Niagara Mohawk Power Corporation
d/b/a National Grid

PROCEEDING ON MOTION OF THE COMMISSION AS TO THE RATES, CHARGES, RULES AND REGULATIONS OF NIAGARA MOHAWK POWER CORPORATION FOR ELECTRIC AND GAS SERVICE

Testimony and Exhibits of:

Joseph F. Gredder
Theodore E. Poe, Jr.

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Case 17-E-____
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Submitted by:
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nationalgrid

Testimony of
Joseph F. Gredder

Before the Public Service Commission

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Direct Testimony

of

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Testimony of Joseph F. Gredder

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Joseph F. Gredder and my business address is 175 East Old Country Road, Hicksville, New York 11801.

Q. By whom are you employed and in what capacity?

A. I am employed by National Grid USA Service Company, Inc., a subsidiary of National Grid USA ("National Grid"), as Manager of Electric Regulatory Support in the Advanced Data and Analytics group in the Customer function. In that capacity, I provide load forecasting services for National Grid's electric companies, including Niagara Mohawk Power Corporation d/b/a National Grid ("Niagara Mohawk" or the "Company").

Q. Please describe your business experience.

A. I have worked in the electric utility industry for 30 years and have spent the majority of my career in areas related directly or indirectly to load forecasting. I have been in my current position as Manager of Electric Regulatory Support for eight years and am responsible for the electric deliveries and peak forecasts for Niagara Mohawk.

Prior to my current role, I have held manager, analyst and engineering roles in the Energy Efficiency ("EE"), Load Research, Integrated Resource Planning, Financial Planning, and Electric Strategy areas at National Grid and its legacy companies. I served as an engineer in the marketing area of EE and as a supervisor in the planning function of EE in the late 1980s and early 1990s. In the mid-1990s, I was promoted to the role of Load Research and Demand Side Management Evaluation supervisor and later accepted the Integrated Resource Planning supervisor position in the late 1990s. In the mid 2000s, I worked in the role of Financial Planning supervisor where I was responsible for analyzing and evaluating potential generation and transmission build and/or buy options. This role required knowledge of system peak and energy requirements. In 2007, I transitioned to the role of Electric Strategy and Analysis manager, where I was responsible for analyzing and determining strategic and customer impacts of current and emerging technologies, including climate change, renewables, and energy efficiency and related technologies. I was named to my current position in 2009.

Q. Please describe your educational background.

A. I graduated from the State University of New York - Maritime College with a Bachelor of Engineering degree in Mechanical Engineering. I

subsequently received a Master of Business Administration from Hofstra University. In addition, I have taken post-graduate courses in statistics, regression, computer science, and financial analysis.

Q. Are you a member of any professional organizations or industry committees?

A. Yes. I am currently a member of the New England Independent System Operator ("NE-ISO") Load Forecasting Committee and the New York Independent System Operator ("NYISO") Load Forecasting Task Force and have represented National Grid on these committees for the last eight years.

Q. Have you previously testified before the New York State Public Service Commission ("Commission") or any other regulatory commissions?

A. Yes. I was the electric deliveries forecast witness and provided direct testimony, rebuttal testimony, and supporting documentation in Niagara Mohawk's 2012 electric rate case, Case 12-E-0201 ("2012 Electric Rate Case") .

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. I present the Company's forecast of electric deliveries and customer counts used to support the revenue requirement presented in this filing.

Q. Are you sponsoring any exhibits?

A. Yes. I sponsor the following exhibits that were prepared by me or under my direction and supervision:

Exhibit __ (JFG-1)	Econometric Deliveries Forecast by Revenue Class (with actual historicals)
Exhibit __ (JFG-2)	Econometric Deliveries Forecast by Revenue Class (with weather-adjusted historicals)
Exhibit __ (JFG-3)	Upstate New York Economic Indicators
Exhibit __ (JFG-4)	Annual Cooling and Heating Degree Days and Number of Days Billed
Exhibit__ (JFG-5)	Monthly Normal Cooling and Heating Degree Days
Exhibit __ (JFG-6)	Customer Count Forecast by Revenue Class
Exhibit __ (JFG-7)	Deliveries Forecast by Rate Class (with weather-adjusted historicals)
Exhibit __ (JFG-8)	Customer Count Forecast by Rate Class
Exhibit __ (JFG-9)	Energy Efficiency Cumulative Annual Program Goals, by Revenue Class, Calendar Year

