

BEFORE THE
STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of
Central Hudson Gas and Electric Corporation
Cases 17-E-0459 & 17-G-0460
November 2017

Prepared Exhibits of:

Staff Electric Forecasting Panel

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Central Hudson Gas and Electric Corporation

Cases 17-E-0459 & 17-G-0460

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Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-1, IR-078 (E078)
From: DPS Staff
Date of Request: July 31, 2017
Witness:
Subject: Sales and Peak Load Forecast

Question:

Provide actual and weather normalized annual electric sales and system peak load for the past five years. Provide an explanation of the weather normalization procedure utilized by the company.

Response:

Actual and weather normalized annual electric sales and system peak load for the last five years are shown in the table below.

The Company calculates normalized electric sales by utilizing the models developed for the sales forecast and replacing actual degree days with normal degree days to determine the weather impact. The weather impact (which is determined by multiplying the weather difference by actual customers in sales-per-customer models) is then subtracted from actual sales to determine weather normalized sales.

The process to estimate the weather adjustment for normalization of the system peak load is calculated in a similar fashion, with the weather adjustment estimated as the difference between the predicted peak load under actual weather conditions and the predicted peak load under "normal" peak conditions. Specifically, this is accomplished by utilizing the model described in the response to DPS-1, IR-079 to estimate peak load under both normal design conditions and under actual weather conditions. The difference between the resulting values is the weather adjustment which is added to the actual coincident peak, as adjusted for any Special Case Resources determined by the New York Independent System Operator, to produce an estimate of the normal peak.

	Actual Sales (MWh)	Normal Sales (MWh)	Actual Peak (MW)	Normal Peak (MW)
2012	5,068,737	5,059,213	1,168	1,160
2013	5,114,982	5,090,495	1,202	1,123
2014	5,065,973	5,079,377	1,060	1,121
2015	5,115,808	5,026,787	1,059	1,099
2016	4,985,072	4,915,191	1,088	1,046

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: August 10, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-8, IR-379 (SEFP)
From: Staff Electric Forecasting Panel
Date of Request: August 23, 2017
Witness: Forecasting and Rates Panel
Subject: Actual Customer and MWh Data through June 2017

Question:

In these interrogatories, all requests for workpapers or supporting calculations should be construed as requesting any Word, Excel or other computer spreadsheet models in original electronic format with all formulae intact.

1. For the six customer classes that the Panel developed customer models, provide updated monthly data for the actual number of customers through June 2017.
2. For the eight customer classes that the Panel developed average use models, provide updated monthly data for the actual MWh's through June 2017, without modifications for EEPS adjustment.

Response:

1. <u>Actual Customers</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>
Res Heat	27,750	26,976	26,976	26,979
Res Non-Heat	236,097	229,796	229,996	230,160
Com Demand	10,300	10,008	10,029	9,961
Com Non-Demand	28,574	27,762	27,808	28,071
OPA Demand	1,399	1,545	1,554	1,554
OPA Non-Demand	2,151	2,071	2,080	2,058
2. <u>Actual MWh's</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>
Res Heat	34,730	26,520	15,349	19,313
Res Non-Heat	129,757	120,939	119,784	136,628
Com Demand	105,748	103,652	102,165	114,272
Com NDemand	14,468	13,504	13,061	11,419
OPA Demand	31,159	28,156	27,155	29,270
OPA NDemand	1,221	1,088	1,008	1,013
Indust NDemand	270	240	184	200
Indust Demand	14,939	14,770	14,859	16,870

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: September 5, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-8, IR-380 (SEFP)
From: Staff Electric Forecasting Panel
Date of Request: August 23, 2017
Witness: Forecasting and Rates Panel
Subject: Sales Lost to EEPS and PV Update for 2017

Question:

In these interrogatories, all requests for workpapers or supporting calculations should be construed as requesting any Word, Excel or other computer spreadsheet models in original electronic format with all formulae intact.

1. Follow Up to Central Hudson's response to the pre-filed IR DPS-1, IR-077(E077):
 For the Panel's estimated lost sales to forecasted EEPS and PV, provide the corresponding actual data for the first six months of 2017 that would update the following workpapers:
 - a. "post fcst sales adj.xls"
 - b. "EEPSAssumptions.xlsx"
 - c. "2018 Budget PV Net Metering.xlsx"

Response:

1. a. There are no updates to the "post fcst sales adj.xls" file since this is a forecast file.
- b. Estimated EEPS data for Central Hudson and NYSERDA are filed on a quarterly basis. As a result, 1st quarter data is provided below while the 2nd quarter results are not available.

Program- NYSERDA	Jan-17	Feb-17	Mar-17
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Residential Programs	27,170	27,170	27,170
C&I Programs	1,261,937	1,261,937	1,261,937

Program- Central Hudson	Jan-17	Feb-17	Mar-17
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Residential Programs	3,158,000	3,158,000	3,158,000
C&I Programs	378,333	378,333	378,333

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

c. Installed kW by service class:

Sum of System Size	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17
SC 1	935.655	825.58	784.99	611.575	758.47	768.7	518.105
SC 2ND	19.07	31.4	3	14.72	11.5	4.8	18.48
SC 2PD							
SC 2 SD	11.18			32.07	11.4	50	105
SC 6	7.6		12.8		6		5.2
SC3			100				
SC 13							

Response by: Forecasting and Rates Panel
 Title: Please refer to Forecasting and Rates Panel Testimony
 Date of Response: September 5, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-10, IR-420
From: DPS Staff
Date of Request: August 31, 2017
Witness: Forecasting and Rates Panel
Subject: Income Elasticity Assumptions

Question:

1. Provide assumed values of income elasticity used in:
 - a. the residential heat average use-per-customer model
 - b. the non-heat customer average use-per-customer model
2. Provide sources of the income elasticities.
3. Are the income elasticities in 1a and 1b the same as those used in the 2014 rate case?

Response:

1. The assumed income elasticity value utilized in both the residential heat average use-per-customer model and the non-heat customer average use-per-customer model is 0.187.
2. The source of the income elasticity is the RHT_Elasticity model provided within the ResSales_2018.NDM project file provided to Staff in response to DPS-1, IR-001.
3. The income elasticity value utilized in Case 14-E-0318 was 0.2.

Document(s) Attached:

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: September 11, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-10, IR-421 (SEFP)
From: DPS Staff
Date of Request: August 31, 2017
Witness: Forecasting and Rates Panel
Subject: Electric Price Elasticity Assumptions

Question:

1. Provide values of the assumed price elasticities for each of the eight average use forecasting models as show in Exhibit _____(FRP-4), Schedule B.
2. Provide sources of the price elasticities.
3. Are the price elasticities same as those used in the 2014 rate case?

Response:

The responses to all three questions are provided in the table below.

Model	Current	Source	Case 14-E-0318
Residential Heat	-0.217	RHT_Elasticity ¹	-0.18
Residential Non-Heat	-0.202	RNH_Elasticity ¹	-0.15
Commercial Demand	-0.149	DemAdj_Price_Elas ²	-0.15
Commercial Non-Demand	-0.193	ND_Price_Elas ²	-0.15
OPA Demand	N/A	N/A	N/A
OPA Non-Demand	N/A	N/A	N/A
Industrial Demand	N/A	N/A	N/A
Industrial Non-Demand	N/A	N/A	-0.15

1 – Elasticity models provided within the ResSales_2018.NDM project file provided in response to Staff in response to DPS-1, IR-001.

2 - Elasticity models provided within the ComSales_2018.NDM project file provided in response to Staff in response to DPS-1, IR-001.

Document(s) Attached:

Response by: Forecasting and Rates Panel
 Title: Please refer to Forecasting and Rates Panel Testimony
 Date of Response: September 11, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-11, IR-453 (SEFP)
From: DPS Staff
Date of Request: September 6, 2017
Witness: Forecasting and Rates Panel
Subject: Price Index for Electric Price Variables

Question:

Refer to testimony, page 21, lines 9-11. Generally, businesses use Gross Domestic Product (GDP) price index as a price deflator. Explain why the Panel used the Consumer Price Index (CPI) to express electric price variables for commercial, industrial, and OPA customers.

Response:

The CPI and GDP price index are alternative measures of inflation. Based on a number of factors, the Panel has continued to utilize the CPI in the development of price variables for both residential and non-residential classes since the current overall forecasting structure was initially developed and supported by the Company's vendor, Itron, for the electric sales forecast filed in Case 05-E-0934. Reliance on the CPI is based on the facts that:

- The product, electricity, is the same for both residential and non-residential classes;
- The residential classes appear to be more price-responsive than the non-residential classes based on elasticity estimates (please refer to the Company's response to DPS-10, IR-421); and,
- A price variable was determined to be not necessary, and therefore not utilized, in four of the six average use models developed by the Panel.

Document(s) Attached:

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: September 15, 2017

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-29, IR-792 (SEFP)
From: DPS Staff
Date of Request: November 2, 2017
Witness: Forecasting and Rates Panel
Subject: Follow-up to DPS-379

Question:

In these interrogatories, all requests for workpapers or supporting calculations should be construed as requesting any Word, Excel or other computer spreadsheet models in original electronic format with all formulae intact.

- A. Explain whether the customer and sales data provided in the response to part 1 and part 2 of IR DPS-379 and the subsequently provided "DPS Workpapers- Followup to 379.xls" are consistent with what the Panel used to develop its forecasting models, as requested by IR DPS-379. In other words, explain whether this data does or does not contain any number of customers or sales data from SC 9 or SC 13, which are separately forecasted.
- B. If the answer is no, explain the errors and provide correct data and revised "DPS Workpapers- Followup to 379.xls".

Response:

- A. The data contained in "DPS Workpapers Follow-up to 379.xls" does contain customers and sales data from SC 9 and SC 13. These customers and sales were properly excluded in the development of the referenced models as they were included in the total forecasts on a separate basis.
Please see attached "DPS-792 Attachment.xlsx" which contains the previously supplied data and also separately identifies the customer and sales data for SC9 and SC 13 service classes which are included in the OPA and Commercial classes as indicated in the attachment.
- B. Please see above response.

Document(s) Attached:

