservation, and weatherization measures to assist

**Details of Activity and Implementation Schedule:**

Any PECO customer who provides financial information indicating income below 150% of the federal poverty level is referred to PECO's CAP Rate and Low Income Usage Reduction Program

**Actual and/or Anticipated Results:**

Year	Peak Load Reduction (KW)	Load Shifted to Off-Peak (KW)	Energy Savings			Other Results
			Electric (KWH)	Gas (CCF)	Oil (Gallons)	
2007			4,642,477	50,030		

**Monetary and Personnel Resources:**

Estimated Workhours	Payroll	Advertising	Categorized Program Expenses (\$)		Total
			Customer Grants	Other	
4160	\$170,000	\$100,000	\$19,992,000	\$20,262,000	

**Table 1. Pennsylvania Demand Side Response Program  
Aggregate Measurement and Reporting of Program Results  
For Residential, Commercial and Industrial Classes  
PECO Energy**

**For the Period May 1 to September 30**

Program Description	Program Indices		
	Res.	Comm.	Industrial
<p>PECO's IR-2 Rider has three options available for eligible customers:</p> <p><b>Active Load Management Option:</b> PECO notifies customer to reduce load during times of production, transmission, or distribution limitations. Customer receives Interruptible Demand Credit (\$/kW per month).</p> <p><b>Economic Curtailment Option:</b> Customer compensated for voluntarily curtailing energy usage during periods of high-energy prices, when requested by PECO. Customer receives "Curtailed Energy Credit" per contract terms. The Curtailed energy credit is the amount paid to the customers for reducing usage. It can be a fixed price or a % of savings and can be based upon the day ahead or day of prices. The customer chooses the option they prefer.</p> <p><b>PJM Program Option :</b> PECO acts as Customer Service Provider for Customers participating in PJM programs.</p> <p>Available to Large C&amp;I customers under rates HT, PD, GS and EER. Requires interval metering and the ability to curtail a minimum of 100 kW For additional details, see IR-2 rider from PECO's Tariff.</p>	<p><b>Year - 2007</b></p>		
<p><b>A. Proposed</b></p> <p>1) Total MW Available</p> <p>2) Total MW Reduction</p> <p>    a) Actual MW Reduction Commitment</p> <p>    b) Estimate MW Reduction Commitment</p> <p>3) Total Estimated Opportunity Hours</p> <p>4) Total MWH Potential</p>			<p>290</p> <p>0</p> <p>118</p> <p>172</p> <p>unknown</p> <p>unknown</p>
<p><b>B. Actual</b></p> <p>5) Total MWH Reduction</p> <p>6) Total Opportunity Hours</p> <p>7) Average MW Reduction</p> <p>8) MW Reduction @ System Peak</p> <p>9) # Customers Eligible to Participate</p> <p>10) # Customers in Program</p> <p>11) # Customers Reducing Load</p>			<p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>2500</p> <p>163</p> <p>0</p>
<p><b>C. Program Results</b></p> <p>12) % MW Participation</p> <p>13) % MWH Potential Achieved</p> <p>14) % Customers Participating</p>			<p>0%</p> <p>0%</p> <p>0%</p>

a) information in subsection A to be filed by the EDC in conjunction with the Annual Resource Planning Report filing beginning May 1, 2002.  
b) information in subsection B and C to be filed by the EDC by December 1 of each year.

## SYMBOL CODES

### STATUS/REASON FOR CHANGE

<b>P</b>	Planned for installation but not utility authorized
<b>L</b>	Regulatory approval pending but not under construction
<b>T</b>	Regulatory approval received but not under construction
<b>U</b>	Under construction, less than 50% of plant completed
<b>V</b>	Under construction, greater than 50% of plant completed
<b>A</b>	Generating unit capability increased (rerated or relicensed)
<b>D</b>	Generating unit capability decreased (rerated or relicensed)
<b>M</b>	Generating unit is in deactivated shutdown status
<b>S</b>	Generating unit returned to service from deactivated shutdown status
<b>R</b>	Generating unit permanently removed from any service

