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PUBLIC SERVICE
COMMISSION

Ms. Elizabeth O'Donnell
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

**Louisville Gas and Electric
Company**
State Regulation and Rates
220 West Main Street
PO Box 32010
Louisville, Kentucky 40232
www.eon-us.com

Kent W. Blake
Vice President
T 502-627-2573
F 502-217-2442
kent.blake@eon-us.com

May 14, 2007

**RE: Application of Louisville Gas and Electric Company for an Order
Approving a Responsive Pricing and Smart Metering Pilot Program**
Case No. 2007-00117

Dear Ms. O'Donnell:

Enclosed please find and accept for filing the original and five (5) copies of Louisville Gas and Electric Company's ("LG&E") Response to the Attorney General's Supplemental Request for Information dated April 30, 2007, in the above-referenced matter.

Should you have any questions concerning the enclosed, please do not hesitate to contact me.

Sincerely,

Kent W. Blake

cc: Parties of Record

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY FOR AN ORDER)
APPROVING A RESPONSIVE PRICING) CASE NO. 2007-00117
AND SMART METERING PILOT)
PROGRAM)

RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
SUPPLEMENTAL REQUEST FOR INFORMATION
POSED BY THE ATTORNEY GENERAL
DATED: APRIL 30, 2007

FILED: May 14, 2007

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Supplemental Request for Information

Posed by the Attorney General

Dated: April 30, 2007

Case No. 2007-00117

Question No. 1

Witness: Kent W. Blake

Q-1. Please reference Response of LG&E to the Attorney General’s Request for information, Blake Response to Question No.3, Page 1. Confirm that 2008 (a “leap” year) has an additional Six (6) hours of P1 rate use, Fifteen (15) hours of P2 rate use and Three (3) hours of P3 rate use for both RS and GS rates, and if the above hours are correct, please explain the variance from the hours listed for each rate in the Application, Blake Testimony, Exhibits KWB-1 and KWB-2. (This should be read as a request to confirm whether February 29, 2008, the “leap” day and a weekday, should follow other weekday usages listed in the application for the same seasonal time period, which provide for Ten (10) hours of P2 rate use and Three (3) hours of P3 rate use.)

A-1. The year 2008 (a “leap” year) does have an additional six (6) hours of P1 low cost hours, fifteen (15) hours of P2 medium cost hours, and three (3) hours of P3 high cost hours. The table below shows the variance between 2008 and 2009. Those totals and their differences reflect not only the addition of a non-summer weekday, but also a shift in the number of weekdays and weekends for the rating periods through the rest of the year.

2008						2009						Variance 2008 vs. 2009					
		Days	P1	P2	P3 ¹			Days	P1	P2	P3 ¹			Days	P1	P2	P3 ¹
Jun-Sep	WD	87	1,131	522	435	Jun-Sep	WD	88	1,144	528	440	Jun-Sep	WD	(1)	(13)	(6)	(5)
	WE	35	665	175	-		WE	34	646	170	-		WE	1	19	5	-
Subtotal		122	1,796	697	435	Subtotal		122	1,790	698	440	Subtotal		-	6	(1)	(5)
Oct-May	WD	175	1,750	1,750	700	Oct-May	WD	173	1,730	1,730	692	Oct-May	WD	2	20	20	8
	WE	69	1,380	276	-		WE	70	1,400	280	-		WE	(1)	(20)	(4)	-
Subtotal		244	3,130	2,026	700	Subtotal		243	3,130	2,010	692	Subtotal		1	-	16	8
Total	WD	262	2,881	2,272	1,135	Total	WD	261	2,874	2,258	1,132	Total	WD	1	7	14	3
	WE	104	2,045	451	-		WE	104	2,046	450	-		WE	-	(1)	1	-
		366	4,926	2,723	1,135			365	4,920	2,708	1,132 ¹			1	6	15	3

WD ■ Weekday

WE ■ Weekend

¹ High (P3) and Critical (P4) Cost Hours have been combined to match the hours of the pricing periods listed in Exhibits KWB-1 and KWB-2

The “leap” day of February 29, 2008 is a Friday and will follow the pricing periods for a weekday for the months of October through May as shown in Exhibits KWB-1 and KWB-2. The hours of the pricing periods for a weekday during these months are ten (10) hours of P1 low cost hours, ten (10) hours of P2 medium cost hours, and four (4) hours of P3 high cost hours. This agrees with the hours listed for each rate in the Application, Blake Testimony, Exhibits KWB-1 and KWB-2.

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Supplemental Request for Information
Posed by the Attorney General**

Dated: April 30, 2007

Case No. 2007-00117

Question No. 2

Witness: Gregory B. Ferguson

Q-2. Please outline what steps have been, or will be, taken by LG&E in regard to network security to ensure that the data and control functions of the devices installed in participants homes are protected from unauthorized access.

A-2. The security built into this system employs the industry standards that ensure security of the system and access to customer information and control. Data is encrypted and access control is maintained through the use of “keys” at many different access levels, as well as usernames and passwords. Below is further information provided by the Company’s current manufacturer.

The Mesh network employs DES and AES standards. Currently, all WWAN and WLAN communications are encrypted with CBC/DES using 64-bit keys. Several levels of keys are supported providing different levels of access rights (LAN key, meter data key, install key, O&M key, configuration key, home key, and manufacturer key). Encryption ensures privacy of the data being exchanged and authenticates the source of the data as well.