DPS-792 Attachment

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: November 13, 2017

**Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Customer Data 1997-July 2017**

DPS-792 Attachment

Year	Month	Res Heat	Res Non-Heat	Comm NonDemand	Comm Demand	Indust NonDmd	Indust SmlDmd	OPA NonDmd	OPA Dmd	Traffic	CommSC13	OPASC1 3
1997	1	30,846	203,386	23,908	7,647	323	480	1,782	1,189	288	1	12
1997	2	28,572	198,576	22,149	7,470	323	459	1,744	1,159	286	1	12
1997	3	30,056	196,866	23,212	7,550	344	472	1,782	1,174	288	1	12
1997	4	28,916	198,687	22,373	7,466	318	481	1,749	1,152	286	1	12
1997	5	29,826	195,233	23,117	7,657	327	464	1,793	1,170	288	1	12
1997	6	29,185	198,868	22,545	7,695	317	505	1,769	1,175	287	1	12
1997	7	30,220	196,120	23,217	7,656	341	477	1,805	1,175	287	1	12
1997	8	29,058	198,451	22,588	7,604	309	483	1,785	1,182	285	1	12
1997	9	29,921	194,545	23,261	7,655	325	481	1,781	1,187	286	1	12
1997	10	29,069	198,598	22,698	7,563	325	488	1,826	1,191	284	1	12
1997	11	29,569	194,068	23,477	7,419	339	482	1,829	1,166	286	1	12
1997	12	29,327	201,793	23,348	7,439	368	499	1,855	1,165	284	1	12
1998	1	30,912	202,173	24,661	7,471	378	502	1,868	1,169	286	1	12
1998	2	28,831	199,356	23,045	7,334	339	486	1,826	1,147	284	1	11
1998	3	30,205	197,349	24,144	7,394	362	523	1,873	1,171	287	1	11
1998	4	28,057	200,530	22,953	7,393	334	490	1,817	1,151	285	1	11
1998	5	26,858	200,437	24,271	7,574	373	510	1,894	1,194	287	1	12
1998	6	26,367	202,736	23,249	7,565	331	505	1,832	1,198	285	1	12
1998	7	26,820	200,433	24,276	7,679	376	496	1,935	1,216	298	1	13
1998	8	26,370	203,095	23,201	7,582	336	498	1,883	1,205	296	1	12
1998	9	26,452	198,093	24,145	7,587	359	503	1,934	1,209	302	1	12
1998	10	26,343	203,428	23,215	7,657	322	508	1,877	1,220	300	1	12
1998	11	26,392	196,624	23,935	7,457	355	504	1,905	1,218	302	1	12
1998	12	26,909	209,247	23,911	7,898	316	527	1,897	1,257	300	1	12
1999	1	27,490	206,860	25,070	7,704	346	512	1,931	1,227	307	1	12
1999	2	26,442	204,416	23,226	7,522	338	496	1,976	1,218	308	2	10
1999	3	26,889	202,801	24,636	7,641	359	510	1,934	1,231	310	2	10
1999	4	26,497	204,789	23,445	7,667	318	508	1,940	1,239	309	2	10
1999	5	25,484	194,787	23,225	7,398	335	512	1,857	1,184	309	2	10
1999	6	27,887	208,290	24,751	7,606	328	505	1,963	1,232	312	2	10
1999	7	26,153	206,923	24,169	7,715	340	508	1,988	1,250	310	2	12
1999	8	27,015	201,413	24,275	7,699	323	496	1,915	1,236	311	2	10
1999	9	25,723	201,103	23,715	7,438	322	494	1,960	1,213	312	2	10
1999	10	27,058	202,662	24,479	7,970	335	522	1,940	1,254	314	2	10
1999	11	26,095	206,312	24,186	7,629	317	509	1,968	1,245	312	2	10
1999	12	27,524	206,080	25,032	7,999	339	521	1,969	1,286	314	2	10
2000	1	27,187	216,212	25,216	7,774	336	512	2,035	1,266	316	2	11
2000	2	27,148	203,753	24,666	7,779	331	524	1,942	1,234	314	2	11
2000	3	24,693	198,523	23,074	8,184	308	533	1,792	1,297	316	2	11
2000	4	27,608	206,915	25,922	7,776	366	507	2,232	1,235	314	2	11
2000	5	26,198	210,017	23,952	7,803	308	512	1,812	1,230	316	2	11
2000	6	27,121	202,709	25,815	7,915	368	517	2,098	1,217	314	2	11
2000	7	26,460	211,888	24,391	7,885	324	516	1,811	1,242	318	2	11
2000	8	27,010	202,633	25,857	7,707	353	502	2,079	1,191	316	2	11
2000	9	24,537	194,443	22,898	7,827	296	537	1,711	1,211	319	2	11
2000	10	28,462	219,021	26,836	7,935	385	525	2,158	1,229	317	2	17
2000	11	26,184	207,076	24,200	7,743	321	519	1,805	1,195	319	2	11
2000	12	25,598	194,874	25,122	8,019	360	525	2,004	1,241	318	2	11
2001	1	28,833	229,687	26,163	8,024	356	558	1,939	1,273	322	3	10
2001	2	26,937	208,210	26,289	7,736	388	520	2,145	1,214	320	3	10
2001	3	26,507	210,656	24,627	8,111	342	544	1,799	1,242	322	3	10
2001	4	27,201	208,590	26,534	8,029	366	547	2,132	1,259	318	3	10
2001	5	26,240	209,829	24,409	7,954	329	534	1,771	1,224	322	3	12
2001	6	26,905	208,090	26,610	7,975	377	542	2,123	1,233	318	3	16
2001	7	26,432	210,059	24,694	7,914	332	532	1,791	1,238	322	3	12
2001	8	26,979	207,520	26,536	7,974	371	534	2,120	1,223	318	3	11
2001	9	26,153	208,331	24,704	7,960	333	531	1,780	1,224	323	3	12
2001	10	27,026	209,869	26,795	8,095	374	539	2,142	1,237	319	3	13
2001	11	26,167	209,036	24,604	8,078	392	538	1,772	1,247	325	3	12
2001	12	27,101	212,074	26,942	8,083	450	548	2,183	1,229	319	3	12
2002	1	26,589	216,628	25,100	8,209	434	541	1,801	1,217	321	3	12
2002	2	26,876	210,864	26,812	8,106	462	553	2,115	1,253	319	3	12
2002	3	26,063	209,654	24,724	8,409	462	561	1,819	1,290	321	3	12
2002	4	27,394	215,057	27,156	8,245	475	569	2,140	1,275	319	3	12
2002	5	26,185	211,696	24,751	8,336	436	571	1,789	1,263	321	3	13
2002	6	26,986	211,531	26,704	8,319	473	544	2,141	1,265	319	3	12
2002	7	26,271	213,286	24,971	8,348	433	578	1,787	1,259	321	3	12
2002	8	26,873	211,847	26,607	8,268	484	560	2,133	1,230	319	3	12
2002	9	26,265	212,831	24,977	8,292	446	556	1,787	1,262	321	3	12
2002	10	26,949	212,676	26,866	8,435	455	588	2,125	1,267	319	3	12
2002	11	25,663	208,526	24,536	8,269	452	567	1,755	1,252	321	3	12
2002	12	27,540	217,298	27,376	8,496	484	539	2,173	1,272	319	3	12
2003	1	26,549	220,028	25,128	8,475	451	554	1,788	1,275	321	3	12
2003	2	26,823	212,956	26,944	8,522	457	550	2,116	1,270	319	3	12
2003	3	26,554	217,079	25,208	8,584	458	600	1,840	1,297	320	3	21
2003	4	27,050	213,397	26,846	8,440	458	585	2,185	1,279	318	3	13
2003	5	26,105	213,531	24,925	8,192	453	555	1,794	1,248	320	3	19
2003	6	27,154	214,634	27,093	8,770	457	605	2,134	1,315	318	3	15
2003	7	26,122	216,694	25,098	8,626	449	586	1,763	1,285	320	3	15
2003	8	26,990	215,044	26,898	8,559	462	590	2,150	1,298	318	3	15
2003	9	26,202	214,674	24,952	8,653	447	574	1,792	1,310	318	3	15
2003	10	26,964	215,707	26,826	8,592	441	571	2,133	1,296	316	3	15
2003	11	26,062	214,458	24,768	8,651	454	570	1,772	1,322	318	3	15
2003	12	27,121	216,602	26,992	8,961	459	567	2,131	1,366	316	3	15
2004	1	26,514	222,789	25,680	8,784	457	576	1,784	1,339	318	3	15

**Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Customer Data 1997-July 2017**

DPS-792 Attachment

Year	Month	Res Heat	Res Non-Heat	Comm NonDemand	Comm Demand	Indust NonDmd	Indust SmlDmd	OPA NonDmd	OPA Dmd	Traffic	CommSC13	OPASC1 3
2004	2	27,044	216,991	26,950	8,875	465	579	2,091	1,323	316	3	15
2004	3	26,276	217,562	25,029	8,872	463	590	1,770	1,336	318	3	15
2004	4	27,045	216,211	26,797	8,813	487	572	2,114	1,357	315	3	15
2004	5	26,298	217,212	25,010	9,012	449	583	1,775	1,343	317	3	15
2004	6	27,061	216,933	26,884	9,018	470	568	2,083	1,327	314	3	14
2004	7	26,227	219,222	25,179	9,115	461	572	1,796	1,342	316	3	16
2004	8	26,877	216,333	26,775	9,028	469	573	2,078	1,345	315	3	15
2004	9	26,044	216,285	24,969	9,207	446	580	1,748	1,340	315	3	15
2004	10	26,887	217,462	26,779	9,147	464	576	2,113	1,353	313	3	16
2004	11	26,078	218,778	24,875	9,171	456	578	1,760	1,335	315	3	16
2004	12	26,993	219,001	27,027	9,264	413	567	2,142	1,348	313	3	16
2005	1	26,625	227,546	26,405	9,788	503	582	1,850	1,426	315	3	16
2005	2	26,837	219,892	27,165	9,125	475	553	2,121	1,351	313	3	16
2005	3	26,404	220,803	25,249	9,536	472	589	1,784	1,413	315	3	16
2005	4	27,031	220,432	27,307	9,314	471	556	2,100	1,355	313	3	16
2005	5	26,231	220,244	24,757	9,352	463	557	1,766	1,376	315	3	16
2005	6	26,811	219,328	26,968	9,411	478	563	2,105	1,378	313	3	16
2005	7	26,213	221,118	25,268	9,613	470	570	1,767	1,397	315	3	13
2005	8	26,920	219,941	26,932	9,246	472	562	2,089	1,353	313	3	13
2005	9	26,202	219,977	24,985	9,474	452	554	1,762	1,390	315	3	13
2005	10	26,724	220,225	27,200	9,573	466	569	2,088	1,388	313	3	13
2005	11	25,893	218,623	24,896	9,296	470	556	1,768	1,368	315	3	13
2005	12	27,138	223,360	27,503	9,694	479	578	2,113	1,409	313	3	13
2006	1	26,363	227,485	26,023	9,823	455	571	1,774	1,384	315	3	13
2006	2	26,750	221,864	27,232	9,599	471	575	2,058	1,381	313	3	13
2006	3	26,343	223,381	25,555	9,814	453	573	1,799	1,401	315	3	13
2006	4	26,870	221,674	27,020	9,616	466	575	2,071	1,383	313	3	13
2006	5	26,107	221,120	25,078	9,637	446	569	1,752	1,375	315	3	13
2006	6	27,011	223,945	27,450	9,842	472	566	2,119	1,377	312	3	13
2006	7	25,669	218,732	25,042	9,991	421	577	1,705	1,412	314	3	13
2006	8	26,786	226,409	27,749	9,631	490	553	2,187	1,358	312	3	13
2006	9	27,124	222,859	25,582	9,844	422	564	1,767	1,399	314	5	12
2006	10	25,868	223,200	27,582	9,818	521	560	2,142	1,381	312	5	12
2006	11	26,979	223,122	25,462	9,548	398	570	1,762	1,365	314	5	12
2006	12	25,849	223,923	27,638	9,974	532	602	2,139	1,397	312	5	12
2007	1	27,232	227,509	26,299	10,067	493	558	1,792	1,399	314	5	12
2007	2	25,740	225,367	27,723	9,617	619	536	2,175	1,333	312	5	12
2007	3	27,163	225,545	26,126	10,368	558	585	1,801	1,442	314	5	12
2007	4	26,005	226,846	28,052	9,707	798	539	2,159	1,359	312	5	12
2007	5	26,984	223,341	25,395	9,766	637	552	1,726	1,336	314	5	12
2007	6	25,827	225,168	27,616	9,802	861	546	2,176	1,340	312	5	12
2007	7	27,102	225,597	26,086	9,932	651	554	1,757	1,375	314	5	10
2007	8	25,756	225,280	27,698	9,782	853	528	2,150	1,354	312	5	12
2007	9	27,048	224,090	25,680	9,866	671	550	1,730	1,353	316	5	12
2007	10	25,788	225,792	27,890	9,978	808	552	2,181	1,360	311	5	12
2007	11	26,948	223,624	25,432	9,551	661	534	1,698	1,324	311	5	12
2007	12	25,797	226,626	28,348	10,358	866	567	2,235	1,426	311	5	12
2008	1	27,635	233,183	27,076	10,399	692	572	1,831	1,428	311	5	10
2008	2	25,801	226,794	28,128	9,807	785	554	2,191	1,374	311	5	10
2008	3	27,213	226,978	26,064	10,078	586	561	1,753	1,389	311	5	10
2008	4	25,767	226,602	27,983	9,874	585	556	2,163	1,377	311	5	10
2008	5	27,068	225,689	25,964	9,980	510	536	1,743	1,389	311	5	10
2008	6	25,732	226,819	28,197	9,893	632	545	2,138	1,366	311	5	10
2008	7	27,241	227,459	26,472	10,085	532	551	1,776	1,393	311	5	9
2008	8	25,724	226,480	27,984	9,784	605	541	2,181	1,360	311	5	9
2008	9	26,944	224,728	25,896	10,034	518	545	1,771	1,398	311	5	9
2008	10	25,650	225,978	27,922	9,965	606	535	2,161	1,391	311	5	9
2008	11	27,047	226,444	26,177	10,260	537	549	1,790	1,412	301	4	9
2008	12	25,721	229,818	28,886	10,288	618	551	2,238	1,425	296	4	9
2009	1	27,131	226,729	26,017	9,985	520	540	1,765	1,372	299	4	9
2009	2	25,289	226,499	28,094	10,040	586	540	2,158	1,389	297	4	9
2009	3	27,708	229,122	26,354	10,238	540	553	1,810	1,411	297	4	9
2009	4	25,842	226,514	28,005	9,931	583	527	2,130	1,383	297	4	10
2009	5	27,109	225,587	25,744	10,097	514	535	1,741	1,398	297	4	10
2009	6	25,773	227,113	28,265	10,097	597	538	2,155	1,423	296	4	9
2009	7	27,057	226,122	26,121	10,144	521	528	1,743	1,417	296	4	9
2009	8	25,755	225,276	27,708	9,890	603	522	2,124	1,370	297	4	9
2009	9	26,997	223,008	25,703	9,958	496	521	1,743	1,396	296	4	9
2009	10	25,769	227,043	28,300	10,166	599	533	2,156	1,428	296	4	9
2009	11	26,662	223,340	25,855	9,836	505	514	1,781	1,416	295	4	9
2009	12	26,323	231,146	28,977	10,358	600	529	2,203	1,469	295	4	9
2010	1	27,102	226,213	26,115	9,906	497	517	1,804	1,412	295	4	8
2010	2	24,591	215,228	27,025	9,331	559	494	2,081	1,345	295	4	8
2010	3	28,680	238,828	27,479	10,221	546	539	1,906	1,477	295	4	8
2010	4	25,931	226,686	28,149	10,158	603	525	2,155	1,407	293	4	8
2010	5	27,245	227,182	26,205	9,935	510	503	1,814	1,419	293	4	8
2010	6	25,965	227,051	28,383	9,906	590	511	2,199	1,416	293	4	8
2010	7	27,224	226,657	26,105	9,829	529	517	1,803	1,409	293	4	8
2010	8	26,038	227,569	28,361	9,855	595	513	2,168	1,405	293	4	8
2010	9	27,069	226,315	26,039	9,870	524	505	1,793	1,446	293	4	8
2010	10	25,957	227,577	28,270	9,875	594	512	2,209	1,395	293	4	8
2010	11	27,050	225,912	25,912	9,840	521	510	1,797	1,420	293	4	8
2010	12	25,934	227,696	28,325	9,845	597	516	2,212	1,398	293	4	8
2011	1	27,323	228,017	26,531	10,125	537	522	1,870	1,430	293	4	8
2011	2	26,172	231,644	28,887	9,777	593	500	2,236	1,376	221	4	9

**Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Customer Data 1997-July 2017**

DPS-792 Attachment

Year	Month	Res		Comm NonDemand	Comm Demand	Indust NonDmd	Indust SmlDmd	OPA		OPASC1		
		Heat	Non-Heat					NonDmd	OPA Dmd	Traffic	CommSC13	3
2011	3	27,623	229,335	26,390	9,834	524	526	1,855	1,420	256	4	9
2011	4	26,135	226,801	27,992	9,754	599	514	2,226	1,395	256	4	9
2011	5	27,256	226,140	25,953	9,853	515	505	1,822	1,383	256	4	8
2011	6	26,163	228,043	28,294	9,827	593	524	2,206	1,388	256	4	8
2011	7	27,334	226,694	26,050	9,934	527	516	1,845	1,406	255	4	8
2011	8	25,969	227,384	28,348	9,785	585	503	2,224	1,373	249	4	8
2011	9	27,192	226,354	26,174	9,882	527	518	1,824	1,379	249	4	8
2011	10	25,804	226,397	28,200	9,560	584	502	2,212	1,372	248	4	9
2011	11	27,196	225,346	25,900	9,667	534	503	1,808	1,367	248	4	9
2011	12	26,032	227,515	28,295	9,803	584	506	2,223	1,382	244	4	9
2012	1	27,208	226,282	26,100	9,663	540	506	1,830	1,390	242	4	8
2012	2	26,095	226,688	27,954	9,617	571	495	2,224	1,364	242	4	8
2012	3	27,359	226,493	26,095	9,703	522	502	1,816	1,394	242	4	8
2012	4	26,092	227,274	28,271	9,699	593	495	2,212	1,366	242	4	8
2012	5	27,256	225,551	25,980	9,749	526	483	1,783	1,359	242	4	8
2012	6	26,094	227,395	28,338	9,772	574	500	2,232	1,379	241	4	8
2012	7	27,296	226,458	26,180	9,812	515	483	1,809	1,382	241	4	8
2012	8	25,971	227,255	28,393	9,763	589	495	2,230	1,372	241	4	8
2012	9	27,226	225,660	26,195	9,840	529	495	1,795	1,351	241	4	8
2012	10	25,980	227,780	28,228	9,831	600	495	2,239	1,360	241	4	8
2012	11	27,186	225,254	26,054	9,783	533	492	1,811	1,360	241	4	8
2012	12	26,089	228,956	28,578	9,822	588	498	2,232	1,372	238	4	8
2013	1	27,418	229,747	26,858	9,950	519	509	1,883	1,387	240	4	9
2013	2	26,003	227,751	28,264	9,595	586	497	2,259	1,351	239	4	9
2013	3	27,487	226,726	26,261	9,884	534	500	1,817	1,362	239	4	9
2013	4	26,089	227,848	28,312	9,647	593	495	2,215	1,389	239	4	9
2013	5	27,277	224,742	25,932	9,750	519	492	1,809	1,384	239	4	8
2013	6	26,035	227,945	28,349	9,781	603	499	2,213	1,361	238	4	11
2013	7	27,242	226,380	26,339	9,835	528	502	1,835	1,354	238	4	7
2013	8	26,064	227,321	28,207	9,738	603	490	2,209	1,339	238	4	10
2013	9	27,274	225,394	26,143	9,784	526	492	1,810	1,365	236	4	9
2013	10	25,989	227,748	28,435	9,734	615	496	2,242	1,350	237	4	8
2013	11	27,259	225,881	26,116	9,797	495	495	1,832	1,351	236	4	9
2013	12	26,148	228,960	28,615	10,390	611	515	2,233	1,426	236	4	9
2014	1	27,471	229,534	26,483	10,168	509	493	1,827	1,400	236	4	8
2014	2	25,896	227,158	28,158	10,014	578	500	2,215	1,377	236	4	8
2014	3	27,957	229,339	26,302	10,130	530	517	1,832	1,429	236	4	8
2014	4	26,292	226,137	27,609	9,782	494	494	2,045	1,360	236	4	8
2014	5	27,362	226,096	25,922	10,147	511	503	1,783	1,394	236	4	8
2014	6	26,349	228,535	28,119	10,007	564	504	2,195	1,390	236	4	8
2014	7	27,298	226,603	26,177	10,175	517	501	1,797	1,382	235	4	8
2014	8	26,218	227,973	28,260	9,919	577	502	2,228	1,374	231	4	8
2014	9	27,350	226,266	26,108	10,007	497	500	1,821	1,383	232	4	7
2014	10	26,153	228,035	28,239	10,002	586	506	2,239	1,369	230	3	8
2014	11	27,262	225,695	26,054	9,946	507	507	1,831	1,373	230	5	7
2014	12	26,321	228,889	28,583	10,127	575	512	2,231	1,378	230	4	8
2015	1	27,463	227,949	26,419	10,091	497	520	1,862	1,395	230	4	7
2015	2	26,411	232,027	29,093	10,341	561	519	2,285	1,397	230	4	7
2015	3	27,932	235,567	27,191	10,373	500	533	1,906	1,421	230	2	6
2015	4	26,452	228,647	28,206	10,037	497	517	2,212	1,375	225	4	7
2015	5	27,384	226,244	26,080	10,101	485	530	1,816	1,381	225	3	6
2015	6	26,373	228,621	28,257	10,004	572	507	2,224	1,371	225	3	6
2015	7	27,442	226,704	26,306	10,124	498	534	1,827	1,380	225	3	6
2015	8	26,261	228,865	28,359	9,999	544	518	2,226	1,372	225	3	6
2015	9	27,373	226,601	26,255	10,107	427	526	1,829	1,382	225	3	6
2015	10	26,327	228,984	28,527	10,057	535	524	2,209	1,385	225	3	7
2015	11	27,426	226,740	26,235	9,993	410	528	1,824	1,372	225	3	8
2015	12	26,498	229,040	28,500	10,051	542	538	1,813	1,372	225	3	7
2016	1	27,384	226,515	26,236	9,945	418	527	1,813	1,352	225	3	8
2016	2	26,180	228,589	28,283	9,802	540	521	2,224	1,359	218	3	6
2016	3	27,933	229,455	26,612	10,265	439	537	1,832	1,376	218	3	7
2016	4	26,531	229,670	28,449	9,952	541	599	2,178	1,360	218	3	8
2016	5	27,457	227,246	26,584	9,996	417	594	1,808	1,363	216	9	7
2016	6	26,440	229,803	28,616	10,012	530	604	2,222	1,363	215	5	6
2016	7	26,949	228,525	27,600	9,890	591	579	2,015	1,348	214	5	6
2016	8	26,945	228,857	27,650	9,972	467	583	2,006	1,358	214	5	6
2016	9	26,953	228,884	27,760	10,002	485	533	2,013	1,345	214	5	6
2016	10	26,923	228,922	27,345	9,977	462	529	2,030	1,348	212	5	8
2016	11	26,981	228,654	27,606	9,969	479	526	2,031	1,321	212	6	7
2016	12	27,009	229,708	27,780	9,961	479	519	2,028	1,370	211	5	7
2017	1	27,009	229,955	27,888	9,972	481	526	2,064	1,342	209	5	7
2017	2	26,296	224,122	27,048	9,745	469	520	2,012	1,309	209	5	7
2017	3	27,750	236,097	28,574	10,300	500	544	2,151	1,399	205	5	7
2017	4	26,976	229,796	27,762	10,008	482	519	2,071	1,545	213	5	6
2017	5	26,976	229,996	27,808	10,029	462	535	2,080	1,554	209	5	7
2017	6	26,979	230,160	28,071	9,961	484	523	2,058	1,554	209	5	7
2017	7	27,102	230,771	28,251	10,032	474	525	2,091	1,580	209	5	6

Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Sales Data 1997-July 2017

DPS-792 Attachment

Year	Month	ResHtSales	ResNHSales	Comm NonDemandSales	Comm DemandSales	Ind NonDmdSal	Ind SmlDmdSales	OPA NonDmdSales	OPA DmdSales	Traffic	CommSC13	OPASC13
1997	1	48,344,282	116,195,534	20,382,207	95,699,608	301,957	22,570,112	2,094,834	29,571,716	262,576	11,600	46,686
1997	2	47,749,088	114,294,517	19,666,156	88,897,912	306,805	22,902,713	2,490,335	28,428,439	260,506	20,500	32,070
1997	3	45,657,087	100,744,872	17,575,988	80,272,202	352,684	22,047,659	1,780,259	27,534,029	261,811	58,480	44,768
1997	4	35,737,627	96,006,456	14,847,052	79,571,699	249,998	22,658,109	1,840,500	25,857,232	259,741	50,420	41,030
1997	5	29,575,108	86,952,336	13,205,961	78,621,698	193,042	22,067,453	1,247,975	24,441,181	261,811	19,170	40,877
1997	6	22,647,596	88,969,536	12,664,294	91,000,010	194,770	23,794,322	1,207,595	25,057,444	259,741	16,300	48,155
1997	7	22,980,661	103,094,882	14,546,369	103,876,119	226,759	24,416,516	1,217,320	25,175,234	261,766	9,540	39,544
1997	8	22,786,747	114,095,554	15,512,721	100,183,639	177,582	25,892,664	1,362,503	25,079,946	259,696	1,960	39,348
1997	9	22,394,212	105,719,238	14,657,130	94,742,817	196,731	25,525,820	1,162,437	24,858,650	263,746	4,750	37,885
1997	10	20,872,178	96,588,517	12,689,766	87,169,009	190,033	24,554,214	1,170,449	25,104,602	262,351	71,180	40,972
1997	11	25,839,761	91,219,887	14,436,733	84,447,429	221,830	24,523,706	1,367,083	26,630,265	265,501	-	40,176
1997	12	36,313,176	105,380,616	16,508,701	92,557,579	292,489	22,112,907	1,981,565	29,366,690	263,431	50	42,963
1998	1	47,135,046	115,350,383	19,433,229	95,514,894	328,107	22,109,369	2,006,300	30,384,872	265,501	9,300	44,763
1998	2	43,824,518	113,116,311	18,160,010	86,632,432	328,645	21,955,296	2,157,069	29,381,075	265,096	14,920	675,443
1998	3	41,630,303	98,547,324	16,797,365	80,267,348	253,528	21,749,688	1,850,289	29,597,805	267,364	3,850	1,181,380
1998	4	31,440,850	97,441,075	14,321,699	85,022,988	244,729	23,246,235	1,701,581	28,267,146	265,276	26,340	1,179,997
1998	5	23,182,927	93,447,045	13,215,588	85,571,758	276,094	23,830,268	1,302,717	25,668,965	271,378	9,840	39,304
1998	6	17,167,166	96,201,190	12,448,472	92,947,759	212,665	25,783,136	1,180,204	26,156,687	274,335	11,410	38,387
1998	7	17,555,751	112,733,808	14,921,256	107,740,798	212,709	25,430,263	1,401,900	27,180,789	280,936	18,550	38,732
1998	8	18,125,982	128,263,498	15,509,673	108,717,986	226,981	27,144,042	1,389,827	27,273,103	278,587	20	38,546
1998	9	17,798,102	123,513,302	15,273,699	105,036,689	228,059	26,088,325	1,409,296	26,367,443	283,447	6,960	37,390
1998	10	17,217,402	110,382,683	13,328,681	92,580,483	183,150	25,040,413	1,272,721	26,177,897	281,377	770	24,161
1998	11	20,408,096	96,979,235	13,119,481	84,764,339	202,235	22,993,549	1,365,737	26,379,709	287,830	45,340	40,826
1998	12	27,842,609	110,222,451	14,893,257	95,106,568	228,954	23,036,195	1,788,151	29,428,971	285,382	340	44,173
1999	1	40,936,378	122,925,203	19,800,983	100,361,897	300,644	22,807,283	2,276,023	31,141,553	305,060	530	47,704
1999	2	44,086,326	123,144,600	17,971,219	92,048,229	291,991	21,786,167	2,315,041	29,773,788	295,597	1,450,210	45,132
1999	3	40,928,277	108,052,532	17,898,272	89,241,091	263,670	21,971,579	2,009,624	29,365,608	301,587	1,661,779	114,064
1999	4	32,462,928	104,622,626	14,917,686	88,534,413	246,064	24,196,629	1,994,089	27,388,521	298,671	1,711,093	53,336
1999	5	22,765,236	92,407,820	12,227,156	86,504,836	215,556	23,970,273	1,206,878	24,595,986	300,471	1,882,098	37,688
1999	6	18,879,079	103,054,396	13,992,476	99,819,206	226,586	25,560,674	1,297,150	28,039,717	299,436	1,925,711	60,786
1999	7	18,429,900	127,888,052	15,874,085	118,634,313	266,671	25,370,221	1,443,298	29,179,112	300,966	2,043,561	57,468
1999	8	19,512,522	140,993,008	16,398,285	115,406,184	267,708	26,479,013	1,477,555	27,201,575	297,726	1,918,728	44,234
1999	9	18,088,436	134,886,361	14,859,902	105,186,841	239,322	25,116,700	1,337,725	25,903,461	299,571	1,764,849	145,644
1999	10	17,833,470	111,291,155	14,023,784	99,175,610	225,139	25,595,948	1,281,453	27,779,077	298,041	1,627,813	168,256
1999	11	21,191,944	106,208,228	13,374,138	89,758,486	241,059	24,074,781	1,389,221	27,689,380	235,857	1,490,964	120,334
1999	12	29,492,503	111,937,057	16,387,890	102,309,707	268,866	23,331,864	1,902,021	30,528,248	287,421	1,476,017	30,878
2000	1	40,700,461	129,330,071	18,513,581	100,333,581	272,271	22,704,678	2,136,531	32,120,786	292,866	1,564,327	42,896
2000	2	47,655,443	127,698,257	3,926,658	101,608,358	261,781	22,693,511	2,592,976	32,001,354	287,421	1,435,403	42,590
2000	3	39,253,958	109,602,764	33,256,490	94,611,221	234,378	22,768,647	1,945,625	30,687,330	288,591	1,601,389	43,150
2000	4	31,562,836	105,715,516	15,877,115	89,627,265	270,627	22,597,573	1,765,951	28,086,403	289,221	1,526,373	42,856
2000	5	23,751,581	102,649,880	14,850,876	88,464,160	203,255	23,788,792	1,391,224	26,954,233	288,591	1,777,541	81,240
2000	6	20,283,048	105,841,860	13,029,177	110,013,015	271,815	25,174,476	1,385,596	28,040,915	289,774	1,713,401	263,618
2000	7	18,126,351	123,885,775	14,025,109	112,407,500	232,735	25,202,993	1,255,174	27,336,818	290,571	1,588,620	67,894
2000	8	18,117,893	124,172,761	16,258,871	109,896,339	264,928	25,988,574	1,662,955	26,365,227	291,201	1,570,887	42,978
2000	9	16,353,793	117,193,258	13,599,692	108,033,494	212,467	24,044,041	1,211,536	26,805,378	291,291	1,389,332	45,004
2000	10	20,008,937	122,015,679	15,334,067	99,354,805	241,036	26,899,403	1,440,948	27,626,024	291,921	1,357,563	40,780
2000	11	21,379,945	105,235,084	13,512,079	92,179,547	216,854	23,143,291	1,437,382	27,770,525	291,291	1,240,695	77,718
2000	12	32,213,740	110,099,183	18,197,342	103,100,411	274,619	22,839,726	1,971,813	31,437,060	292,101	1,263,398	43,686
2001	1	46,992,491	143,131,477	21,028,197	111,386,650	418,478	22,871,761	2,298,101	34,890,277	291,561	4,129,129	44,924
2001	2	48,500,667	132,644,745	20,702,098	99,934,372	193,533	22,443,651	2,227,919	30,976,122	291,651	3,727,362	41,010
2001	3	41,286,121	120,302,403	17,607,851	102,291,922	267,742	21,519,365	2,164,460	30,670,374	291,561	4,539,350	53,580
2001	4	36,446,577	112,318,793	17,206,649	98,072,160	243,975	21,873,086	1,806,295	29,584,638	291,921	4,861,024	90,458
2001	5	24,398,898	105,727,623	13,622,426	102,479,484	201,500	22,834,735	1,394,610	28,078,664	291,561	5,207,864	73,210
2001	6	18,209,610	105,928,262	14,252,697	105,247,169	198,309	24,778,555	1,369,845	27,509,697	291,921	5,008,602	36,682
2001	7	17,626,483	124,469,556	14,501,172	118,044,022	199,755	25,043,927	1,404,254	27,697,592	291,561	5,066,614	36,616
2001	8	19,536,789	141,134,551	17,387,412	124,283,528	234,416	26,810,591	1,687,006	27,432,740	291,921	5,312,417	44,740
2001	9	18,328,562	140,827,093	15,169,586	116,882,834	218,851	24,575,790	1,389,030	27,934,082	291,741	4,473,025	40,644
2001	10	18,643,196	120,193,347	15,148,381	105,827,588	204,325	26,598,199	1,365,694	28,046,128	292,101	5,252,961	52,294
2001	11	19,991,066	108,253,963	13,431,286	97,863,616	210,932	20,553,330	1,364,875	31,133,021	291,624	4,794,477	75,588
2001	12	27,430,375	116,368,670	15,790,204	105,549,463	254,557	21,873,781	1,518,625	28,128,484	292,038	4,543,503	40,570
2002	1	36,611,099	133,495,670	17,149,138	110,556,401	260,632	21,934,930	1,609,909	32,483,220	291,561	4,937,626	38,900
2002	2	41,270,375	131,652,297	17,236,440	106,310,679	308,362	20,970,319	1,666,759	32,451,459	294,369	4,528,511	37,862
2002	3	35,198,938	117,833,992	14,945,986	99,904,880	248,748	22,051,181	1,474,049	30,923,524	292,191	4,872,126	130,370
2002	4	31,669,742	114,085,480	14,904,360	100,940,082	239,701	22,428,007	1,352,555	29,438,865	292,731	5,096,596	328,116
2002	5	23,649,074	105,396,008	12,301,475	100,153,694	212,968	23,260,134	1,039,144	28,381,795	292,056	5,359,031	657,096
2002	6	20,137,842	111,090,536	13,908,817	111,207,838	225,082	24,510,965	1,222,493	29,305,834	292,596	5,687,090	84,166
2002	7	19,291,074	139,277,013	14,581,958	131,895,297	252,698	25,038,365	1,094,237	29,393,445	292,056	6,933,206	118,820
2002	8	21,197,054	162,870,059	17,446,925	131,501,166	252,058	27,019,295	1,461,703	29,390,193	292,596	6,986,001	45,710
2002	9	19,397,607	156,511,364	14,935,555	122,398,964	158,659	25,521,777	1,137,904	28,272,138	292,056	6,215,129	120,294
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**Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Sales Data 1997-July 2017**