### FUEL TYPE

<b>WH</b>	Waste Heat
<b>COL</b>	Coal (general)
<b>BIT</b>	Bituminous Coal
<b>SUB</b>	Sub-Bituminous Coal
<b>ANT</b>	Anthracite Coal
<b>LIG</b>	Lignite Coal
<b>PC</b>	Petroleum Coke
<b>LNG</b>	Liquified Natural Gas
<b>MTH</b>	Methanol
<b>GAS</b>	Gas (general)
<b>NG</b>	Natural Gas
<b>RG</b>	Refined Gas
<b>BFG</b>	Blast Furnace Gas
<b>COG</b>	Coke Oven Gas
<b>UNK</b>	Unknown at the time
<b>GST</b>	Geothermal Steam
<b>MUL</b>	Multi-Fueled
<b>REF</b>	Refuse (solid waste)
<b>OIL</b>	Oil (general)
<b>FO1</b>	No. 1 Fuel Oil
<b>FO2</b>	No. 2 Fuel Oil
<b>FO4</b>	No. 4 Fuel Oil
<b>FO5</b>	No. 5 Fuel Oil
<b>FO6</b>	No. 6 Fuel Oil
<b>CRU</b>	Crude Oil
<b>TOP</b>	Top Crude Oil
<b>JF</b>	Jet Fuel
<b>KER</b>	Kerosene
<b>LPG</b>	Liquid Propane Gas
<b>RRO</b>	Re Refined Motor Oil
<b>SNG</b>	Synthetic Natural Gas
<b>UR</b>	Uranium
<b>PL</b>	Plutonium
<b>WAT</b>	Water
<b>TH</b>	Thorium
<b>SUN</b>	Sun
<b>WND</b>	Wind
<b>WD</b>	Wood and Wood Waste
<b>ZZ</b>	None of the above or fuel brought to the plant site that is converted before the combustion process

### UNIT TYPE

<b>ST</b>	Steam Turbine - non nuclear
<b>NB</b>	Steam Turbine - Nuclear
	Boiling Water Reactor
<b>NP</b>	Steam Turbine - Nuclear
	Pressurized Water Reactor
<b>NH</b>	Steam Turbine - Nuclear
	High Temp. Gas-cooled Reactor
<b>IC</b>	Internal Combustion Engine
<b>GT</b>	Combustion Turbine
<b>HY</b>	Conventional Hydro
<b>PS</b>	Pumped Storage Hydro
<b>CW</b>	Combined Cycle-Steam Portion
	Waste Heat Only
<b>CA</b>	Combined Cycle-Steam Portion
	Auxiliary Fired
<b>CT</b>	Combined Cycle-Combustion Turbine Portio
<b>JE</b>	Jet Engine
<b>FC</b>	Fuel Cell
<b>SO</b>	Solar
<b>WM</b>	Wind Power
<b>GE</b>	Geothermal
<b>ZZ</b>	None of the above
<b>UN</b>	Unknown at the time

### TRANSPORTATION METHOD

<b>WA</b>	Water Transportation
<b>TK</b>	Truck
<b>RR</b>	Rail
<b>PL</b>	Pipeline
<b>XX</b>	Unknown at the time
<b>CV</b>	Conveyor

- Q. SDR-COS-6 For each customer taking interruptible service (do not identify customers by name), provide:
- a. the amount of interruptible capacity under contract,
  - b. the amount of firm capacity under contract,
  - c. the time, duration, and amount of capacity reduction # for each requested interruption for the most recent three year period.
  - d. The maximum load imposed by the customer on the Company during each requested interruption for the last three year period, and
  - e. If credit is awarded on a basis of actual interruption (as contrasted to a simple credit or reduced monthly charge for each kW of interruptible service), please provide the amount received for each requested interruption.
- A. SDR-COS-6 Refer to Attachment SDR-COS-6 for each customer taking interruptible service
- a. Refer to Attachment SDR-COS-6 for the amount of interruptible capacity under contract.
  - b. Refer to Attachment SDR-COS-6 for the amount of firm capacity under contract.
  - c. Refer to Attachment SDR-COS-6 for the time, duration, and amount of capacity reduction # for each requested interruption for the most recent three year period.
  - d. Refer to Attachment SDR-COS-6 for the customer on the Company during each requested interruption for the last three year period.
  - e. Refer to Attachment SDR-COS-6.