All data access is through applications that can be controlled with username, password, and SSSL (single sign-on access). All direct access to the database is also controlled via the Utility’s IT systems that utilizes methods for authenticating the user, and the user’s account and meter ID before the user can view usage via the Internet. The network employs DES and Triple DES standards. All WWAN and WLAN communications are encrypted with CBC/DES using 64-bit keys. Several levels of keys are supported, providing different levels of access rights (LAN key, meter data key, install key, O&M key, configuration key, home key, and manufacturer key). Encryption ensures the privacy of the data being exchanged and authenticates the source of the data as well. Keys are upgradeable so the Utility can periodically change the key set.

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Supplemental Request for Information
Posed by the Attorney General**

Dated: April 30, 2007

Case No. 2007-00117

Question No. 3

Witness: Kent W. Blake

- Q-3. Please reference the Application, page 4, paragraph 9. Confirm whether the Eighty (80) hours of critical peak pricing represent a fixed quantity of hours to be billed yearly or whether the critical peak hours may vary, with a maximum to be billed of no more than Eighty (80) hours per year.
- A-3. The Company confirms that the critical peak hours may vary, with a maximum to be billed of no more than eighty (80) hours per year.

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Supplemental Request for Information
Posed by the Attorney General**

Dated: April 30, 2007

Case No. 2007-00117

Question No. 4

Witness: Kent W. Blake

Q-4. Please reference Response of LG&E to the Attorney General's Request for information, Blake Response to Question No. 17, Page 2.

A. Please confirm that the critical peak hours for 2003 totaled 37 hours; for 2004 totaled 25 hours; for 2005 totaled 64 hours; and for 2006 totaled 39 hours.

B. If the historical data concerning the Company's critical peak events is correct, then please provide specifics as to the Company's reasoning for using Eighty (80) hours of critical peak hours in this pilot program rather than an average of the previous years' critical peak hours of 41.25 hours or the recent historical maximum of 64 hours.

A-4. A. The hours referenced in Blake Response to Question No. 17, Page 2, are hours during which load controls for the Company's Demand Side Management (DSM) program were activated. Those hours for 2003 totaled 37 hours; for 2004 totaled 25 hours; for 2005 totaled 64 hours; and for 2006 totaled 39 hours. There is no record of "critical peak hours" as there was no separate tariff rate for those hours during the past four years.

B. The historical data provided in response to Question No. 17 reflects DSM experience which is implemented in the summer months of June, July, August and September. The critical cost hours of the Responsive Pricing Service may be implemented anytime critical peak events occur during the year. It is also important to note that the calculation of revenue neutrality for the responsive pricing program shown in Exhibit KWB-3 in the Company's application assumed 80 critical cost hours. In the event the number of critical cost hours was lower, it would require an upward adjustment to the remaining P1, P2 or P3 rates. In addition, the use of 80 hours represents approximately 1 percent of the hours in a year, which is consistent with similar programs in the industry designed to elicit a meaningful demand response from residential customers.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Supplemental Request for Information

Posed by the Attorney General

Dated: April 30, 2007

Case No. 2007-00117

Question No. 5

Witness: Gregory B. Ferguson (A, B, D, F) / Kent W. Blake (C, E)

- Q-5. Please reference the Application, page 4, paragraph 9 and Blake Testimony, Exhibit KWB-1 and KWB-2.
- A. Please provide specifics as to the Company's reasoning for the provision of a critical peak (P4) price in this program.
 - B. Has the Company considered using only the high demand (P3) rate during critical peaks events and eliminating the critical peak (P4) rate? If no, then why not?
 - C. Please provide specifics as to the Company's reasoning for using a critical peak (P4) rate of \$0.30107 per kWh. Was any other critical peak rate (p4) considered? If other rates for critical peak events were considered, what were those rates? Why did the Company choose its proposed (P4) rate?
 - D. As the critical peak (P4) rate is Five (5) times the current (non-pilot program) rate and nearly Eight (8) times the lowest (P1) price proposed under this pilot program, does the Company consider this a necessary component of the program to ensure a favorable participant response to the pricing signal? (i.e. the lowering the participants' demand during critical peak events). Why?
 - E. Does the Company believe it is possible to obtain the same favorable response through a lower critical peak rate? If no, then why not? If so, then why was the lower critical peak (P4) rate not proposed?
 - F. Please reference Response of LG&E to the Attorney General's Request for information, Blake Response to Question No. 17, Page 2. Since historically the critical peaks occur in the early afternoon, when participants may not be at home, does the Company believe that the higher critical peak (P4) rate will have the effect of lowering of the participants' demand during critical peak events?

- A-5. A. The Company's reasoning for the provision of a critical peak (P4) price in this program arose from Commission directive for a "real-time price" rate. P4 provides the real-time component. Without P4, the rate would be a time-of-use design only.

The Company believes that it is necessary to send a significant pricing signal to motivate customers to change their usage patterns. One of the effects of removing the critical pricing period would be to increase the price in the other pricing periods to maintain revenue neutrality. This would further decrease the pricing signal sent to the customer.