DPS-792 Attachment

Year	Month	ResHtSales	ResNHSales	Comm NonDemandSales	Comm DemandSales	Ind NonDmdSal	Ind SmlDmdSales	OPA NonDmdSales	OPA DmdSales	Traffic	CommSC13	OPASC13
2004	2	53,503,470	157,254,624	19,861,863	118,365,297	340,689	22,436,953	1,666,965	35,684,933	290,526	5,064,970	57,430
2004	3	45,894,084	137,756,283	16,174,538	104,806,991	286,668	23,024,682	1,408,285	33,612,625	289,986	5,399,093	140,898
2004	4	34,483,880	122,468,202	15,020,316	104,994,508	252,468	22,886,974	1,344,489	29,873,158	289,491	5,356,434	47,946
2004	5	24,845,998	116,938,779	12,719,749	111,339,453	213,738	24,518,467	1,075,204	30,640,354	288,951	5,763,921	39,894
2004	6	19,451,615	123,971,393	14,503,461	117,769,634	232,563	25,667,537	1,127,296	30,170,592	288,951	6,047,633	41,344
2004	7	18,546,017	143,202,946	13,730,022	128,899,675	221,009	26,540,497	1,048,617	29,940,368	288,411	6,580,477	39,318
2004	8	19,527,532	152,733,828	15,461,519	129,621,323	311,792	26,319,695	1,289,391	30,446,471	286,836	6,823,068	39,550
2004	9	18,704,638	153,001,774	14,123,626	126,226,232	221,201	25,211,626	1,035,797	28,556,509	286,296	6,148,793	41,404
2004	10	19,325,790	137,561,143	14,450,835	111,826,217	206,670	23,094,012	1,246,328	29,762,932	286,836	5,919,941	69,388
2004	11	21,431,103	123,848,234	12,629,335	103,994,774	201,722	22,672,978	1,079,972	30,030,310	286,296	5,612,500	34,706
2004	12	31,573,887	134,411,141	15,546,328	114,244,684	73,655	21,849,273	1,351,568	33,900,832	286,836	5,106,702	76,752
2005	1	42,997,629	158,790,565	17,371,995	127,816,208	298,964	22,540,625	1,566,417	35,695,710	286,296	5,329,111	51,184
2005	2	50,852,723	160,477,909	18,966,366	113,955,101	348,589	20,527,713	1,730,564	36,854,107	286,836	4,961,228	44,858
2005	3	45,707,874	141,977,740	16,588,524	111,944,913	297,324	21,653,919	1,468,056	33,994,378	286,296	5,540,242	58,210
2005	4	36,244,854	130,245,370	15,303,381	105,922,520	243,088	21,214,343	1,413,242	30,686,064	286,836	5,541,354	109,992
2005	5	24,792,438	117,155,386	13,071,327	104,876,755	222,701	21,483,848	1,097,913	28,905,460	286,296	5,633,454	38,712
2005	6	20,083,207	126,156,551	13,556,638	122,704,323	242,780	23,404,065	1,135,900	31,104,944	286,836	6,233,865	38,980
2005	7	20,296,091	164,159,205	14,775,859	141,747,264	279,800	24,767,483	1,103,100	33,385,502	286,296	6,432,449	65,846
2005	8	22,780,719	191,591,980	17,964,589	141,733,068	198,399	25,599,145	1,509,840	31,385,003	286,836	7,069,090	42,838
2005	9	21,060,384	184,067,128	15,390,390	136,779,463	221,184	22,899,754	1,121,814	32,166,680	286,296	6,373,546	37,972
2005	10	19,697,723	150,906,318	15,548,433	119,951,594	232,034	22,402,738	1,342,816	32,191,517	286,836	5,749,674	37,150
2005	11	20,881,881	129,039,743	12,874,753	106,624,796	283,791	21,240,131	1,073,337	30,676,268	286,296	5,543,451	44,942
2005	12	33,350,488	140,400,225	16,355,252	121,024,824	178,479	20,717,826	1,448,268	35,442,222	286,836	5,271,269	116,796
2006	1	41,775,317	157,410,677	16,568,930	122,230,536	287,287	20,421,203	1,577,223	33,697,179	286,296	5,254,658	50,930
2006	2	42,570,568	149,753,704	17,275,521	112,072,246	271,373	18,851,061	1,564,643	33,340,123	286,836	4,697,760	53,160
2006	3	38,710,307	134,615,006	15,002,316	109,545,731	248,536	19,573,762	1,417,324	32,438,782	286,296	5,022,216	45,292
2006	4	32,979,405	124,419,204	14,916,445	102,546,853	235,703	19,271,867	1,298,720	30,620,888	286,836	4,686,815	37,396
2006	5	22,200,342	112,620,181	11,436,009	104,776,598	238,540	20,206,159	973,521	28,536,771	286,296	4,897,373	380,568
2006	6	18,880,517	122,407,892	13,550,135	119,621,491	169,193	21,478,619	1,171,239	30,765,325	285,981	5,197,365	66,988
2006	7	18,875,399	154,805,311	14,276,520	141,273,463	189,400	22,296,761	998,879	32,786,703	285,441	5,925,366	70,350
2006	8	23,270,635	191,764,129	17,430,797	143,366,783	230,950	22,720,725	1,477,333	31,139,726	285,974	5,997,355	36,294
2006	9	19,489,394	174,474,410	14,645,508	131,800,912	1,195,890	21,463,504	1,104,837	29,631,997	285,441	5,889,194	36,004
2006	10	18,198,642	134,882,555	14,122,375	111,460,533	(779,199)	20,823,721	1,191,708	29,803,971	285,981	5,933,900	19,216
2006	11	20,932,757	123,967,328	12,435,377	105,870,950	181,930	19,438,165	1,052,288	30,128,667	285,441	5,670,718	49,270
2006	12	26,796,315	132,847,656	14,712,222	115,161,854	261,653	19,197,913	1,173,137	32,251,663	285,981	5,592,100	40,614
2007	1	35,398,789	151,991,958	15,445,930	124,688,167	282,074	19,822,392	1,478,870	34,895,687	285,441	5,618,962	41,594
2007	2	42,312,766	156,180,801	17,754,728	118,752,485	388,249	18,895,139	1,567,494	38,629,853	285,981	5,033,426	49,370
2007	3	47,683,218	150,368,547	16,716,215	121,135,474	321,645	20,022,016	1,599,187	31,492,704	285,441	5,630,398	83,580
2007	4	38,628,096	139,854,671	16,544,466	111,137,327	497,093	17,849,369	1,435,705	31,513,910	285,981	5,227,860	113,844
2007	5	26,379,967	123,353,577	12,337,260	111,662,036	351,595	19,831,392	1,154,499	30,199,289	285,441	5,457,815	52,458
2007	6	19,366,329	132,726,715	14,191,929	127,007,324	410,651	21,036,368	1,238,163	31,720,093	285,981	5,520,811	103,222
2007	7	19,049,321	157,447,882	14,259,243	140,050,104	327,881	20,943,382	1,079,045	31,862,514	285,433	6,096,815	39,474
2007	8	19,960,657	174,701,142	16,247,232	137,813,038	441,619	21,681,416	1,386,935	30,307,767	285,981	6,141,540	49,956
2007	9	19,519,252	171,486,998	14,353,331	133,668,903	343,133	21,291,383	1,087,016	29,926,073	285,441	5,534,142	43,844
2007	10	17,931,551	146,970,971	14,374,624	126,445,167	374,995	21,101,864	1,257,463	31,213,259	285,261	5,437,736	84,418
2007	11	19,608,207	128,950,918	12,346,325	108,061,918	305,662	18,761,942	1,004,776	29,937,485	283,461	4,935,392	42,724
2007	12	30,323,928	141,524,290	15,783,129	124,398,363	453,187	19,117,390	1,380,211	33,844,175	285,261	5,106,425	65,622
2008	1	42,876,404	163,788,958	16,502,774	127,095,268	695,831	19,136,911	1,638,029	36,507,372	283,461	4,948,634	68,500
2008	2	42,721,855	158,646,103	17,821,941	116,812,138	578,784	18,431,495	1,525,250	34,431,008	285,261	4,489,509	79,320
2008	3	41,950,756	146,162,677	15,814,395	114,924,302	267,824	18,356,641	1,673,649	34,273,118	283,461	4,668,212	110,743
2008	4	34,234,330	134,622,567	15,361,886	108,188,848	262,693	18,154,527	1,345,961	31,320,014	285,261	4,666,310	42,272
2008	5	24,239,002	121,231,888	12,379,809	109,301,092	209,799	18,628,689	1,179,665	29,317,997	283,461	4,634,608	41,763
2008	6	18,559,447	128,389,606	13,785,816	122,078,273	222,726	19,359,734	1,006,567	30,730,517	285,261	5,171,218	62,823
2008	7	19,520,455	159,607,669	14,282,719	141,361,396	257,456	20,797,409	1,063,546	33,150,101	283,454	5,670,754	37,484
2008	8	19,482,554	174,167,574	15,767,133	133,865,189	237,337	20,941,049	1,310,364	30,000,556	285,261	5,252,178	43,328
2008	9	18,265,203	160,839,516	13,714,590	128,576,992	226,617	19,650,308	1,007,573	30,847,757	283,461	4,804,344	106,714
2008	10	17,228,017	135,623,007	13,298,846	110,184,494	220,521	18,216,838	1,066,217	29,009,629	285,261	4,791,312	46,572
2008	11	21,388,271	128,260,066	12,648,656	113,788,886	207,608	18,068,389	1,112,678	32,357,034	276,891	4,262,738	38,472
2008	12	31,323,510	145,112,373	15,190,289	118,407,864	277,683	17,749,853	1,428,354	34,129,409	(68,107)	4,153,108	42,034
2009	1	43,250,581	161,028,302	15,804,745	120,688,171	292,184	16,370,034	1,602,180	34,591,453	274,875	4,010,517	47,674
2009	2	45,852,251	164,161,695	18,034,050	121,626,427	331,284	16,249,647	1,544,957	34,926,663	276,054	3,869,697	38,164
2009	3	43,634,864	151,473,661	16,343,323	105,467,573	271,972	16,406,985	1,504,118	32,690,315	274,461	4,001,670	53,022
2009	4	30,414,390	127,300,783	13,153,833	102,858,247	251,145	15,276,433	1,190,010	29,782,136	276,261	3,844,777	77,434
2009	5	22,192,968	119,998,916	11,423,221	109,557,866	211,213	15,975,850	990,950	29,183,888	274,461	3,943,372	12,972
2009	6	17,532,074	123,946,090	13,135,719	115,660,582	183,406	16,245,371	1,005,547	30,015,556	275,316	4,082,311	37,768
2009	7	16,856,628	135,670,094	12,250,189	123,029,368	191,811	17,198,419	927,455	29,062,941	273,514	4,458,705	88,690
2009	8	17,729,435	153,824,209	13,909,968	130,495,207	199,286	17,541,637	1,162,318	29,180,379	276,350	4,760,351	34,372
2009	9	18,073,395	160,493,004	13,000,477	123,441,396	213,018	17,423,868	975,684	29,801,503	274,416	4,008,232	78,346
2009	10	18,114,339	139,262									

Central Hudson Gas & Electric Corporation
CHGE Follow-up Response to DPS-379 REVISED
Electric Sales Data 1997-July 2017