**ATTACHMENT  
SDR-COS-6**

Customer	a.) Amount of Interruptible Capacity under contract ( kW )	b.) the amount of firm capacity under contract ( kW )	c.) the time, duration , amount of capacity reduction # for each of the requested interruption for the most recent 3 year period - Date of Event - 8/9/07 Time: 14:00 Duration: 4 hours 35 min Capacity reduction during interruption (kW)	d.) the maximum load imposed by the customer on the company during each requested interruption for the last 3 years period (kW)	e.) If credit is awarded on a basis of actual interruption ( as contrasted to a simple credit or reduced monthly demand charge for each kW of interruptible service), please provide the amount received for each requested interruption - Credits were not awarded on a basis of actual interruption
1	13744	11667	11267	400	Credits were not awarded on a basis of actual interruption
2	179	179	87	92	Credits were not awarded on a basis of actual interruption
3	15628	15602	14735	867	Credits were not awarded on a basis of actual interruption
4	1162	1162	1024	138	Credits were not awarded on a basis of actual interruption
5	2971	2971	2963	8	Credits were not awarded on a basis of actual interruption
6	18682	1900	2433	0	Credits were not awarded on a basis of actual interruption
7	7101	1000	3107	0	Credits were not awarded on a basis of actual interruption
8	2239	500	2239	0	Credits were not awarded on a basis of actual interruption
9	7633	1000	3141	0	Credits were not awarded on a basis of actual interruption
10	28406	3000	28406	0	Credits were not awarded on a basis of actual interruption
11	7626	7845	7561	0	Credits were not awarded on a basis of actual interruption
12	2291	1253	1814	0	Credits were not awarded on a basis of actual interruption
13	550	549	503	46	Credits were not awarded on a basis of actual interruption
14	283	200	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
15	439	439	350	89	Credits were not awarded on a basis of actual interruption
16	741	637	692	0	Credits were not awarded on a basis of actual interruption
17	1225	291	1225	0	Credits were not awarded on a basis of actual interruption
18	2371	2111	2280	0	Credits were not awarded on a basis of actual interruption
19	637	636	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
20	332	279	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
21	1836	1836	953	883	Credits were not awarded on a basis of actual interruption
22	1157	1157	1154	3	Credits were not awarded on a basis of actual interruption
23	104	103	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
24	2008	513	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
25	17290	500	945	0	Credits were not awarded on a basis of actual interruption
26	1870	16232	16879	0	Credits were not awarded on a basis of actual interruption
27	367	1766	1870	0	Credits were not awarded on a basis of actual interruption
28	405	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
29	619	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
30	402	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
31	366	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
32	503	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
33	364	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
34	401	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
35	492	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
36	831	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
37	439	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
38	387	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
39	419	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
40	521	100	67	33	Credits were not awarded on a basis of actual interruption
41	340	100	Data unavailable	Data unavailable	Credits were not awarded on a basis of actual interruption
42					

- Q. SDR-COS-7 Please describe the generation planning criteria used by the Company. Provide any reports or documents that characterize the generation planning criteria.
- A. SDR-COS-7 Not applicable. Refer to SDR-RB-18.

- Q. SDR-COS-8 Provide any documentation, workpapers, and analysis to support the functionalization and classification of distribution plant into demand and customer-related components.
- A. SDR-COS-8 Refer to direct testimony and exhibits of Company witness Howard S. Gorman, PECO Statement No. 8, for description of functionalization of plant and classification (e.g. distribution plant into demand and customer components). Refer to Exhibit HSG-5A and Exhibit HSG-5B for development of allocation factors for functionalization and classification, and to Exhibit HSG-6 for development of basis of separation.

- Q. SDR-COS-9 Please provide historic period actual and forecasted test period monthly resource availability (including imports and exports) to meet demand. For each resource, provide monthly capability and disposition (e.g., available, down for maintenance, etc.). Show the amount and percentage of reserves for each month.
- A. SDR-COS-9 Not applicable. Refer to SDR-RB-18.

Q. SDR-COS-10 If a weather normalization adjustment is made, please supply the following information regarding normal degree days and the Company's weather normalization adjustment;

- a. Which NOAA weather reporting station or stations were utilized?
- b. If more than one weather reporting station was used, provide the weighting applied to each station in arriving at the composite total.
- c. Supply the supporting NOAA data for normal degree days if the Company used anything other than the 30-year NOAA normals.