Exhibit __ (JFG-10)	Cumulative Annual Energy Efficiency Reductions Applied to Econometric Model, by Rate Class, Fiscal Year
Exhibit __ (JFG-11)	Solar- Photovoltaic Cumulative Annual Program Goals, Calendar Year
Exhibit __ (JFG-12)	Cumulative Annual Solar - Photovoltaics Reductions Applied to Econometric Model, by Rate Class, Fiscal Year
Exhibit __ (JFG-13)	Deliveries Forecast by Rate Class, after EE & PV Reductions, Fiscal Year
Exhibit __ (JFG-14)	Regression Models

III. Gigawatt-hour Deliveries & Customer Forecast

Q. Please describe the Company's gigawatt-hour ("GWh") deliveries forecast.

A. The deliveries forecast was developed in two steps. The first step was an econometric forecast of GWh deliveries based on Upstate New York economic conditions, weather, and days billed. The econometric forecast predicted future GWh deliveries based on forecasts of Upstate New York economic conditions provided by Moody's Economy.com ("Moody's") (vintage March 2017) and the assumption of normal weather. The econometric forecast reflected historic levels of energy efficiency savings from Company and state sponsored EE programs and historic levels of solar photovoltaics ("PV") from market-driven programs and installations.

The second step was to adjust the results of the econometric forecast modeling to account for impacts from future EE programs and PV installations not already captured in the underlying econometric forecast.

A. <u>Summary of Econometric Forecast of GWh Deliveries</u>

Q. Please summarize the econometric forecast of GWh deliveries.

A. The econometric forecast results are summarized in Exhibit __ (JFG-1) along with actual historic deliveries for fiscal years ("FY") 2007-2017. FYs are the twelve months ending March 31 such that FY 2017 is the twelve months ending March 31, 2017. Exhibit __ (JFG-2) shows the econometric forecast including weather-normalized historic deliveries data. In the period from FY 2017 to FY 2019 (the "Rate Year"), total GWh deliveries are forecast to grow at 0.2 percent per year on a weather-adjusted basis. For the four-year period as a whole, that is from FY 2017 to FY 2021, total GWh deliveries are expected to remain flat on a weather-normalized basis. These values represent the sum of the residential, commercial, and industrial revenue classes and are based on the econometric forecast, which includes historic and projected embedded distributed energy resources ("DER") for EE and PV, but does not include any future additional DER not already determined as embedded in the

econometric forecast. I provide additional detail concerning these calculations later in this testimony.

B. <u>Economic Outlook</u>

Q. Please summarize Moody's economic forecast for Upstate New York used in preparing the econometric deliveries forecast.

A. The Upstate New York economic forecast is summarized in Exhibit __ (JFG-3) along with historic data for FYs 2007 to 2017. Over the last five years, each of the key indicators, non-manufacturing employment, manufacturing employment, and real personal income, have shown average annual growth of 0.5 percent for non-manufacturing employment, 0.2 percent for manufacturing employment, and 1.7 percent for real personal income. Moody's projects that non-manufacturing employment and real personal income will continue to grow over the next four years at rates of 0.7 percent and 1.0 percent annually, respectively. Manufacturing employment, however, is expected to return to its long-term negative direction. Over the four-year period from FYs 2017 to 2021, manufacturing employment is expected to decline by -0.7 percent per year. These values were developed using Moody's projections for the metropolitan areas and counties in Niagara Mohawk's Upstate New York service territory.

Q. Is Moody's Economy.com a well-known, industry accepted forecasting service?

A. Yes. Moody's Economy.com is a leading, independent economic research and forecasting firm with over 500 clients in 50 countries. Clients include the largest commercial and investment banks, money managers, insurance companies, and other financial institutions; state governments; various branches of the federal government; and leading firms in each major US industry.

C. <u>Weather Variables</u>

Q. Please summarize the weather and other explanatory variables used in the models.

A. Annual weather is summarized on Exhibit __ (JFG-4) for FYs 2006 to 2017. The weather variables are cooling degree days ("CDD") and heating degree days ("HDD"). Each day type is derived using a base temperature of 65°F.

Q. How were historic and forecast CDD and HDD calculated?

A. Historic CDD and HDD were calculated from the daily temperature readings of the National Weather Service's Albany, Utica, Syracuse, Buffalo, Watertown, and Messina weather stations. These weather

stations are the relevant weather stations in the operating regions of Niagara Mohawk's service area. Forecast degree days were calculated from the 2006-2015 ten-year average of these daily temperature readings. The daily degree day data was converted to revenue month HDD and CDD. To make this conversion, daily HDD and CDD were matched with the Company's meter reading schedule. These daily HDD and CDD were then summed across each of the twenty meter reading cycles to provide "revenue month" degree days versus "calendar day" values This was done historically and prospectively, using the ten-year average of daily HDD and CDD. . Results from the weather stations were weighted by energy share to derive total service area weather. Exhibit __ (JFG-5) shows the normalized CDD and HDD on a monthly basis.