DPS-792 Attachment

Year	Month	ResHtSales	ResNHSales	Comm NonDemandSales	Comm DemandSales	Ind NonDmdSal	Ind SmlDmdSales	OPA NonDmdSales	OPA DmdSales	Traffic	CommSC13	OPASC13
2011	3	43,994,453	152,569,320	15,093,109	106,997,322	249,983	15,937,478	1,531,685	32,260,668	252,276	3,861,043	80,650
2011	4	31,619,959	130,944,036	14,777,308	103,126,387	259,057	15,222,504	1,195,744	30,197,646	252,276	3,684,349	13,280
2011	5	24,315,670	122,180,387	11,433,864	107,854,234	207,166	16,429,508	1,071,699	29,187,572	252,276	4,054,242	11,300
2011	6	18,230,675	132,608,549	13,293,809	122,492,984	206,002	17,747,870	1,066,198	30,597,114	252,276	4,263,712	1,280
2011	7	18,128,531	158,884,356	12,921,728	136,269,028	211,967	18,108,228	1,042,582	31,234,550	251,638	4,970,506	22,350
2011	8	19,639,326	182,163,467	16,029,561	136,815,584	220,506	16,123,764	1,326,231	32,544,050	247,191	4,444,554	28,970
2011	9	19,283,968	176,426,044	13,804,281	128,197,693	226,924	18,611,434	1,087,551	29,110,797	247,191	4,479,051	9,610
2011	10	16,647,639	140,231,373	13,074,533	105,746,141	201,466	15,190,385	1,149,496	23,931,441	246,516	4,345,241	14,660
2011	11	19,361,994	124,007,508	11,461,451	105,802,550	223,837	14,907,229	1,023,338	29,286,001	246,516	4,347,136	6,090
2011	12	24,943,103	131,795,561	14,030,012	108,877,557	278,413	14,586,371	1,212,454	30,588,827	244,491	3,960,231	6,450
2012	1	34,213,769	148,501,677	14,476,045	115,828,792	300,123	14,435,505	1,331,090	32,502,600	242,871	3,667,266	29,960
2012	2	37,635,219	151,833,906	16,413,632	109,513,417	335,631	14,701,684	1,401,710	31,196,898	242,871	3,369,178	20
2012	3	35,658,956	139,844,346	13,946,486	105,406,739	288,901	14,143,425	1,264,328	31,111,324	242,871	3,556,264	87,508
2012	4	26,397,544	125,178,746	13,765,527	103,695,576	252,003	14,607,639	1,139,577	28,253,509	242,871	3,501,930	54,268
2012	5	20,325,433	116,499,941	11,384,677	107,320,586	238,252	14,594,951	944,724	28,382,429	242,871	3,755,736	25,134
2012	6	17,692,764	129,053,170	13,337,125	119,601,600	234,738	15,559,477	1,035,133	29,007,203	242,376	3,912,593	49,416
2012	7	18,488,958	164,179,282	13,557,266	136,387,900	239,520	15,771,706	1,081,903	29,723,833	242,368	4,270,094	33,458
2012	8	20,084,537	188,808,782	16,094,530	137,909,036	263,160	16,633,049	1,248,607	30,209,753	242,376	4,206,890	10,450
2012	9	19,398,045	178,647,905	14,096,918	128,385,972	289,386	15,358,940	1,030,763	28,986,627	242,376	3,657,031	29,560
2012	10	17,350,151	142,654,915	13,740,385	107,338,177	223,265	13,490,065	1,142,430	27,576,433	242,376	3,671,656	13,910
2012	11	19,641,550	126,296,736	11,586,349	106,446,344	238,706	14,141,276	1,109,320	28,960,923	242,376	3,473,997	20
2012	12	27,968,634	138,142,225	14,505,462	111,880,383	308,578	13,378,489	1,216,809	31,227,354	240,891	3,384,004	52,044
2013	1	39,075,225	159,465,513	15,064,034	116,213,446	302,794	14,292,544	1,442,740	33,691,417	241,881	3,326,205	82,016
2013	2	41,934,348	160,864,496	17,291,042	109,091,566	356,165	14,115,389	1,480,120	31,204,542	241,611	3,300,789	36,222
2013	3	40,807,404	147,001,554	14,911,619	105,747,964	274,160	14,179,351	1,382,497	30,961,931	241,611	3,235,952	48,912
2013	4	32,704,881	134,770,254	15,418,883	103,731,382	315,960	13,843,020	1,236,786	29,308,195	241,611	2,992,368	63,170
2013	5	24,208,155	120,124,443	11,744,040	105,494,761	246,881	14,380,339	1,011,967	28,430,498	241,611	3,424,276	29,370
2013	6	17,868,525	125,792,756	13,305,229	117,366,431	245,532	15,095,414	1,002,281	30,224,442	241,026	3,497,280	931,982
2013	7	19,080,772	166,288,021	13,798,233	140,920,196	291,797	16,744,800	1,039,161	32,305,173	241,026	4,162,602	1,382,474
2013	8	20,090,663	188,335,430	15,914,424	131,444,178	271,306	16,958,172	1,291,004	29,860,307	241,026	3,782,045	1,133,052
2013	9	18,153,542	168,598,782	13,661,638	123,478,589	262,309	15,978,030	1,044,970	28,842,088	239,676	3,420,393	501,436
2013	10	16,263,688	134,420,815	13,107,886	106,593,189	237,374	15,275,493	1,081,423	27,134,583	240,171	3,444,275	62,748
2013	11	18,927,020	121,267,250	11,558,327	104,138,141	244,909	14,333,587	946,217	28,396,835	239,676	3,208,265	281,032
2013	12	30,277,881	143,059,181	15,204,914	117,496,571	414,548	14,594,304	1,263,690	31,525,214	239,676	3,163,276	249,066
2014	1	42,909,963	166,540,896	15,831,582	120,879,467	260,225	14,764,480	1,304,157	32,770,579	239,676	3,173,561	122,106
2014	2	48,010,777	171,658,049	18,582,749	118,284,093	409,645	14,479,747	1,465,106	32,870,477	239,676	2,910,243	75,474
2014	3	49,281,414	163,076,948	16,375,084	108,272,435	332,790	13,964,877	1,446,912	31,848,293	239,676	3,091,069	111,842
2014	4	36,054,969	135,655,117	15,198,504	103,387,040	326,617	13,629,218	1,195,252	29,372,037	239,676	2,791,143	112,762
2014	5	24,892,889	119,914,721	11,637,991	103,619,109	240,843	13,287,014	1,074,750	27,603,159	239,676	2,905,996	109,822
2014	6	17,647,345	118,918,753	12,367,697	114,411,530	216,876	15,653,448	987,659	28,570,357	239,676	3,331,864	55,306
2014	7	16,775,436	144,718,585	12,579,539	134,045,461	238,692	16,136,144	962,223	30,113,796	238,998	3,719,077	113,982
2014	8	17,826,865	163,559,687	14,543,344	127,646,147	244,156	15,699,030	1,172,662	27,769,278	237,021	3,351,711	81,032
2014	9	16,906,257	153,719,377	12,699,516	122,688,419	226,417	15,128,337	943,409	28,300,876	237,876	3,285,772	103,412
2014	10	15,967,177	132,980,841	12,737,146	109,020,012	219,166	16,100,349	1,021,236	26,907,189	237,741	2,938,266	113,214
2014	11	17,610,483	116,193,592	10,919,547	101,732,954	235,907	13,059,306	902,232	27,543,736	237,741	3,627,921	72,970
2014	12	27,822,361	134,379,793	14,853,085	114,048,154	262,471	14,722,318	1,197,225	30,721,966	237,741	3,222,703	66,032
2015	1	39,232,618	156,108,836	15,391,817	120,692,854	294,219	14,020,871	1,449,101	37,979,431	236,886	3,215,048	82,798
2015	2	48,490,886	170,964,982	18,897,457	124,094,103	346,214	14,604,190	1,541,623	38,007,360	236,886	3,026,778	72,438
2015	3	52,049,899	167,764,536	17,065,600	113,289,672	311,926	14,023,043	1,652,066	32,691,455	236,886	2,930,487	86,992
2015	4	37,412,217	137,174,384	15,671,484	106,321,152	286,889	14,371,332	1,275,072	28,713,366	232,206	3,180,951	119,470
2015	5	23,994,671	119,428,626	11,764,649	110,177,882	217,321	14,375,766	1,022,555	28,678,534	232,206	2,789,219	64,768
2015	6	17,097,551	124,515,635	12,511,885	116,424,069	212,891	14,373,784	1,165,360	28,361,270	232,206	3,416,438	64,014
2015	7	16,520,089	144,981,934	12,506,297	132,109,702	233,798	15,316,603	902,730	29,770,667	232,203	3,740,042	69,270
2015	8	17,899,296	167,138,651	14,697,123	132,451,842	236,974	16,661,224	1,183,049	29,655,241	232,206	3,971,868	75,732
2015	9	18,438,521	174,761,182	13,537,523	133,641,238	228,852	15,909,695	1,055,615	30,366,637	232,206	3,748,893	65,592
2015	10	17,177,440	147,297,488	13,314,320	107,416,155	199,705	14,972,598	1,055,367	27,306,923	232,206	3,358,417	67,776
2015	11	17,808,068	116,457,153	11,031,576	102,160,770	214,483	13,795,576	938,828	27,442,199	232,206	3,068,530	227,798
2015	12	23,377,135	123,886,282	13,129,000	104,902,647	239,978	14,876,693	1,101,111	28,607,789	232,206	2,898,967	116,494
2016	1	30,832,140	137,975,267	13,360,709	113,981,713	258,484	14,327,364	1,201,054	30,747,895	232,206	2,859,107	54,636
2016	2	36,843,827	146,949,576	16,396,835	110,177,675	297,084	14,718,471	1,390,255	31,346,849	229,821	2,770,440	145,172
2016	3	38,187,295	138,841,848	14,313,100	106,324,064	288,481	14,442,854	1,220,336	29,649,028	229,821	2,760,537	59,812
2016	4	29,226,110	124,732,230	14,270,325	103,197,433	240,285	15,914,159	1,110,464	27,959,131	147,336	2,660,208	20,078
2016	5	22,136,637	112,691,950	11,280,684	102,234,665	176,928	15,917,284	935,205	27,168,290	228,426	3,491,826	63,608
2016	6	17,975,338	124,670,264	12,931,530	117,157,543	202,549	17,505,807	987,841	29,020,956	216,906	3,340,076	43,288
2016	7	17,303,372	152,254,794	12,907,503	131,944,788	260,137	18,675,463	1,422,462	29,881,725	227,202	3,675,142	97,898
2016	8	19,323,594	186,214,068	15,099,287	138,994,322	235,829	19,194,265	1,146,216	30,604,494	227,211	3,807,053	91,502
2016	9	19,581,306	177,425,601	14,909,478	132,699,629	236,136	17,512,503	1,183,185	30,665,010	227,211	1,887,625	61,460
2016	10	16,578,733	133,043,277	12,235,615	107,812,558	201,290	15,391,077	936,776	27,992,394	226,266	1,839,937	456,152
2016	11	20,842,539	123,054									

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

Request No: DPS-29, IR-793 (SEFP)
From: DPS Staff
Date of Request: November 2, 2017
Witness: Forecasting and Rates Panel
Subject: Follow-up to IR DPS-357

Question:

In these interrogatories, all requests for workpapers or supporting calculations should be construed as requesting any Word, Excel or other computer spreadsheet models in original electronic format with all formulae intact.

- A. Referring to the response to IR DPS-357, confirm the total of estimated EEPS lost MWh are 344,453 MWh for 2015 and 242,449 MWh for 2016.
- B. Explain why EEPS lost MWh used by the Panel dropped from 2015 to 2016.
- C. Referring to Exhibit (FRP-2), Schedule A, Sheet 1, confirm that the Company's projected "EEPS Lost MWh" are 336,870 MWh for 2017, 507,576 MWh for 2018, and 530,653 for the rate year ending June 2019.
- D. Referring to parts A and C above, justify the increases in EEPS lost sales of 94,429 MWh from 2016 to 2017 and increase of 170,706 MWh from 2017 to 2018.
 - a. Explain why the annual increases here do not match the Company's projection of 47,224 MWh per year for 2017-2022 as contained in the workpapers "EEPS Assumptions.xlsx" attached to the response to IR DPS-077.

Response:

- A. The total of estimated lost MWh in response IR DPS-357 have been confirmed for 2015 and 2016.
- B. The estimated lost MWh reflect information on the monthly scorecards filed by the Company and the New York State Energy Research and Development Authority ("NYSERDA") through December 31, 2016. Based on a review of the scorecards for 2015 and 2016, it appears that the majority of the year-over-year decrease is attributable to decreases in EmPower New York, Industrial and Process Efficiency, and the New Construction NYSEDA programs.
- C. The projected total of estimated lost MWh in Exhibit (FRP-2), Schedule A, Sheet 1, have been confirmed for 2017, 2018, and the rate year ending June 2019.
- D. The annual increases presented here do not match the Company's projection for two reasons: (1) they reflect more current data filed on scorecards that were not available at the time of the Company's forecast preparation and, (2) they reflect comingling of actual and forecast for

Central Hudson Gas & Electric Corporation
Case Nos. 17-E-0459 & 17-G-0460
Response to Interrogatory / Document Request

comparison purposes. These differences are summarized in the tables below.

Company's Filing		
	Forecast MWh as Filed	Year-Over- Year Change
2016	413,129	-
2017	460,352	47,223
2018	507,576	47,224

Staff Comparison		
	Actual MWh from Scorecards	Year-Over- Year Change
2016	242,449	-
2017	336,870	94,429
2018*	507,756	170,706

*Note: MWh estimate from Company filing

Response by: Forecasting and Rates Panel
Title: Please refer to Forecasting and Rates Panel Testimony
Date of Response: November 13, 2017

Summary of Staff Electric Delivery Forecast For Central Hudson
with A Comparison to Company's Forecast

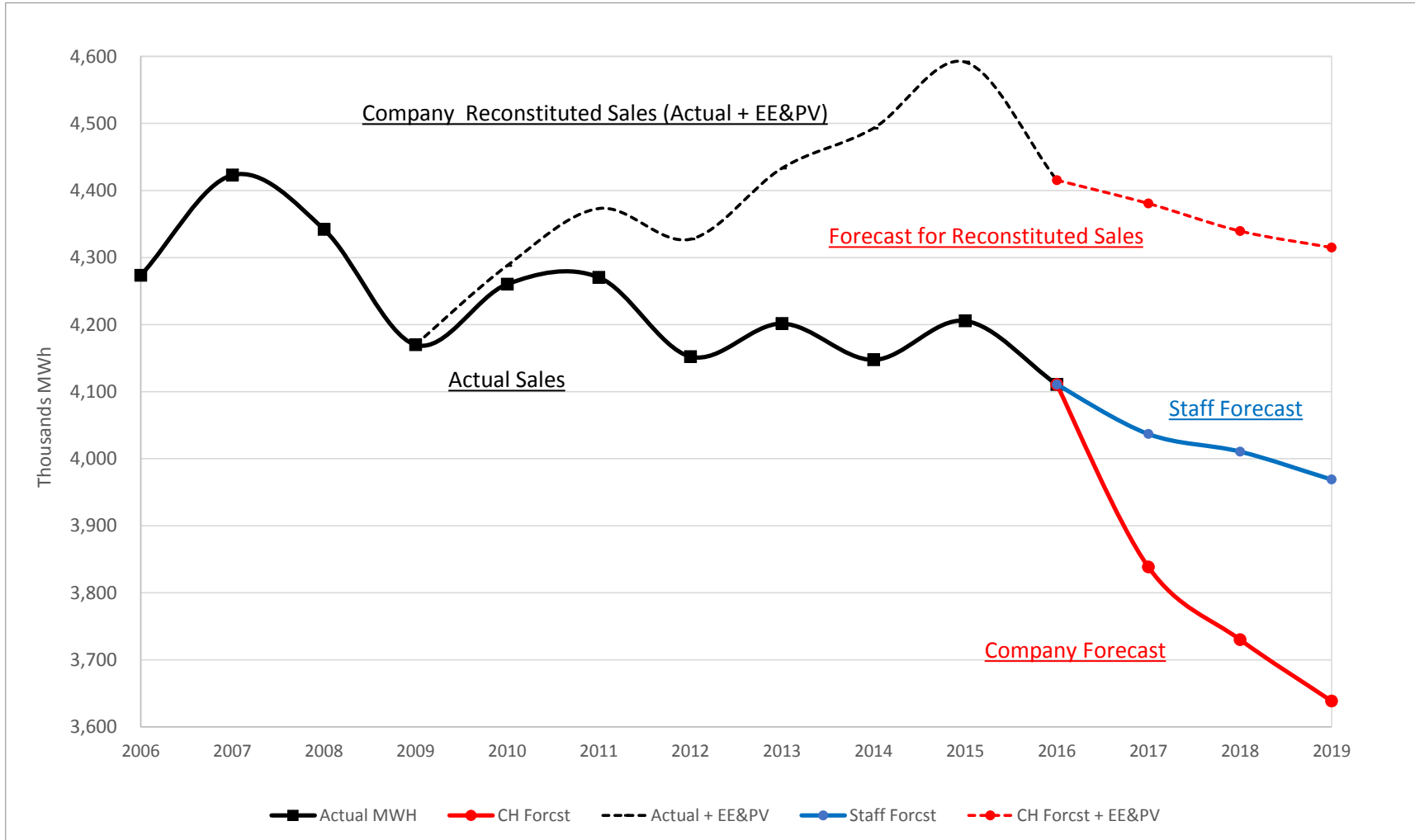
<u>Year</u>	<u>Model Forecast (MWh)</u>	<u>Other Sales (MWh) ⁽¹⁾</u>	<u>Own Territory Sales (MWh)</u>
Company Forecast ⁽²⁾			
2017	3,861,935	877,022	4,738,957
2018	3,730,161	896,022	4,626,183
RY2019	3,682,582	896,156	4,578,738
Staff Forecast ⁽³⁾			
2017	4,036,765	877,022	4,913,787
2018	4,010,569	896,022	4,906,591
RY2019	3,993,349	896,156	4,889,505
Difference for Rate Year			
RY2019	310,767		310,767
% difference	8.4%		6.8%

Note: (1) Other sales including SCs 5, 8, 9, 13 and interdepartment and interdepartmental.