A. SDR-COS-10

- a. KPHL, Philadelphia International Airport.
- b. Only Philadelphia was used.
- c. The Company uses 30 year normals from 1977 to 2006, whereas NOAA uses 1971 – 2000. Listed below is both our normals and NOAA's.

	30 YEAR NORMALS			
	NOAA		PECO	
	Normals 1971-2000		Normals 1977-2006	
	HDD	CDD	HDD	CDD
JAN	1,020	0	1,009	0
FEB	858	0	836	0
MAR	681	2	665	0
APR	362	10	342	9
MAY	113	70	106	78
JUN	12	234	10	245
JUL	1	395	0	408
AUG	2	351	0	370
SEP	39	152	36	161
OCT	269	19	262	21
NOV	545	2	520	0
DEC	857	0	852	0
ANN	4,759	1,235	4,638	1,292

Q. SDR-COS-11 Provide a typical customer demand and usage profile for each of your service offerings.

A. SDR-COS-11 The table below provides the requested information.

<u>Rate</u>	<u>Monthly Avg. Use kWh</u>	<u>Average CP Demand kW</u>
R	679	2.45
RH	1380	2.67
OP	304	0.52
GS	4458	14.2
PD	73878	156
HT	506700	1022

- Q. SDR-COS-12 Under present and proposed rates, provide a bill comparison (with calculations) showing a typical commercial customer and industrial customer demand and usage charges under firm and interruptible service.
- A. SDR-COS-12 Please refer to the response to IV-D-2 for firm service bill comparisons. The Company does not have interruptible distribution rates.

- Q. SDR-COS-13 Provide a bill frequency analysis for each customer class.
- A. SDR-COS-13 Refer to the response to IV-C-1. PECO uses projected billing determinants to prove out revenue instead of a bill frequency analysis, therefore, no bill frequency analysis is available.

Q. SDR-COS-14 Does the Company have a design peak day? If so, explain in detail how the design peak day was calculated and supply the supporting calculations.

A. SDR-COS-14 Yes. The Company has a peak design day and actual loads from the peak day each year are weather corrected for each substation and feeder. The weather correction is based on Cooling Degree Days and 90/10 weather or weather conditions that can be expected once in 10 years based on 30 years of historical weather data.

To determine the weather correction factor, substation peak loads are regressed against days with high Cooling Degrees for three years. Factors by customer class [Residential, Commercial or Industrial] served by the substation and their response to hot weather are included when developing the weather correction factor. For the feeders, weighted average customer class factors that were developed from the substation regression analysis are applied to each feeder.

The actual peaks for each substation and feeder are corrected using the weather correction factor and then adjusted based on actual customer service requests, recent load growth or economic development in the area, etc. to forecast peak demands for future years. Substation loads are forecast for 5 years in the future while feeder loads are forecast for 3 years in the future.

Shown below is an example of how the peak load is weather connected and how new business requests and loads are used to forecast the peak load for future years.



- Q. SDR-COS-15
- A) Provide the Total and Peak day capacity (in MW) for the Company's, system and provide the designated capacity.
- B) Also provide the amount of customers in each class and each customer's usage, by month, for the test year.
- A. SDR-COS-15
- A) The weather adjusted, forecasted 2010 peak of all 13 kV and 34 kV substations is 9,166 MW. The total rating for these substations is 11,423 MW. Based on these values, on a system wide basis, these substations are loaded to 80% of capacity.
- B) Refer to Attachment SDR-COS-15 for the number of customers in each class and each customer's usage, by month, for 2010.

**ATTACHMENT  
SDR-COS-15**

**PECO Energy Company**  
**Electric Customer Numbers at the End of Each Month**

Attachment SDR-COS-15

Year	Month	R	RH	SCI	LCI	RR	SL	ID	Total
2010	1	1,242,511	159,158	157,207	3,200	3	1,085	3	1,563,167
2010	2	1,243,895	159,338	157,296	3,200	3	1,085	3	1,564,819
2010	3	1,244,843	159,425	157,384	3,200	3	1,085	3	1,565,943
2010	4	1,245,796	159,485	157,473	3,200	3	1,085	3	1,567,045
2010	5	1,244,662	159,329	157,562	3,200	3	1,085	3	1,565,844
2010	6	1,243,468	159,220	157,651	3,200	3	1,085	3	1,564,630
2010	7	1,242,784	159,150	157,739	3,200	3	1,085	3	1,563,964
2010	8	1,242,483	159,113	157,828	3,200	3	1,085	3	1,563,715
2010	9	1,242,716	159,138	157,917	3,200	3	1,085	3	1,564,062
2010	10	1,243,715	159,260	158,006	3,200	3	1,085	3	1,565,271
2010	11	1,244,253	159,322	158,095	3,200	3	1,085	3	1,565,960
2010	12	1,245,323	159,455	158,183	3,200	3	1,085	3	1,567,253