Q. How were historic actual deliveries weather-normalized?

A. Deliveries were weather-normalized on a monthly basis by first determining the difference between the actual HDD and CDD and the weather-normal HDD and CDD. Weather-normal values are the average for each of the twelve months in the year over the last ten years of weather data. For each revenue class, the weather coefficients from its respective regression model was multiplied by the degree day differences to determine the amount by which to weather adjust the monthly actual

deliveries. This amount for each revenue class was used to adjust actual monthly deliveries to arrive at the weather-normalized monthly deliveries.

D. <u>Billed Days Variable</u>

Q. Please explain how the Company calculated and forecast the number of days billed.

A. The number of days billed refers to the number of days between meter readings when customer GWh data is collected. The number of days billed was calculated directly from the Company's meter reading schedule. The meter reading schedule is dependent upon the number of non-holiday weekdays, which varies from month to month and year to year. All else constant, a given percentage increase/decrease in the number of days billed can be expected to increase/decrease GWh delivery volumes by the same percentage amount. On a monthly basis, the billing day impacts can be over five percent in absolute magnitude. As a result, it is important to control for these impacts in the econometric analysis even though they may tend to cancel each other out over the course of a full year. Historic days billed were taken from the actual meter reading schedules and days billed for the forecast period were based on the projected meter reading schedules. Exhibit__ (JFG-4) shows the annual historic and projected number of days billed.

E. Econometric Models

Q. Please describe the econometric models used to forecast GWh deliveries.

A. The econometric models related actual monthly GWh deliveries to economic variables, weather, days billed, and seasonal indicator variables. Separate models were developed and utilized for residential, commercial, and industrial revenue classes. The economic variables of real personal income, non-manufacturing employment, and manufacturing employment were specified as indexes equal to 100 in January 2016. The models predicted future GWh deliveries based on Moody's forecast of the economic variables, the assumption of normal weather, and forecasts of the other explanatory variables. The models did not take into account the impact of energy savings resulting from any future additional EE or PV reductions not already reflected in the data, as explained previously.

Q. Please describe the models used to forecast customer counts.

A. Customer counts are defined as active electric bill accounts. Customer counts were forecast using regression models relating customer counts to time trends and historic monthly patterns. Time trends were used instead of economic indicators because of the lack of correlation between customer counts with the regional economic variables. Customer count

models were estimated for the residential, commercial, and industrial revenue classes.

Q. How were the econometric models developed?

A. The models were designed to ensure that the variables used to estimate the energy deliveries and customer counts were relevant (casual and correlated) to the rate class, were statistically valid, and produced meaningful results. The overall explanatory strength of the model was gauged by examining "Adjusted R-squares," the significance of the model variables confirmed by strong "T-stats" and the reasonableness of results by reviewing future projections versus historic values. Other typical statistical tests, including normality of residuals, multicollinearity, and influential data points, were reviewed.

Historic actual monthly data was used to develop the equations using ordinary least squares. The forecast was accomplished by inputting the future values of the explanatory variables into these equations to determine the projected deliveries and customer counts. The results of these models are attached in the work papers as Exhibit __ (JFG-14).

Q. What was the historic estimation period for the models?

A. The residential and commercial models were estimated using the monthly data for the period January 2004 through October 2016. The industrial model for the period January 2005 through October 2016.

Q. Has the forecast methodology that you described been used previously by the Company?

A. Yes. The forecast methodology used herein is the same as that used in the Company's 2012 Rate Case.

F. <u>Residential GWh Deliveries and Customer Count Forecasts</u>

Q. How were residential GWh deliveries and customer counts modeled?

A. Residential deliveries, which account for approximately 34 percent[1] of total GWh deliveries, were modeled as a function of real personal income, revenue month CDD and HDD, and the monthly number of days billed.

The number of residential customers was forecast based on a linear time trend and monthly indicator variables.

[1] The percentages for residential, commercial, and industrial customers are based on weather-normalized deliveries for FY 2015.

Q. Please summarize the econometric forecast of residential deliveries and customer counts.

A. Exhibit __ (JFG-1) shows the residential deliveries forecast compared to actual deliveries history. Exhibit __ (JFG-2) shows the forecast with weather-normalized deliveries history. The forecast projects an average annual increase of 0.1 percent per year from FY 2017 to the Rate Year Overall, residential GWh deliveries increase at an average annual rate of 0.2 percent during the four-year forecast horizon, FYs 2017 to 2021. The econometric model growth rate is higher than the long term five-year growth rate. However, the average annual rate of 0.2 percent does not yet reflect the application of the DER post-model adjustments. Additional detail concerning DER impact is provided later in this testimony.