In reviewing two programs, Gulf Power and Puget Sound, the Company observed that there has been a much more significant increase in customer response to Gulf Power's rate, which includes a strong pricing signal, than there has been to the Puget Sound rate, which has a much weaker price signal. Puget's highest price was 13% higher than its standard tariff rate and resulted in a maximum of 5.2% reduced energy usage during the high price period. Gulf's highest price was over 5 times that of its standard tariff rate and resulted in a maximum of 44.6% reduction of energy use during this highest price periods.

- B. The Company did consider a TOU rate without the "critical price period". As noted in response A-5 (A), the information we have reviewed led the Company to believe that a more significant pricing signal will lead to a more significant customer response. This also provides the customer with a greater ability to reduce costs by shifting energy use from a higher to a lower pricing period.

Gulf Power's program saw a 21.8% reduction of energy use in the high (P3) price period and a 44.6% reduction of energy use in the critical (P4) period. The Company believes that this level of customer response will lead to a successful pilot program.

The Company also notes that one purpose of this pilot program is to determine customer acceptance and response. We will continually monitor and evaluate customer acceptance and response, and based on our findings may propose modification to the program, including the tariffs, to achieve the highest level of customer acceptance and response.

- C. The critical peak (P4) rate of \$0.30107 per kWh reflects the real-time cost to produce electricity during critical cost hours. The rate is based upon the installed and running costs of a natural gas-fired combustion turbine (peaking unit). All critical peak rates (P4) considered have been based on the costs of a combustion turbine (CT). During the development of the proposed pricing structure the Company considered a critical peak rate (P4) of \$0.36248 per

kWh. The Company chose the proposed critical peak rate of \$0.30107 per kWh because it reflects CT utilization of 200 operating hours per year which represents average planned CT annual operating hours. The \$0.36248 rate was based upon 150 operating hours per year.

- D. Yes, see response to A-5 (B).
- E. No, see response to A-5 (A).
- F. Yes. Residential customers typically leave their heating, ventilation, and air conditioning systems and water heaters on even when the customers are not at home; thus, customers are indeed using non-trivial amounts of electricity even when they are not at home. Through the use of the automation technology the Company will provide responsive pricing pilot customers (i.e., programmable thermostats and load control switches), customers will be able automatically to reduce their electric usage regardless of whether they are at home during a critical peak event. A critical peak event can occur anytime the Company has capacity shortages. A customer can pre-set their controls to automatically respond to pricing signals and critical peak events without manual intervention.

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Supplemental Request for Information
Posed by the Attorney General**

Dated: April 30, 2007

Case No. 2007-00117

Question No. 6

Witness: Butch Cockerill

- Q-6. Please describe the options which participants may have in the event that their billing under this program exceeds their billing under the non-program tariff. Will LG&E offer payment assistance should a participants bill under the pilot program greatly exceed that under the non-program tariff?
- A-6. Payment arrangements will be available to the participants as provided to all customers. This program is voluntary and designed to be revenue neutral over the course of a year.

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Supplemental Request for Information
Posed by the Attorney General**

Dated: April 30, 2007

Case No. 2007-00117

Question No. 7

Witness: Kent W. Blake

Q-7. Please provide typical class load profiles (in kWh) for the calendar year 2003 for both RS and GS ratepayers. For the requested data, please provide the hourly load data at each of the proposed tariffs along with a monthly total for each month.

A-7. Please see attached.

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
January 2003	0:00	40	40	0	0
January 2003	1:00	38	38	0	0
January 2003	2:00	37	37	0	0
January 2003	3:00	37	37	0	0
January 2003	4:00	38	38	0	0
January 2003	5:00	40	40	0	0
January 2003	6:00	45	45	0	0
January 2003	7:00	48	48	0	0
January 2003	8:00	47	13	34	0
January 2003	9:00	46	13	33	0
January 2003	10:00	45	13	32	0
January 2003	11:00	44	13	31	0
January 2003	12:00	43	13	30	0
January 2003	13:00	43	13	30	0
January 2003	14:00	42	12	29	0
January 2003	15:00	43	12	30	0
January 2003	16:00	46	13	33	0
January 2003	17:00	50	14	37	0
January 2003	18:00	56	0	15	41
January 2003	19:00	56	0	15	41
January 2003	20:00	55	0	14	41
January 2003	21:00	54	0	14	40
January 2003	22:00	49	49	0	0
January 2003	23:00	44	44	0	0
Total		1085	545	377	162
February 2003	0:00	34	34	0	0
February 2003	1:00	32	32	0	0
February 2003	2:00	32	32	0	0
February 2003	3:00	32	32	0	0
February 2003	4:00	33	33	0	0
February 2003	5:00	35	35	0	0
February 2003	6:00	39	39	0	0
February 2003	7:00	42	42	0	0
February 2003	8:00	41	12	30	0
February 2003	9:00	40	12	28	0
February 2003	10:00	40	13	27	0
February 2003	11:00	40	13	27	0
February 2003	12:00	39	12	26	0
February 2003	13:00	37	12	25	0
February 2003	14:00	36	12	25	0
February 2003	15:00	37	12	25	0
February 2003	16:00	39	12	27	0
February 2003	17:00	43	13	30	0
February 2003	18:00	46	0	14	33
February 2003	19:00	48	0	14	34
February 2003	20:00	48	0	14	34
February 2003	21:00	46	0	13	33
February 2003	22:00	43	43	0	0
February 2003	23:00	38	38	0	0
Total		940	483	324	134