(2) Exhibit___(FRP-2), Schedule A, Sheet1.

(3) Staff Workpapers. Forecast for 2017 includes actual sales for the first six months.

Electric Forecast For Central Hudson Gas & Electric Corporation, Staff vs. Company



1 2 3 4 5 6 7 8

Summary of Forecast for Central Hudson Gas & Electric Corporation

Actual, Reconstituted Actual, and Forecast, for Model Forecasted Customer Classes ⁽¹⁾

Actual

	<u>Year</u>	<u>MWH</u>	<u>%CH</u>	<u>EE&PV</u> ⁽²⁾	<u>CHANGE</u>	<u>MWH + EE&PV</u>	<u>%CH</u>	<u>EE&PV / MWH</u>
1	2006	4,273,365				4,273,365		
2	2007	4,422,959	3.5%			4,422,959	3.5%	
3	2008	4,341,984	-1.8%			4,341,984	-1.8%	
4	2009	4,169,829	-4.0%			4,169,829	-4.0%	
5	2010	4,260,266	2.2%	27,711	27,711	4,287,977	2.8%	1%
6	2011	4,270,403	0.2%	102,737	75,026	4,373,140	2.0%	2%
7	2012	4,152,230	-2.8%	175,127	72,390	4,327,357	-1.0%	4%
8	2013	4,201,440	1.2%	231,871	56,744	4,433,311	2.4%	6%
9	2014	4,147,412	-1.3%	345,480	113,609	4,492,891	1.3%	8%
10	2015	4,205,427	1.4%	386,122	40,642	4,591,549	2.2%	9%
11	2016	4,110,744	<u>-2.3%</u>	304,725	-81,397	4,415,469	<u>-3.8%</u>	7%
12	2007-2016 Average		-0.4%				0.4%	

Central Hudson Forecast (3)

	<u>Year</u>	<u>MWH</u>	<u>%CH</u>	<u>EE&PV</u>	<u>CHANGE</u>	<u>Model Forecast</u>	<u>%CH</u>	<u>EE&PV / MWH</u>
13	2017	3,838,372	-6.6%	542,268	237,543	4,380,640	-0.8%	14%
14	2018	3,730,161	-2.8%	609,359	67,091	4,339,520	-0.9%	16%
15	2019	3,638,440	<u>-2.5%</u>	676,450	67,091	4,314,890	<u>-0.6%</u>	19%
16	2016-2019 Average		-4.0%				-0.8%	

Staff Forecast (4)

	<u>YEAR</u>	<u>MWH</u>	<u>%CH</u>	<u>EE&PV</u>	<u>CHANGE</u>	<u>Model Forecast</u>	<u>%CH</u>	<u>EE&PV / MWH</u>
17	2017	4,036,765	-1.8%	28,539	28,539	4,065,304	-1.1%	1%
18	2018	4,010,569	-0.6%	93,280	64,741	4,103,849	0.9%	2%
19	2019	3,968,900	<u>-1.0%</u>	166,816	73,536	4,135,716	<u>0.8%</u>	4%
20	2016-2019 Average		-1.2%				0.2%	

- Note:
- (1) Total deliveries for residential, commercial, small industrial, and public authorities.
 - (2) "DPS-357 (SEFP) Attachment.xlsx".
 - (3) Attachment to response to IR DPS-077, "sales summary.xlsx".
 - (4) Exhibit__(SEFP-3) and Exhibit__(SEFP-4)

Assumptions for Staff Forecast

Year/Quarter	Economic and Demographic Variables ⁽¹⁾					Price of Electricity (\$/kWh) ⁽²⁾				
	Population (1,000)	No. of Household (1,000)	Real Personal Income (Mil. 2005\$)	Total NonFarm Employment (1,000)	Manufacturing Employment (1,000)	Residential Non-Heat (1982-84\$)	Residential Heat (1982-84\$)	Commercail (2009\$)	Small Industrial (2009\$)	Other Public Authorities (2009\$)
2017Q3	297.096	113.1	13,621.6	117.6	7.437	0.073	0.074	0.112	0.094	0.093
2017Q4	297.106	113.3	13,702.1	117.9	7.425	0.074	0.067	0.101	0.089	0.088
2018Q1	297.116	113.5	13,782.0	118.2	7.413	0.073	0.063	0.117	0.100	0.100
2018Q2	297.126	113.7	13,861.5	118.5	7.402	0.078	0.072	0.137	0.116	0.120
2018Q3	297.133	113.9	13,940.5	118.7	7.391	0.073	0.074	0.112	0.094	0.093
2018Q4	297.138	114.1	14,017.7	118.9	7.381	0.074	0.067	0.101	0.089	0.088
2019Q1	297.142	114.2	14,094.3	119.1	7.371	0.073	0.063	0.117	0.100	0.100
2019Q2	297.147	114.4	14,170.5	119.3	7.361	0.078	0.072	0.137	0.116	0.120
2019Q3	297.148	114.5	14,242.8	119.4	7.348	0.073	0.074	0.112	0.094	0.093
2019Q4	297.145	114.7	14,309.7	119.5	7.330	0.074	0.067	0.101	0.089	0.088

Year/Quarter	MWh Reductions for EE ⁽³⁾				MWh Reduction for PV ⁽⁴⁾	
	Residential	Commercial	Industrial	OPA	Residential	Commercial
2017Q3	6,464	5,093	602	1,080	1,862	461
2017Q4	5,339	4,083	519	1,022	1,495	518
2018Q1	6,290	4,344	513	1,116	1,937	645
2018Q2	5,058	4,136	558	1,006	4,123	1,329
2018Q3	12,928	10,186	1,204	2,161	4,758	1,480
2018Q4	10,679	8,165	1,038	2,044	3,390	1,016
2019Q1	14,819	9,675	1,143	2,485	3,781	1,084
2019Q2	11,917	9,211	1,244	2,240	7,422	2,054
2019Q3	21,694	16,435	1,943	3,486	8,018	2,135
2019Q4	17,919	13,175	1,674	3,298	5,414	1,384

Note: (1) August 2017 release of Moody's Analytics, weight sum for Albany, Dutchess, Newburgh, and Catskill regions, revised IR response to DPS-355.
(2) Calculated based revenue and kWh data provided to IR response to DPS-455 and "Electric Price Forecast for Budget.xls" of the Company's workpapers.
(3), (4) Staff workpapers.

Statistics of Staff Electric Forecasting Models

Index of Variables

POP1	Population (1,000), weighted by residential sales
HH1	No. of household (1,000), weighted by residential sales
YP1	Real personal income (Mil. 2005\$), weighted by residential sales
EMPT2	Total nonfarm employment (1,000), weighted by Commercial sales
EMPM2	Manufacturing employment (1,000), weighted by Commercial sales
RNH_P	Average price of electricity for Residential Non-Heat (1982-84\$)
RHT_P	Average price of electricity for Residential Heat (1982-84\$)
COM_P	Average price of electricity for Commercial (2009\$)
IND_P	Average price of electricity for Small Industrial (2009\$)
OPA_P	Average price of electricity for Other Public Authorities (2009\$)
RESCDD	Quarterly cooling degree days, residential billing cycled weighted
RESHDD	Quarterly heating degree days, residential billing cycled weighted
COMCDD	Quarterly cooling degree days, commercial billing cycled weighted
COMHDD	Quarterly heating degree days, commercial billing cycled weighted
CDD	Quarterly cooling degree days
HDD	Quarterly heating degree days
@TREND	Time Trend Variable with value of 0, 1, 2, ...
Q1	Dummy variable with value of 1 for Quarter 1, 0 otherwise
Q2	Dummy variable with value of 1 for Quarter 2, 0 otherwise
Q3	Dummy variable with value of 1 for Quarter 3, 0 otherwise
Q4	Dummy variable with value of 1 for Quarter 4, 0 otherwise

Residential Non-Heat Customer Model

Dependent Variable: LOG(RNH_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 2002Q1 2017Q2

Included observations: 62

Convergence achieved after 24 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.985139	0.509717	15.66584	0.0000
Q1	0.008138	0.000991	8.210631	0.0000
LOG(HH1(-4))	0.922792	0.108877	8.475564	0.0000
AR(1)	0.912463	0.065790	13.86938	0.0000
MA(1)	-0.399087	0.159837	-2.496837	0.0155
SIGMASQ	2.29E-05	4.62E-06	4.963633	0.0000
R-squared	0.955652	Mean dependent var		12.32076
Adjusted R-squared	0.951692	S.D. dependent var		0.022921
S.E. of regression	0.005038	Akaike info criterion		-7.634866
Sum squared resid	0.001421	Schwarz criterion		-7.429015
Log likelihood	242.6809	Hannan-Quinn criter.		-7.554044
F-statistic	241.3460	Durbin-Watson stat		2.160022
Prob(F-statistic)	0.000000			
Inverted AR Roots	.91			
Inverted MA Roots	.40			

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q3	229,848.4
2017Q4	229,957.7
2018Q1	231,945.6
2018Q2	230,171.7
2018Q3	230,428.8
2018Q4	230,841.7
2019Q1	233,140.1
2019Q2	231,657.2
2019Q3	232,015.2
2019Q4	232,316.5

Residential Heat Customer Model

Dependent Variable: LOG(RHT_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 2007Q1 2017Q2

Included observations: 42

Convergence achieved after 29 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Q1	7.705958	1.232077	6.254444	0.0000
Q2	7.690445	1.234111	6.231565	0.0000
Q3	7.700059	1.232026	6.249916	0.0000
Q4	7.687697	1.233939	6.230209	0.0000
LOG(HH1)	0.529761	0.261281	2.027556	0.0503
AR(2)	0.746812	0.227768	3.278826	0.0024
SIGMASQ	8.69E-06	2.53E-06	3.443299	0.0015
R-squared	0.928983	Mean dependent var		10.19183
Adjusted R-squared	0.916809	S.D. dependent var		0.011199
S.E. of regression	0.003230	Akaike info criterion		-8.442757
Sum squared resid	0.000365	Schwarz criterion		-8.153146
Log likelihood	184.2979	Hannan-Quinn criter.		-8.336603
Durbin-Watson stat	2.005869			
Inverted AR Roots	.86	-.86		

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q3	26,920.2
2017Q4	26,890.8
2018Q1	27,162.3
2018Q2	26,976.6
2018Q3	27,074.0
2018Q4	26,914.6
2019Q1	27,289.8
2019Q2	27,004.2
2019Q3	27,179.9
2019Q4	26,950.1

Commercial Non-Demand Customer Model

Dependent Variable: LOG(COM_ND_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 1997Q1 2017Q2

Included observations: 82

Convergence achieved after 17 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.711961	0.658705	10.18963	0.0000
LOG(EMPT2)	0.729392	0.140137	5.204837	0.0000
AR(4)	0.965731	0.041722	23.14681	0.0000
MA(2)	0.877357	0.092900	9.444127	0.0000
SIGMASQ	0.000115	1.95E-05	5.915855	0.0000
R-squared	0.958393	Mean dependent var		10.17432
Adjusted R-squared	0.956231	S.D. dependent var		0.052945
S.E. of regression	0.011077	Akaike info criterion		-6.007851
Sum squared resid	0.009447	Schwarz criterion		-5.861100
Log likelihood	251.3219	Hannan-Quinn criter.		-5.948932
F-statistic	443.4106	Durbin-Watson stat		1.678769
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99	-.00+.99i	-.00-.99i	-.99
Inverted MA Roots	-.00+.94i	-.00-.94i		

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q3	27,769.9
2017Q4	27,992.1
2018Q1	27,986.3
2018Q2	28,036.5
2018Q3	27,924.5
2018Q4	28,122.6
2019Q1	28,099.5
2019Q2	28,130.8
2019Q3	28,006.0
2019Q4	28,182.4