The overall "Goodness of Fit" for this deliveries model, as measured statistically by the adjusted R-squared test, is very good at 0.93. All explanatory variables are significant as measured by the "T-value" statistic. Exhibit __ (JFG-14) contains additional statistical results.

Exhibit __ (JFG-6) shows the residential customer count forecast compared to historic customer counts. The forecast projects an increase of 0.3 percent annually from FYs 2017 to 2021.

G. Commercial GWh Deliveries and Customer Count Forecasts

Q. How were commercial GWh deliveries and customer counts modeled?

A. Commercial deliveries, which account for approximately 37 percent of total GWh deliveries, were modeled as a function of total employment, revenue month CDD and HDD, and the monthly number of days billed.

The number of commercial customers was forecast based on a linear time trend and monthly indicator variables.

Q. Please summarize the econometric forecast of commercial deliveries and customer counts.

A. Exhibit __ (JFG-1) shows the commercial deliveries forecast compared to actual deliveries history. Exhibit __ (JFG-2) shows the forecast with weather-normalized deliveries history. The forecast projects an average annual increase of 0.5 percent per year from FY 2017 to the Rate Year. Overall, commercial GWh deliveries increase at an average annual rate of 0.2 percent during the four-year forecast horizon, FYs 2017 to 2021. The econometric model growth rate is higher than the long term five-year and ten-year growth rates, but has not yet had the DER post-model adjustments applied.

The adjusted R-squared test for this model is good at 0.83. All explanatory variables are significant as measured by the "T-value" statistic. Exhibit___ (JFG-14) contains additional statistical results.

Exhibit __ (JFG-6) shows the commercial customer count forecast compared to historic customer counts. The forecast projects an increase of 0.3 percent annually from FYs 2017 to 2021.

H. Industrial GWh Deliveries and Customer Count Forecasts

Q. How were industrial GWh deliveries and customer counts modeled?

A. Industrial deliveries, which account for approximately 29 percent of total GWh deliveries, were modeled as a function of manufacturing employment, revenue month CDD, and the monthly number of days billed.

The number of industrial customers was forecast based on a linear time trend and monthly indicator variables.

Q. Please summarize the econometric forecast of industrial deliveries and customer counts.

A. Exhibit __ (JFG-1) shows the industrial deliveries forecast compared to actual deliveries history while Exhibit __ (JFG-2) shows the forecast with weather-normalized deliveries history. The forecast projects an average annual decrease of -0.2 percent per year from FY 2017 to the Rate Year. Overall, industrial GWh deliveries are expected to decline at an average annual rate of -0.3 percent during the four-year forecast horizon, FYs 2017 to 2021.

The adjusted R-squared test for this model is strong at 0.85. All explanatory variables are significant as measured by the "T-value" statistic. Exhibit__ (JFG-14) contains additional statistical results.

Exhibit _ (JFG-6) shows the industrial customer count forecast compared to historic customer counts. The forecast projects an average annual decline in industrial customers of -0.9 percent during the four-year forecast horizon, which is consistent with the continued decline in industrial customers that has occurred over the historic period.

I. <u>Rate Class GWh Deliveries (before DERs) and Rate Class Customer Count Forecast</u>

Q. How was the forecast of GWh deliveries and customer counts by rate class derived from the econometric forecast of GWh deliveries and customer counts by revenue class?

A. The revenue class GWh deliveries and customer forecasts described above were allocated to rate classes based on each rate class' share within each revenue class. Historic deliveries for each rate class within each revenue class were first trended into the forecast period. These projected rate class GWh deliveries were then summed to the revenue class level. This calculation determines each rate class' percentage of each revenue class. Once these percentage shares are known, the econometric forecast of revenue class GWh deliveries was allocated to each rate class. The same methodology was used to allocate the customer forecast to rate classes.

Exhibit __ (JFG-7) shows the rate class deliveries forecast prior to reductions for future EE and PV not already captured in the econometric models. Customer count projections by rate class are shown in Exhibit __ (JFG-8).

J. EE Adjustments

Q. Please explain how the Company's forecast of EE savings was used to adjust the econometric forecast of GWh deliveries.

A. The EE savings forecast is based on the Company's Energy Efficiency Transition Implementation Plan ("ETIP") programs and targets for calendar years 2016 to 2018, plus additional savings associated with incremental ETIP programs proposed in this rate case, as described by the Electric Customer Panel (which will cover calendar years 2017 to 2020). If the Company's proposal to add incremental EE programs to its ETIP portfolio is not adopted, the EE savings forecast will need to be adjusted downward.