**Residential (RS)
Typical Class Load Profiles (kWh)**

Month	Hour	RS-Total	P1	P2	P3
March 2003	0:00	27	27	0	0
March 2003	1:00	25	25	0	0
March 2003	2:00	24	24	0	0
March 2003	3:00	24	24	0	0
March 2003	4:00	25	25	0	0
March 2003	5:00	28	28	0	0
March 2003	6:00	33	33	0	0
March 2003	7:00	35	35	0	0
March 2003	8:00	34	11	23	0
March 2003	9:00	33	12	21	0
March 2003	10:00	33	12	21	0
March 2003	11:00	32	12	20	0
March 2003	12:00	31	12	19	0
March 2003	13:00	30	12	18	0
March 2003	14:00	29	11	17	0
March 2003	15:00	29	11	18	0
March 2003	16:00	31	11	20	0
March 2003	17:00	34	12	22	0
March 2003	18:00	38	0	13	25
March 2003	19:00	42	0	14	28
March 2003	20:00	42	0	14	28
March 2003	21:00	41	0	13	28
March 2003	22:00	37	37	0	0
March 2003	23:00	31	31	0	0
Total		770	407	253	109
April 2003	0:00	23	23	0	0
April 2003	1:00	21	21	0	0
April 2003	2:00	20	20	0	0
April 2003	3:00	20	20	0	0
April 2003	4:00	21	21	0	0
April 2003	5:00	25	25	0	0
April 2003	6:00	28	28	0	0
April 2003	7:00	30	30	0	0
April 2003	8:00	29	8	21	0
April 2003	9:00	29	9	20	0
April 2003	10:00	29	9	20	0
April 2003	11:00	28	9	19	0
April 2003	12:00	28	9	19	0
April 2003	13:00	28	9	19	0
April 2003	14:00	28	9	19	0
April 2003	15:00	29	9	20	0
April 2003	16:00	31	9	22	0
April 2003	17:00	34	9	25	0
April 2003	18:00	36	0	10	26
April 2003	19:00	38	0	10	28
April 2003	20:00	39	0	10	28
April 2003	21:00	37	0	10	27
April 2003	22:00	33	33	0	0
April 2003	23:00	27	27	0	0
Total		688	336	243	109

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
May 2003	0:00	25	25	0	0
May 2003	1:00	22	22	0	0
May 2003	2:00	20	20	0	0
May 2003	3:00	20	20	0	0
May 2003	4:00	21	21	0	0
May 2003	5:00	25	25	0	0
May 2003	6:00	27	27	0	0
May 2003	7:00	30	30	0	0
May 2003	8:00	28	9	19	0
May 2003	9:00	30	10	20	0
May 2003	10:00	30	11	20	0
May 2003	11:00	31	11	20	0
May 2003	12:00	32	11	20	0
May 2003	13:00	32	11	21	0
May 2003	14:00	33	11	22	0
May 2003	15:00	35	11	24	0
May 2003	16:00	37	11	26	0
May 2003	17:00	41	12	29	0
May 2003	18:00	42	0	12	30
May 2003	19:00	43	0	12	31
May 2003	20:00	43	0	12	31
May 2003	21:00	40	0	11	29
May 2003	22:00	35	35	0	0
May 2003	23:00	29	29	0	0
Total		752	363	268	122
June 2003	0:00	32	32	0	0
June 2003	1:00	28	28	0	0
June 2003	2:00	25	25	0	0
June 2003	3:00	24	24	0	0
June 2003	4:00	24	24	0	0
June 2003	5:00	26	26	0	0
June 2003	6:00	28	28	0	0
June 2003	7:00	31	31	0	0
June 2003	8:00	32	32	0	0
June 2003	9:00	35	35	0	0
June 2003	10:00	37	12	25	0
June 2003	11:00	41	13	28	0
June 2003	12:00	45	15	30	0
June 2003	13:00	47	0	16	32
June 2003	14:00	50	0	17	34
June 2003	15:00	53	0	17	35
June 2003	16:00	56	0	18	38
June 2003	17:00	59	0	19	41
June 2003	18:00	60	18	42	0
June 2003	19:00	58	18	41	0
June 2003	20:00	57	17	40	0
June 2003	21:00	53	53	0	0
June 2003	22:00	47	47	0	0
June 2003	23:00	39	39	0	0
Total		987	516	292	179