**Average Electric Usage per Class at the End of Each Month ( Kwh)**

Year	Month	R	RH	SCI	LCI	RR	SL	ID	Total
2010	1	737.62	2,387.46	4,900.31	403,997.57	21,898,706.01	12,613.96	2,163,784.43	2,204.19
2010	2	632.12	2,049.60	4,405.83	362,888.82	21,774,364.21	12,613.17	2,163,714.30	1,950.79
2010	3	605.93	1,680.82	4,347.29	399,305.79	21,855,442.83	12,614.47	2,164,006.18	1,960.46
2010	4	530.28	1,106.95	3,997.70	370,697.95	21,787,098.63	12,614.70	2,164,115.74	1,747.53
2010	5	567.80	884.26	4,215.55	403,747.88	21,843,437.67	12,614.16	2,164,095.88	1,845.34
2010	6	773.04	968.57	4,628.33	421,887.75	21,927,168.83	12,612.88	2,163,908.97	2,097.06
2010	7	1,016.58	1,174.60	5,174.39	451,563.03	21,994,132.97	12,611.59	2,163,630.16	2,428.24
2010	8	940.78	1,094.94	5,088.58	457,541.65	22,029,545.25	12,613.48	2,163,779.98	2,364.01
2010	9	663.30	844.50	4,393.77	412,557.20	21,940,795.43	12,615.75	2,164,094.47	1,955.63
2010	10	574.29	965.84	4,072.12	401,202.57	21,893,453.89	12,615.39	2,164,087.97	1,840.70
2010	11	609.62	1,321.16	3,998.59	382,705.54	21,856,989.14	12,614.54	2,163,978.48	1,859.29
2010	12	727.56	2,074.48	4,352.64	404,726.64	21,899,227.32	12,613.91	2,163,892.82	2,109.64

Q. SDR-COS-16 Provide a detailed description of the various meters used to meter the Company's usage. Include the manufacturer's name, the average age, and the advantages of utilizing that type of meter. Has the Company utilized any type of remote metering? Please explain.

A. SDR-COS-16 In 1999, PECO awarded a contract to Landis+Gyr/Cellnet to provide Automated Meter Readings ("AMR") for nearly all of PECO's Electric and Gas Customers. This contract included the installation of a communications network, all meter communication modules and replacement of approximately 60% of PECO's Electric Meters. PECO retains the ownership of 40% of the meters used to meter electric service and all of its gas meters.

In addition to AMR meters, PECO also uses an Itron MV-90 system to read large Electric C&I customer meters (with demand >500kw) and a Metrotek solution for Gas Transportation Accounts. Both the MV-90 and the Metrotek systems collect usage information from the respective electric and gas meters on a nightly basis. Communications for both systems are performed via hardwire telephony network.

PECO has installed meters from a variety of manufacturers. The following list details the installed meter population and the justification for that meter selection:

- Schlumberger/Itron Centron – Cellnet Supplied as part of AMR contract
- Schlumberger/Itron Vectron – Cellnet Supplied as part of AMR contract
- Landis+Gyr MX – Cellnet Supplied as part of AMR contract
- ABB Electro-Mechanical – AMR Retrofit of previously installed meters
- Elster/ABB A3 – Selected as part of PECO's Meter Supplier of Choice contract.
- Ametek-Schlumberger-L+G – (MV-90 meters) Meters meeting the PECO data format requirements for MV-90 billing.

- Roots-Romet – (Metretek meters) Metretek system is utilized due to its cost effectiveness in the application of the 10 AM (EST) commercial gas rate. It also affords immediate reads required to support the interruptible rate.

Both the MV-90 and Metretek systems were initially established in the later half of the 1980's. The average age of the MV-90 meters is 8 - 10 years whereas the average age of the Metretek meters is about 12 – 15 years.