A realization rate, or discount based on historic experience of 75 percent, was applied to the EE targets. For the post 2020 period, the Company assumed continuation of those programs, however at a level of five percent less each subsequent year. The assumption is that over the longer term it may become increasingly more costly to garner each additional unit of energy savings. This is consistent with the practices of the regional Independent System Operators ("ISOs") when they formulate their statewide EE projections.

Exhibit __ (JFG-9) shows the cumulative annual EE values by residential and non-residential classes used in the forecast for the Company-administered programs for calendar years 2017 to 2022.

Cumulative annual EE reductions are 550.7 GWh by 2019, growing to 1,083.2 GWh by 2022.

Q. Were savings from any of the New York Energy Research & Development Authority ("NYSERDA")-administered Energy Efficiency Portfolio Standard ("EEPS") programs included in the EE forecast or used to adjust the econometric results?

A. Yes. In addition to reductions for Company-sponsored EE programs, adjustments were also made for assumed NYSERDA activity in Niagara Mohawk's service territory. NYSERDA has state-wide energy efficiency targets. However, the NYSERDA targets do not include Company-specific targets. In the absence of Company-specific targets for NYSERDA EE purposes in Niagara Mohawk's service territory, a pro-rata share by budget was used to adjust the econometric results. Because the Company is required to fund approximately 32 percent of the total NYSERDA program budget, Niagara Mohawk assumed that amount of NYSERDA EE in its service territory. Similar to the Company-sponsored

programs discussed above, a discount, or realization rate based on historical achievement is applied to these values. This value is 75 percent.

Exhibit __ (JFG-9) shows the cumulative annual EE values used in the forecast for the NYSERDA-administered programs for calendar years 2017 to 2022.

Cumulative annual EE reductions are 197.8 GWh by 2019, growing to 385.7 GWh by 2022.

Q. Please summarize the total EE adjustments made to the econometric forecast of GWh deliveries.

A. Exhibit __ (JFG-9) shows the total cumulative annual EE targets for the combined Company-administered and NYSERDA-administered EEPS programs assumed by the Company by calendar year. These reductions are 748.5 GWh by 2019, growing to 1,469.0 GWh by 2022. While these targets are assumed to be fully captured in this forecasting process, only a subset of these values is applied to the econometric forecast as a post-econometric model reduction.

Because the econometric forecast is based on historic energy deliveries, the forecast has already captured historic EE and future EE program reductions consistent with the level of such reductions already embedded in the historic data. Therefore, only those future program targets that are above historic levels would need to be captured as post model reductions to the econometric model. For example, if the historic EE program achievements were 100 GWh per year and the future EE program targets continued at 100 GWh per year, then it can be assumed that the econometric forecast already captured the future EE targets and no post econometric model reductions are made. However, if future EE targets were to increase to 150 GWh per year, then only the additional 50 GWh of EE (or the 150 new – 100 historic) would be used as post-econometric model reductions.

Q. Please explain how the Company allocated annual EE energy savings from the residential and non-residential programs to service classes.

A. Annual EE savings were allocated equally to all months. The residential program savings were assigned to the SC1 service class. The non-residential program savings were allocated to the SC2ND, SC2D, SC3, and SC3A service classes using ratios provided by the Company's Customer and Business Strategy department responsible for EE programs.

These allocations were 3 percent to SC2ND, 21 percent to SC2D, 32 percent to SC3, and 24 percent to SC3A.

Exhibit __ (JFG-10) shows the cumulative annual post-econometric EE reductions applied by year by service class. Total cumulative annual EE adjustments are 320.3 GWh by the Rate Year growing to 548.1 GWh by FY 2021.

K. <u>Solar- Photovoltaic ("PV") Adjustments</u>

Q. Please explain how the Company used the projection of PV savings to adjust the econometric forecast of GWh deliveries.

A. The PV projections used to adjust the econometric deliveries forecast were derived in two steps. In the near term, that is calendar years 2017 to 2018, the current application queue is used. An average amount of time from application receipt to completed installations is used to estimate PV installation amounts and timing. Over the longer term, additional PV installation are made annually to reach the Company's share of the statewide New York SUN (solar) initiative. This initiative targets 3,000 MWs of PV by 2023, of which 2,400 MWs are allocated to upstate

utilities[2]. There are no Company specific requirements, so the Company assumed a pro-rata share of the target by load. The Company is approximately half of the upstate load, so a long-term target of 1,200 MW of connected PV is assumed in Niagara Mohawk's service territory. A capacity factor of 15 percent is used to convert MWs to MWhs.