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
July 2003	0:00	46	46	0	0
July 2003	1:00	41	41	0	0
July 2003	2:00	38	38	0	0
July 2003	3:00	35	35	0	0
July 2003	4:00	35	35	0	0
July 2003	5:00	36	36	0	0
July 2003	6:00	38	38	0	0
July 2003	7:00	40	40	0	0
July 2003	8:00	45	45	0	0
July 2003	9:00	50	50	0	0
July 2003	10:00	56	16	40	0
July 2003	11:00	62	18	44	0
July 2003	12:00	67	20	47	0
July 2003	13:00	71	0	21	50
July 2003	14:00	75	0	22	53
July 2003	15:00	80	0	23	57
July 2003	16:00	83	0	23	60
July 2003	17:00	85	0	24	61
July 2003	18:00	83	23	60	0
July 2003	19:00	79	22	57	0
July 2003	20:00	77	21	56	0
July 2003	21:00	71	71	0	0
July 2003	22:00	62	62	0	0
July 2003	23:00	53	53	0	0
Total		1409	711	417	281
August 2003	0:00	47	47	0	0
August 2003	1:00	42	42	0	0
August 2003	2:00	39	39	0	0
August 2003	3:00	36	36	0	0
August 2003	4:00	36	36	0	0
August 2003	5:00	38	38	0	0
August 2003	6:00	40	40	0	0
August 2003	7:00	40	40	0	0
August 2003	8:00	45	45	0	0
August 2003	9:00	50	50	0	0
August 2003	10:00	56	19	37	0
August 2003	11:00	63	21	42	0
August 2003	12:00	69	22	46	0
August 2003	13:00	74	0	24	50
August 2003	14:00	78	0	25	53
August 2003	15:00	83	0	26	57
August 2003	16:00	86	0	27	59
August 2003	17:00	86	0	26	60
August 2003	18:00	84	25	59	0
August 2003	19:00	80	24	56	0
August 2003	20:00	78	24	55	0
August 2003	21:00	71	71	0	0
August 2003	22:00	62	62	0	0
August 2003	23:00	53	53	0	0
Total		1438	735	423	280

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
September 2003	0:00	28	28	0	0
September 2003	1:00	25	25	0	0
September 2003	2:00	23	23	0	0
September 2003	3:00	23	23	0	0
September 2003	4:00	24	24	0	0
September 2003	5:00	27	27	0	0
September 2003	6:00	30	30	0	0
September 2003	7:00	29	29	0	0
September 2003	8:00	30	30	0	0
September 2003	9:00	32	32	0	0
September 2003	10:00	33	10	24	0
September 2003	11:00	36	10	25	0
September 2003	12:00	38	11	27	0
September 2003	13:00	40	0	12	29
September 2003	14:00	45	0	13	32
September 2003	15:00	49	0	13	36
September 2003	16:00	53	0	14	39
September 2003	17:00	54	0	13	41
September 2003	18:00	53	13	40	0
September 2003	19:00	53	13	40	0
September 2003	20:00	51	13	38	0
September 2003	21:00	45	45	0	0
September 2003	22:00	37	37	0	0
September 2003	23:00	31	31	0	0
Total		888	453	258	177
October 2002	0:00	25	25	0	0
October 2002	1:00	23	23	0	0
October 2002	2:00	21	21	0	0
October 2002	3:00	22	22	0	0
October 2002	4:00	23	23	0	0
October 2002	5:00	27	27	0	0
October 2002	6:00	32	32	0	0
October 2002	7:00	32	32	0	0
October 2002	8:00	31	8	23	0
October 2002	9:00	30	8	22	0
October 2002	10:00	30	9	22	0
October 2002	11:00	30	8	22	0
October 2002	12:00	30	9	22	0
October 2002	13:00	30	8	22	0
October 2002	14:00	30	9	22	0
October 2002	15:00	32	9	23	0
October 2002	16:00	35	9	25	0
October 2002	17:00	38	10	29	0
October 2002	18:00	42	0	10	32
October 2002	19:00	42	0	10	32
October 2002	20:00	41	0	10	31
October 2002	21:00	38	0	9	29
October 2002	22:00	34	34	0	0
October 2002	23:00	29	29	0	0
Total		747	353	270	123

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
November 2002	0:00	28	28	0	0
November 2002	1:00	26	26	0	0
November 2002	2:00	26	26	0	0
November 2002	3:00	25	25	0	0
November 2002	4:00	26	26	0	0
November 2002	5:00	28	28	0	0
November 2002	6:00	33	33	0	0
November 2002	7:00	36	36	0	0
November 2002	8:00	35	11	24	0
November 2002	9:00	35	11	24	0
November 2002	10:00	34	12	23	0
November 2002	11:00	33	11	22	0
November 2002	12:00	32	11	21	0
November 2002	13:00	31	11	20	0
November 2002	14:00	30	11	20	0
November 2002	15:00	32	11	21	0
November 2002	16:00	35	11	23	0
November 2002	17:00	39	12	27	0
November 2002	18:00	43	0	13	30
November 2002	19:00	43	0	13	30
November 2002	20:00	43	0	13	30
November 2002	21:00	41	0	12	29
November 2002	22:00	38	38	0	0
November 2002	23:00	33	33	0	0
Total		808	411	277	119
December 2002	0:00	36	36	0	0
December 2002	1:00	33	33	0	0
December 2002	2:00	32	32	0	0
December 2002	3:00	31	31	0	0
December 2002	4:00	32	32	0	0
December 2002	5:00	34	34	0	0
December 2002	6:00	38	38	0	0
December 2002	7:00	42	42	0	0
December 2002	8:00	41	12	29	0
December 2002	9:00	42	13	29	0
December 2002	10:00	42	13	29	0
December 2002	11:00	41	12	28	0
December 2002	12:00	39	12	27	0
December 2002	13:00	39	11	27	0
December 2002	14:00	37	11	26	0
December 2002	15:00	38	11	27	0
December 2002	16:00	41	11	30	0
December 2002	17:00	47	13	34	0
December 2002	18:00	52	0	15	37
December 2002	19:00	52	0	15	37
December 2002	20:00	52	0	15	37
December 2002	21:00	50	0	14	36
December 2002	22:00	46	46	0	0
December 2002	23:00	40	40	0	0
Total		977	484	345	148