Commercial Total Customer Model

Dependent Variable: LOG(COM_ALL_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 1997Q1 2017Q2

Included observations: 82

Convergence achieved after 32 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.173172	0.740990	9.680526	0.0000
LOG(EMPT2)	0.694793	0.159639	4.352265	0.0000
AR(2)	0.982548	0.026277	37.39207	0.0000
MA(1)	0.407439	0.113481	3.590375	0.0006
MA(2)	-0.313967	0.131178	-2.393444	0.0192
SIGMASQ	0.000113	1.81E-05	6.258117	0.0000
R-squared	0.973485	Mean dependent var		10.47339
Adjusted R-squared	0.971741	S.D. dependent var		0.065682
S.E. of regression	0.011042	Akaike info criterion		-6.042238
Sum squared resid	0.009266	Schwarz criterion		-5.866137
Log likelihood	253.7318	Hannan-Quinn criter.		-5.971536
F-statistic	558.0640	Durbin-Watson stat		2.044409
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99	-.99		
Inverted MA Roots	.39	-.80		

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q3	37,764.2
2017Q4	37,991.5
2018Q1	37,861.4
2018Q2	38,085.2
2018Q3	37,946.8
2018Q4	38,144.3
2019Q1	37,995.8
2019Q2	38,190.3
2019Q3	38,035.0
2019Q4	38,206.2

Industrial Customer Model

Dependent Variable: LOG(IND_ALL_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 2007Q1 2017Q2

Included observations: 42

Convergence achieved after 16 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.015367	0.114344	52.60763	0.0000
LOG(EMPM2)	0.446962	0.052277	8.549879	0.0000
AR(1)	0.462910	0.132037	3.505904	0.0012
AR(3)	-0.325661	0.147391	-2.209499	0.0334
SIGMASQ	0.001212	0.000300	4.042457	0.0003
R-squared	0.710605	Mean dependent var		6.985523
Adjusted R-squared	0.679319	S.D. dependent var		0.065506
S.E. of regression	0.037095	Akaike info criterion		-3.624719
Sum squared resid	0.050914	Schwarz criterion		-3.417854
Log likelihood	81.11911	Hannan-Quinn criter.		-3.548895
F-statistic	22.71324	Durbin-Watson stat		2.210820
Prob(F-statistic)	0.000000			
Inverted AR Roots	.51+.56i	.51-.56i		-.56

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q3	1,006.9
2017Q4	1,003.5
2018Q1	1,004.5
2018Q2	1,002.2
2018Q3	1,001.7
2018Q4	1,000.6
2019Q1	1,000.3
2019Q2	999.8
2019Q3	999.2
2019Q4	998.1

OPA Customer Model

Dependent Variable: LOG(OPA_ALL_CUST)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 1997Q1 2016Q4

Included observations: 80

Convergence achieved after 14 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.424679	1.036131	-0.409871	0.6831
LOG(POP1)	1.500696	0.182712	8.213454	0.0000
AR(2)	0.429239	0.102334	4.194474	0.0001
SAR(4)	0.523417	0.115509	4.531402	0.0000
SIGMASQ	0.000171	2.89E-05	5.895483	0.0000
R-squared	0.897636	Mean dependent var		8.098733
Adjusted R-squared	0.892176	S.D. dependent var		0.041090
S.E. of regression	0.013493	Akaike info criterion		-5.686726
Sum squared resid	0.013654	Schwarz criterion		-5.537850
Log likelihood	232.4691	Hannan-Quinn criter.		-5.627037
F-statistic	164.4192	Durbin-Watson stat		1.733969
Prob(F-statistic)	0.000000			
Inverted AR Roots	.85 -.66	.66 -.85	.00-.85i	.00+.85i

Forecasted Values:

<u>Date</u>	<u>Customers</u>
2017Q1	3,344.6
2017Q2	3,413.4
2017Q3	3,364.9
2017Q4	3,376.3
2018Q1	3,354.6
2018Q2	3,392.3
2018Q3	3,364.8
2018Q4	3,371.4
2019Q1	3,359.1
2019Q2	3,379.1
2019Q3	3,364.2
2019Q4	3,367.7

Residential Non-Heat UPC Model

Dependent Variable: LOG(RNH_MWH/STAFF_RES_NH_CUST_F)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 2000Q1 2017Q2

Included observations: 70

Convergence achieved after 9 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.067538	1.059925	-1.950646	0.0556
RESCDD	0.000550	3.76E-05	14.63759	0.0000
RESHDD	0.000118	1.06E-05	11.14325	0.0000
LOG(RNH_P(-2))	-0.093589	0.033749	-2.773089	0.0073
LOG(YP1)	0.181463	0.107188	1.692945	0.0954
AR(4)	0.933807	0.040841	22.86472	0.0000
SIGMASQ	0.000588	0.000125	4.690690	0.0000
R-squared	0.960561	Mean dependent var		0.629750
Adjusted R-squared	0.956805	S.D. dependent var		0.122949
S.E. of regression	0.025553	Akaike info criterion		-4.284018
Sum squared resid	0.041136	Schwarz criterion		-4.059169
Log likelihood	156.9406	Hannan-Quinn criter.		-4.194705
F-statistic	255.7341	Durbin-Watson stat		1.698040
Prob(F-statistic)	0.000000			
Inverted AR Roots	.98	.00+.98i	-.00-.98i	-.98

Forecasted Values:

<u>Date</u>	<u>Total Deliveries</u>
2017Q3	467,502.5
2017Q4	398,421.2
2018Q1	450,796.3
2018Q2	376,791.6
2018Q3	466,904.6
2018Q4	398,247.0
2019Q1	456,220.0
2019Q2	381,859.8
2019Q3	471,621.7
2019Q4	402,404.4

Residential Heat UPC Model

Dependent Variable: LOG(RHT_MWH/STAFF_RES_HT_CUST_F)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 2000Q1 2017Q2

Included observations: 70

Convergence achieved after 38 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.102925	2.567510	-2.376982	0.0206
RESCDD	0.000456	1.53E-05	29.87857	0.0000
RESHDD	0.000358	4.68E-06	76.48711	0.0000
LOG(RHT_P(-1))	-0.090623	0.034730	-2.609372	0.0114
@TREND	-0.004322	0.001274	-3.391859	0.0012
LOG(YP1)	0.651125	0.272750	2.387262	0.0201
AR(2)	-0.215215	0.111026	-1.938423	0.0572
MA(3)	0.500364	0.164733	3.037418	0.0035
SIGMASQ	0.000843	0.000164	5.149329	0.0000
R-squared	0.991165	Mean dependent var		1.078033
Adjusted R-squared	0.990007	S.D. dependent var		0.311200
S.E. of regression	0.031109	Akaike info criterion		-3.969317
Sum squared resid	0.059035	Schwarz criterion		-3.680225
Log likelihood	147.9261	Hannan-Quinn criter.		-3.854486
F-statistic	855.4627	Durbin-Watson stat		1.602161
Prob(F-statistic)	0.000000			
Inverted AR Roots	-.00+.46i	-.00-.46i		
Inverted MA Roots	.40-.69i	.40+.69i	-.79	

Forecasted Values:

<u>Date</u>	<u>Total Deliveries</u>	<u>Date</u>	<u>Total Deliveries</u>
2017Q3	54,015.6	2019Q4	71,078.2
2017Q4	72,521.9		
2018Q1	119,356.7		
2018Q2	62,694.7		
2018Q3	55,205.2		
2018Q4	71,309.8		
2019Q1	123,438.4		
2019Q2	62,781.2		
2019Q3	54,862.6		

Commercial Delivery Model

Dependent Variable: LOG(COM_ALL_MWH)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/10/17 Time: 11:31

Sample: 2000Q1 2017Q2

Included observations: 70

Convergence achieved after 28 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.745425	1.825157	4.243702	0.0001
COMCDD	0.000433	1.51E-05	28.68281	0.0000
COMHDD	5.11E-05	3.70E-06	13.80115	0.0000
LOG(COM_P(-3))	-0.044263	0.032454	-1.363856	0.1775
LOG(EMPT2(-1))	0.978525	0.373818	2.617650	0.0111
AR(1)	0.969911	0.036886	26.29472	0.0000
MA(1)	-0.567773	0.124187	-4.571921	0.0000
SIGMASQ	0.000447	8.29E-05	5.385677	0.0000
R-squared	0.931626	Mean dependent var		12.86911
Adjusted R-squared	0.923906	S.D. dependent var		0.081404
S.E. of regression	0.022455	Akaike info criterion		-4.624289
Sum squared resid	0.031263	Schwarz criterion		-4.367318
Log likelihood	169.8501	Hannan-Quinn criter.		-4.522217
F-statistic	120.6826	Durbin-Watson stat		2.136891
Prob(F-statistic)	0.000000			
Inverted AR Roots	.97			
Inverted MA Roots	.57			

Forecasted Values:

<u>Date</u>	<u>Total Deliveries</u>
2017Q3	425,944.9
2017Q4	361,496.1
2018Q1	380,642.3
2018Q2	367,039.6
2018Q3	433,438.8
2018Q4	364,189.7
2019Q1	382,348.7
2019Q2	370,596.4
2019Q3	437,214.1
2019Q4	367,025.3

Industrial Delivery Model

Dependent Variable: LOG(IND_ALL_MWH)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 1997Q3 2017Q2

Included observations: 80

Convergence achieved after 10 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.508990	0.327048	26.01752	0.0000
CDD	0.000206	1.57E-05	13.14225	0.0000
LOG(ITO_P(-2))	-0.058468	0.027160	-2.152703	0.0346
LOG(EMPM2)	0.869345	0.111109	7.824262	0.0000
AR(1)	0.639331	0.090032	7.101195	0.0000
AR(4)	0.194426	0.109848	1.769965	0.0809
SIGMASQ	0.001231	0.000261	4.724044	0.0000
R-squared	0.970812	Mean dependent var		10.98005
Adjusted R-squared	0.968413	S.D. dependent var		0.206641
S.E. of regression	0.036726	Akaike info criterion		-3.674579
Sum squared resid	0.098460	Schwarz criterion		-3.466152
Log likelihood	153.9832	Hannan-Quinn criter.		-3.591015
F-statistic	404.6763	Durbin-Watson stat		1.973055
Prob(F-statistic)	0.000000			
Inverted AR Roots	.90	.14+.61i	.14-.61i	-.55

Forecasted Values:

<u>Date</u>	<u>Total Deliveries</u>
2017Q3	51,040.0
2017Q4	44,546.9
2018Q1	44,120.9
2018Q2	46,066.8
2018Q3	49,405.0
2018Q4	43,175.9
2019Q1	43,424.5
2019Q2	45,339.6
2019Q3	48,611.0
2019Q4	42,488.2

OPA Delivery Model

Dependent Variable: LOG(OPA_ALL_MWH)

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 11/06/17 Time: 09:41

Sample: 1997Q2 2017Q2

Included observations: 81

Convergence achieved after 20 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.153760	1.282704	6.356694	0.0000
CDD	0.000227	2.86E-05	7.923260	0.0000
HDD	7.69E-05	6.36E-06	12.08282	0.0000
LOG((OPA_P(-1)))	-0.044710	0.033295	-1.342847	0.1835
LOG(STAFF_OPA_CUST_F)	0.349622	0.152964	2.285653	0.0252
AR(1)	0.573785	0.104812	5.474443	0.0000
MA(4)	0.317362	0.133173	2.383076	0.0198
SIGMASQ	0.000917	0.000154	5.938223	0.0000
R-squared	0.828434	Mean dependent var		11.45353
Adjusted R-squared	0.811982	S.D. dependent var		0.073566
S.E. of regression	0.031899	Akaike info criterion		-3.947947
Sum squared resid	0.074280	Schwarz criterion		-3.711458
Log likelihood	167.8918	Hannan-Quinn criter.		-3.853064
F-statistic	50.35590	Durbin-Watson stat		2.234952
Prob(F-statistic)	0.000000			
Inverted AR Roots	.57			
Inverted MA Roots	.53-.53i	.53+.53i	-.53+.53i	-.53+.53i

Forecasted Values:

<u>Date</u>	<u>Total Deliveries</u>
2017Q3	91,889.8
2017Q4	93,590.4
2018Q1	101,685.7
2018Q2	89,009.6
2018Q3	92,386.7
2018Q4	94,908.5
2019Q1	102,537.9
2019Q2	89,388.9
2019Q3	92,679.6
2019Q4	95,047.7