Exhibit ___ (JFG-11) shows the combined cumulative annual values for calendar years 2017 to 2022. Cumulative annual PV reductions are 393.7 GWh by 2019, growing to 840.5 GWh by 2022.

As was the case for the EE discussed above, the Company assumed that some portion of these PV targets have already been captured in the econometric forecast.

Q. How did the Company allocate the annual PV reductions to service classes?

A. The annual PV savings were allocated equally to all months. Historic installations and those pending in the application queue are known and

[2] https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Megawatt-Block-Dashboards/Residential-Small-Commercial-MW-Block and https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Megawatt-Block-Dashboards/CI-Dashboard.

directly placed in the appropriate service classes. Projected future installations not already in the queue are allocated to each service class based on the existing mix of PV for those installations already completed and those known in the queue. This share for each class is: 17 percent to SC1, 2 percent to SC2ND, 6 percent to SC2D, 25 percent to SC3, and 50 percent to SC3A.

Exhibit ___ (JFG-12) shows the cumulative annual post-econometric PV reductions applied by year by service class. Total cumulative annual PV adjustments are 173.3 GWh by the Rate Year growing to 336.1 GWh by FY 2021.

Q. What is the final GWh deliveries forecast after the impacts of EE and PV are applied?

A. Exhibit __ (JFG-13) shows the cumulative annual deliveries forecast by service class after adjustments for post-econometric PV and EE reductions. In the period from FY 2017 to the Rate Year, total GWh deliveries are forecast to decrease at -0.5 percent per year on a weather-adjusted basis. For the four-year period as a whole, that is from FY 2017 to FY 2021, total GWh deliveries are expected to decrease at -0.6% per

year on a weather-normalized basis. These values fully include the impacts of historic and projected DER for EE and PV.

Q. How does the final deliveries forecast compare to historic deliveries?

A. Exhibit _ (JFG-2) show that total GWh deliveries have been somewhat negative, at -0.2 percent on average annually, over the last ten years. Exhibit___ (JFG-13) shows that the final deliveries forecast continues to project a negative scenario, averaging -0.5 percent per year from FY 2017 to the Rate Year. Over the four-year period, FYs 2017 to 2021, average declines of -0.6 percent annually are expected.

Forecast declines over the planning horizon are consistent with the long-term ten-year historical trend, as well as the most recent two fiscal years. The most recent two years, FY 2016 and 2017 saw accelerated declines at -1.0 percent and -1.4 percent, respectively, annually versus the long-term declines of -0.2 percent per year. This, in part, can be attributed to the success of the EE and PV programs in the state. Thus, continued forecast declines are consistent with historic values as well as the expected continuation of DER programs in the service territory.

Q. Does this complete your testimony at this time?

A. Yes, it does.

Exhibits of
Joseph F. Gredder

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Exhibit__ (JFG-1)

Exhibit __ (JFG-1)

Econometric Deliveries Forecast by Revenue Class (with actual historicals)

ECONOMETRIC DELIVERIES FORECAST by REVENUE CLASS (Fiscal Year, GWH)
(Historicals: *Actuals,* Projections: *Weather-Normal*)

BEFORE FUTURE ADDITIONAL ENERGY EFFICIENCY AND PV REDUCTION

FISCAL YEAR	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUM	
2007	11,249		12,941		9,835		34,025	
2008	11,351	0.9%	13,136	1.5%	9,917	0.8%	34,404	1.1%
2009	11,335	-0.1%	13,005	-1.0%	9,451	-4.7%	33,791	-1.8%
2010	11,099	-2.1%	12,609	-3.0%	8,665	-8.3%	32,373	-4.2%
2011	11,596	4.5%	12,691	0.7%	9,071	4.7%	33,358	3.0%
2012	11,493	-0.9%	12,540	-1.2%	8,943	-1.4%	32,976	-1.1%
2013	11,747	2.2%	12,637	0.8%	9,260	3.5%	33,644	2.0%
2014	11,988	2.1%	12,627	-0.1%	9,591	3.6%	34,206	1.7%
2015	11,572	-3.5%	12,596	-0.2%	10,181	6.1%	34,348	0.4%
2016	11,392	-1.6%	12,458	-1.1%	9,971	-2.1%	33,821	-1.5%
2017	11,791	3.5%	12,514	0.4%	9,745	-2.3%	34,049	0.7%
2018	11,505	-2.4%	12,416	-0.8%	9,675	-0.7%	33,596	-1.3%
2019	11,528	0.2%	12,468	0.4%	9,660	-0.2%	33,656	0.2%
2020	11,568	0.3%	12,500	0.3%	9,637	-0.2%	33,706	0.1%
2021	11,586	0.2%	12,440	-0.5%	9,589	-0.5%	33,616	-0.3%