Residential (RS)
Typical Class Load Profiles (kWh)

Month	Hour	RS-Total	P1	P2	P3
Annual	0:00	33	33	0	0
Annual	1:00	30	30	0	0
Annual	2:00	28	28	0	0
Annual	3:00	27	27	0	0
Annual	4:00	28	28	0	0
Annual	5:00	31	31	0	0
Annual	6:00	34	34	0	0
Annual	7:00	36	36	0	0
Annual	8:00	36	20	17	0
Annual	9:00	38	21	16	0
Annual	10:00	39	12	27	0
Annual	11:00	40	13	27	0
Annual	12:00	41	13	28	0
Annual	13:00	42	7	21	13
Annual	14:00	43	7	21	14
Annual	15:00	45	7	22	15
Annual	16:00	48	7	24	16
Annual	17:00	51	8	26	17
Annual	18:00	53	7	25	21
Annual	19:00	53	6	25	22
Annual	20:00	52	6	24	22
Annual	21:00	49	20	8	21
Annual	22:00	44	44	0	0
Annual	23:00	37	37	0	0
Total		957	483	312	162

General Service (GS)
Typical Class Load Profiles (kWh)

Month	Hour	GS-Total	P1	P2	P3
January 2003	0:00	86	86	0	0
January 2003	1:00	85	85	0	0
January 2003	2:00	84	84	0	0
January 2003	3:00	84	84	0	0
January 2003	4:00	83	83	0	0
January 2003	5:00	89	89	0	0
January 2003	6:00	101	101	0	0
January 2003	7:00	120	120	0	0
January 2003	8:00	128	23	105	0
January 2003	9:00	134	24	110	0
January 2003	10:00	137	24	113	0
January 2003	11:00	137	24	112	0
January 2003	12:00	134	24	110	0
January 2003	13:00	133	24	110	0
January 2003	14:00	132	23	109	0
January 2003	15:00	126	23	103	0
January 2003	16:00	115	22	93	0
January 2003	17:00	110	24	86	0
January 2003	18:00	114	0	26	88
January 2003	19:00	109	0	25	84
January 2003	20:00	104	0	24	80
January 2003	21:00	97	0	23	74
January 2003	22:00	91	91	0	0
January 2003	23:00	90	90	0	0
Total		2624	1151	1147	326
February 2003	0:00	80	80	0	0
February 2003	1:00	79	79	0	0
February 2003	2:00	78	78	0	0
February 2003	3:00	78	78	0	0
February 2003	4:00	78	78	0	0
February 2003	5:00	84	84	0	0
February 2003	6:00	95	95	0	0
February 2003	7:00	110	110	0	0
February 2003	8:00	118	23	95	0
February 2003	9:00	125	24	101	0
February 2003	10:00	128	25	102	0
February 2003	11:00	127	25	101	0
February 2003	12:00	124	25	98	0
February 2003	13:00	123	24	99	0
February 2003	14:00	121	24	97	0
February 2003	15:00	116	23	92	0
February 2003	16:00	108	23	85	0
February 2003	17:00	99	23	76	0
February 2003	18:00	100	0	25	75
February 2003	19:00	100	0	25	76
February 2003	20:00	96	0	25	72
February 2003	21:00	88	0	24	65
February 2003	22:00	85	85	0	0
February 2003	23:00	83	83	0	0
Total		2421	1090	1045	287

General Service (GS)
Typical Class Load Profiles (kWh)

Month	Hour	GS-Total	P1	P2	P3
March 2003	0:00	79	79	0	0
March 2003	1:00	77	77	0	0
March 2003	2:00	77	77	0	0
March 2003	3:00	78	78	0	0
March 2003	4:00	79	79	0	0
March 2003	5:00	84	84	0	0
March 2003	6:00	98	98	0	0
March 2003	7:00	110	110	0	0
March 2003	8:00	122	27	95	0
March 2003	9:00	129	28	101	0
March 2003	10:00	133	29	104	0
March 2003	11:00	135	29	106	0
March 2003	12:00	133	29	104	0
March 2003	13:00	131	27	103	0
March 2003	14:00	130	27	103	0
March 2003	15:00	126	27	99	0
March 2003	16:00	116	26	90	0
March 2003	17:00	105	26	79	0
March 2003	18:00	100	0	26	74
March 2003	19:00	108	0	30	79
March 2003	20:00	100	0	28	72
March 2003	21:00	91	0	27	63
March 2003	22:00	86	86	0	0
March 2003	23:00	83	83	0	0
Total		2510	1126	1096	287
April 2003	0:00	74	74	0	0
April 2003	1:00	72	72	0	0
April 2003	2:00	72	72	0	0
April 2003	3:00	73	73	0	0
April 2003	4:00	76	76	0	0
April 2003	5:00	86	86	0	0
April 2003	6:00	100	100	0	0
April 2003	7:00	107	107	0	0
April 2003	8:00	121	22	99	0
April 2003	9:00	127	21	106	0
April 2003	10:00	131	22	109	0
April 2003	11:00	133	23	110	0
April 2003	12:00	134	23	112	0
April 2003	13:00	134	22	112	0
April 2003	14:00	135	21	113	0
April 2003	15:00	134	22	112	0
April 2003	16:00	123	22	101	0
April 2003	17:00	109	22	87	0
April 2003	18:00	99	0	21	78
April 2003	19:00	100	0	22	79
April 2003	20:00	100	0	22	78
April 2003	21:00	89	0	22	67
April 2003	22:00	80	80	0	0
April 2003	23:00	76	76	0	0
Total		2487	1037	1149	301