Compound Annual Growth Rates:				
2007 to 2017 Ten-Year	0.5%	-0.3%	-0.1%	0.0%
2012 to 2017 Five-Year	0.5%	0.0%	1.7%	0.6%
2017 to 2019 Two-Year	-1.1%	-0.2%	-0.4%	-0.6%
2017 to 2021 Four-Year	-0.4%	-0.1%	-0.4%	-0.3%

Notes:

Fiscal Year 2017 has actuals through October, 2016 and projections post October

Years prior to FY 2017 are actuals

Before "Future Additional" EE & PV means prior to post-model reductions not already embedded in the econometric forecast

Exhibit__(JFG-1)
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Exhibit __ (JFG-2)

Econometric Deliveries Forecast by Revenue Class
(with weather-adjusted historicals)

ECONOMETRIC DELIVERIES FORECAST by REVENUE CLASS (Fiscal Year, GWH)
(Historicals: *Weather-Normal,* Projections: *Weather-Normal*)
BEFORE FUTURE ADDITIONAL ENERGY EFFICIENCY AND PV REDUCTION

FISCAL YEAR	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUM	
2007	11,302		12,963		9,839		34,104	
2008	11,347	0.4%	13,124	1.2%	9,911	0.7%	34,382	0.8%
2009	11,419	0.6%	13,076	-0.4%	9,477	-4.4%	33,972	-1.2%
2010	11,561	1.2%	12,859	-1.7%	8,728	-7.9%	33,147	-2.4%
2011	11,407	-1.3%	12,592	-2.1%	9,046	3.7%	33,045	-0.3%
2012	11,599	1.7%	12,534	-0.5%	8,974	-0.8%	33,107	0.2%
2013	11,622	0.2%	12,532	0.0%	9,221	2.8%	33,375	0.8%
2014	11,814	1.7%	12,581	0.4%	9,594	4.0%	33,989	1.8%
2015	11,542	-2.3%	12,626	0.4%	10,202	6.3%	34,371	1.1%
2016	11,571	0.3%	12,493	-1.1%	9,961	-2.4%	34,025	-1.0%
2017	11,499	-0.6%	12,347	-1.2%	9,708	-2.5%	33,554	-1.4%
2018	11,505	0.1%	12,416	0.6%	9,675	-0.3%	33,596	0.1%
2019	11,528	0.2%	12,468	0.4%	9,660	-0.2%	33,656	0.2%
2020	11,568	0.3%	12,500	0.3%	9,637	-0.2%	33,706	0.1%
2021	11,586	0.2%	12,440	-0.5%	9,589	-0.5%	33,616	-0.3%

Compound Annual Growth Rates:				
2007 to 2017 Ten-Year	0.2%	-0.5%	-0.1%	-0.2%
2012 to 2017 Five-Year	-0.2%	-0.3%	1.6%	0.3%
2017 to 2019 Two-Year	0.1%	0.5%	-0.2%	0.2%
2017 to 2021 Four-Year	0.2%	0.2%	-0.3%	0.0%

Notes:

Fiscal Year 2017 has actuals through October, 2016 and projections post October

Years prior to FY 2017 are actuals

Before "Future Additional" EE & PV means prior to post-model reductions not already embedded in the econometric forecast

Exhibit__(JFG-2)
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Exhibit __ (JFG-3)

Upstate New York Economic Indicators

UPSTATE NEW YORK ECONOMIC INDICATORS

FISCAL YEAR	EMPLOYMENT NON-MANUFACTURING (000)		MANUFACTURING EMPLOYMENT (000)		REAL PERSONAL INCOME ($millions, $2009)	
2007	1,822.8		207.6		158,263.3	
2008	1,835.4	0.7%	202.9	-2.2%	160,546.3	1.4%
2009	1,842.7	0.4%	193.2	-4.8%	163,568.8	1.9%
2010	1,815.5	-1.5%	174.2	-9.8%	166,583.0	1.8%
2011	1,815.0	0.0%	173.7	-0.3%	170,086.7	2.1%
2012	1,822.2	0.4%	176.6	1.7%	170,684.9	0.4%
2013	1,837.3	0.8%	177.3	0.4%	173,944.6	1.9%
2014	1,850.3	0.7%	178.1	0.5%	174,138.5	0.1%
2015	1,855.2	0.3%	179.1	0.5%	177,580.2	2.0%
2016	1,859.4	0.2%	179.7	0.4%	183,429.2	3.3%
2017	1,869.0	0.5%	178.1	-0.9%	186,129.6	1.5%
2018	1,886.1	0.9%	177.3	-0.4%	188,596.1	1.3%
2019	1,903.8	0.9%	176.6	-0.4%	190,633.2	1.1%
2020	1,917.2	0.7%	175.6	-0.6%	192,073.8	0.8%
2021	1,921.8	0.2%	173.4	-1.2%	193,656.2	0.8%