General Service (GS)
Typical Class Load Profiles (kWh)

Month	Hour	GS-Total	P1	P2	P3
May 2003	0:00	81	81	0	0
May 2003	1:00	79	79	0	0
May 2003	2:00	79	79	0	0
May 2003	3:00	80	80	0	0
May 2003	4:00	83	83	0	0
May 2003	5:00	94	94	0	0
May 2003	6:00	105	105	0	0
May 2003	7:00	117	117	0	0
May 2003	8:00	137	28	109	0
May 2003	9:00	145	29	117	0
May 2003	10:00	150	29	121	0
May 2003	11:00	156	31	126	0
May 2003	12:00	158	30	128	0
May 2003	13:00	159	30	129	0
May 2003	14:00	160	29	131	0
May 2003	15:00	158	29	129	0
May 2003	16:00	146	29	116	0
May 2003	17:00	125	27	98	0
May 2003	18:00	112	0	26	86
May 2003	19:00	110	0	26	84
May 2003	20:00	112	0	29	84
May 2003	21:00	99	0	26	73
May 2003	22:00	88	88	0	0
May 2003	23:00	83	83	0	0
Total		2816	1179	1311	326
June 2003	0:00	77	77	0	0
June 2003	1:00	76	76	0	0
June 2003	2:00	75	75	0	0
June 2003	3:00	75	75	0	0
June 2003	4:00	79	79	0	0
June 2003	5:00	89	89	0	0
June 2003	6:00	98	98	0	0
June 2003	7:00	111	111	0	0
June 2003	8:00	132	132	0	0
June 2003	9:00	143	143	0	0
June 2003	10:00	152	33	118	0
June 2003	11:00	155	35	120	0
June 2003	12:00	156	34	122	0
June 2003	13:00	157	0	33	124
June 2003	14:00	157	0	33	125
June 2003	15:00	154	0	33	122
June 2003	16:00	144	0	33	111
June 2003	17:00	126	0	31	94
June 2003	18:00	113	30	83	0
June 2003	19:00	108	28	80	0
June 2003	20:00	105	28	77	0
June 2003	21:00	97	97	0	0
June 2003	22:00	87	87	0	0
June 2003	23:00	81	81	0	0
Total		2747	1410	761	576

**General Service (GS)
Typical Class Load Profiles (kWh)**

Month	Hour	GS-Total	P1	P2	P3
July 2003	0:00	105	105	0	0
July 2003	1:00	102	102	0	0
July 2003	2:00	99	99	0	0
July 2003	3:00	100	100	0	0
July 2003	4:00	102	102	0	0
July 2003	5:00	114	114	0	0
July 2003	6:00	124	124	0	0
July 2003	7:00	142	142	0	0
July 2003	8:00	157	157	0	0
July 2003	9:00	169	169	0	0
July 2003	10:00	178	35	143	0
July 2003	11:00	184	38	147	0
July 2003	12:00	185	36	149	0
July 2003	13:00	185	0	36	149
July 2003	14:00	185	0	36	149
July 2003	15:00	179	0	37	142
July 2003	16:00	162	0	37	125
July 2003	17:00	150	0	36	114
July 2003	18:00	144	36	108	0
July 2003	19:00	141	34	107	0
July 2003	20:00	140	36	104	0
July 2003	21:00	129	129	0	0
July 2003	22:00	122	122	0	0
July 2003	23:00	111	111	0	0
Total		3406	1787	940	679
August 2003	0:00	107	107	0	0
August 2003	1:00	104	104	0	0
August 2003	2:00	101	101	0	0
August 2003	3:00	101	101	0	0
August 2003	4:00	104	104	0	0
August 2003	5:00	117	117	0	0
August 2003	6:00	129	129	0	0
August 2003	7:00	150	150	0	0
August 2003	8:00	163	163	0	0
August 2003	9:00	178	178	0	0
August 2003	10:00	189	44	145	0
August 2003	11:00	194	45	149	0
August 2003	12:00	198	45	152	0
August 2003	13:00	198	0	45	153
August 2003	14:00	196	0	46	151
August 2003	15:00	186	0	45	141
August 2003	16:00	169	0	42	126
August 2003	17:00	154	0	42	112
August 2003	18:00	145	40	104	0
August 2003	19:00	143	39	103	0
August 2003	20:00	138	40	98	0
August 2003	21:00	128	128	0	0
August 2003	22:00	121	121	0	0
August 2003	23:00	113	113	0	0
Total		3524	1869	972	683

General Service (GS)
Typical Class Load Profiles (kWh)

Month	Hour	GS-Total	P1	P2	P3
September 2003	0:00	84	84	0	0
September 2003	1:00	82	82	0	0
September 2003	2:00	79	79	0	0
September 2003	3:00	78	78	0	0
September 2003	4:00	81	81	0	0
September 2003	5:00	93	93	0	0
September 2003	6:00	109	109	0	0
September 2003	7:00	123	123	0	0
September 2003	8:00	135	135	0	0
September 2003	9:00	145	145	0	0
September 2003	10:00	152	27	125	0
September 2003	11:00	153	27	126	0
September 2003	12:00	156	26	130	0
September 2003	13:00	157	0	26	131
September 2003	14:00	156	0	26	130
September 2003	15:00	146	0	26	120
September 2003	16:00	132	0	25	107
September 2003	17:00	120	0	25	94
September 2003	18:00	116	25	90	0
September 2003	19:00	121	27	95	0
September 2003	20:00	107	25	82	0
September 2003	21:00	98	98	0	0
September 2003	22:00	92	92	0	0
September 2003	23:00	87	87	0	0
Total		2802	1443	778	582
October 2002	0:00	75	75	0	0
October 2002	1:00	76	76	0	0
October 2002	2:00	75	75	0	0
October 2002	3:00	75	75	0	0
October 2002	4:00	79	79	0	0
October 2002	5:00	92	92	0	0
October 2002	6:00	108	108	0	0
October 2002	7:00	124	124	0	0
October 2002	8:00	139	23	116	0
October 2002	9:00	147	24	124	0
October 2002	10:00	152	24	128	0
October 2002	11:00	153	25	128	0
October 2002	12:00	152	24	128	0
October 2002	13:00	153	24	129	0
October 2002	14:00	153	23	130	0
October 2002	15:00	147	22	125	0
October 2002	16:00	132	22	109	0
October 2002	17:00	118	23	94	0
October 2002	18:00	115	0	25	90
October 2002	19:00	115	0	25	91
October 2002	20:00	106	0	23	83
October 2002	21:00	88	0	20	68
October 2002	22:00	79	79	0	0
October 2002	23:00	75	75	0	0
Total		2728	1092	1304	332

**General Service (GS)
Typical Class Load Profiles (kWh)**

Month	Hour	GS-Total	P1	P2	P3
November 2002	0:00	75	75	0	0
November 2002	1:00	73	73	0	0
November 2002	2:00	72	72	0	0
November 2002	3:00	72	72	0	0
November 2002	4:00	72	72	0	0
November 2002	5:00	78	78	0	0
November 2002	6:00	92	92	0	0
November 2002	7:00	107	107	0	0
November 2002	8:00	118	24	94	0
November 2002	9:00	122	24	98	0
November 2002	10:00	126	25	101	0
November 2002	11:00	127	26	100	0
November 2002	12:00	124	26	99	0
November 2002	13:00	123	25	98	0
November 2002	14:00	123	24	98	0
November 2002	15:00	117	23	94	0
November 2002	16:00	107	23	83	0
November 2002	17:00	105	26	79	0
November 2002	18:00	106	0	27	79
November 2002	19:00	100	0	26	74
November 2002	20:00	97	0	26	71
November 2002	21:00	87	0	25	62
November 2002	22:00	81	81	0	0
November 2002	23:00	77	77	0	0
Total		2381	1046	1049	285
December 2002	0:00	83	83	0	0
December 2002	1:00	82	82	0	0
December 2002	2:00	80	80	0	0
December 2002	3:00	80	80	0	0
December 2002	4:00	80	80	0	0
December 2002	5:00	86	86	0	0
December 2002	6:00	96	96	0	0
December 2002	7:00	114	114	0	0
December 2002	8:00	124	25	99	0
December 2002	9:00	127	26	102	0
December 2002	10:00	131	27	104	0
December 2002	11:00	131	26	104	0
December 2002	12:00	129	26	103	0
December 2002	13:00	126	25	101	0
December 2002	14:00	125	25	100	0
December 2002	15:00	120	24	96	0
December 2002	16:00	111	24	87	0
December 2002	17:00	108	26	82	0
December 2002	18:00	109	0	28	81
December 2002	19:00	104	0	27	77
December 2002	20:00	101	0	26	75
December 2002	21:00	93	0	25	68
December 2002	22:00	89	89	0	0
December 2002	23:00	85	85	0	0
Total		2514	1129	1084	301

General Service (GS)
Typical Class Load Profiles (kWh)

Month	Hour	GS-Total	P1	P2	P3
Annual	0:00	84	84	0	0
Annual	1:00	82	82	0	0
Annual	2:00	81	81	0	0
Annual	3:00	81	81	0	0
Annual	4:00	83	83	0	0
Annual	5:00	92	92	0	0
Annual	6:00	105	105	0	0
Annual	7:00	119	119	0	0
Annual	8:00	133	65	68	0
Annual	9:00	141	70	72	0
Annual	10:00	146	29	118	0
Annual	11:00	149	30	119	0
Annual	12:00	149	29	120	0
Annual	13:00	148	17	85	46
Annual	14:00	148	16	85	46
Annual	15:00	142	16	83	44
Annual	16:00	130	16	75	39
Annual	17:00	119	17	68	35
Annual	18:00	114	11	49	54
Annual	19:00	113	11	49	54
Annual	20:00	109	11	47	51
Annual	21:00	99	38	16	45
Annual	22:00	92	92	0	0
Annual	23:00	87	87	0	0
Total		2747	1280	1053	414