Compound Annual Growth Rates:

10-year (2007 to 2017)	0.3%	-1.5%	1.6%
5-year (2012 to 2017)	0.5%	0.2%	1.7%
4-year (2017to 2021)	0.7%	-0.7%	1.0%

Notes:

Calendar year 2016 was the current year for the forecast

(2) Source: Moodys, vintage March 2017

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Exhibit__ (JFG-4)

Exhibit __ (JFG-4)

Annual Cooling and Heating Degree Days and Number of Days Billed

ANNUAL COOLING AND HEATING
DEGREE DAYS (HDDs & CDDs) &
NUMBER OF DAYS BILLED

YEAR	CDDs	HDDs	DAYS BILLED	
2006	624.3	6,419.1	364.0	
2007	654.9	6,494.8	364.3	
2008	526.4	6,579.5	365.3	
2009	361.1	6,736.3	365.6	
2010	744.3	6,397.3	365.2	
2011	726.7	6,466.2	365.3	
2012	802.8	5,646.6	365.6	
2013	627.4	6,531.1	365.4	
2014	537.3	7,079.1	365.6	
2015	680.9	6,726.3	363.9	
2016	835.5	5,981.2	366.5	
2017	631.8	6,507.6	365.5	*
2018	631.8	6,507.6	364.2	*
2019	631.8	6,507.6	365.4	*
2020	631.8	6,507.6	365.5	*
2021	631.8	6,507.6	365.2	*

* Represents "normal" HDDs & CDDs.

Exhibit__(JFG-4)
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Exhibit__ (JFG-5)

Exhibit __ (JFG-5)

Monthly Normal Cooling and Heating Degree Days

MONTHLY NORMAL COOLING & HEATING
DEGREE DAYS (CDDs, HDDs)

CALENDAR MONTH	CDDs	HDDs
1	-	1,211.5
2	-	1,213.3
3	0.0	1,108.6
4	1.3	759.1
5	13.9	371.0
6	76.8	129.1
7	176.8	18.5
8	211.2	4.8
9	125.1	46.4
10	24.9	222.1
11	1.9	532.4
12	0.0	891.0

Exhibit __(JFG-5)
Page 1 of 1

Exhibit__ (JFG-6)

Exhibit __ (JFG-6)

Customer Count Forecast by Revenue Class

CUSTOMER COUNT FORECAST by REVENUE CLASS (Fiscal Year)

FISCAL YEAR	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUM	
2017	1,486,714		168,643		1,555		1,656,911	
2018	1,490,054	0.2%	168,994	0.2%	1,542	-0.8%	1,660,589	0.2%
2019	1,494,001	0.3%	169,533	0.3%	1,527	-0.9%	1,665,062	0.3%
2020	1,498,021	0.3%	170,139	0.4%	1,513	-0.9%	1,669,674	0.3%
2021	1,502,050	0.3%	170,770	0.4%	1,499	-1.0%	1,674,319	0.3%

Compound Annual Growth Rates:				
2017 to 2019 Two-Year	0.2%	0.3%	-0.9%	0.2%
2017 to 2021 Four-Year	0.3%	0.3%	-0.9%	0.3%

Notes:

Fiscal Year 2017 has actuals through October, 2016 and projections post October

Years prior to FY 2017 are actuals

Exhibit__(JFG-6)
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Exhibit __ (JFG-7)

Deliveries Forecast by Rate Class (with weather-adjusted historicals)

DELIVERIES FORECAST by RATE CLASS (Fiscal Year, GWH)
(Historicals: *Weather-Normal,* Projections: *Weather-Normal*)

BEFORE FUTURE ADDITIONAL ENERGY EFFICIENCY AND PV REDUCTIONS

FISCAL YEAR	SC1		SC2ND		SC2D		SC3		SC3A		SC4		SC7		SC11_12		NYPA R&E		NYPA RNY		NYPA HLF		NYPA PP		NYPA St Lawrence		SUM	
2017	11,475		618		4,262		6,427		4,585		658		185		296		3,345		1,558		107		9		5		33,529	
2018	11,484	0.1%	620	0.3%	4,275	0.3%	6,496	1.1%	4,549	-0.8%	696	5.9%	191	3.4%	296	0.0%	3,292	-1.6%	1,555	-0.2%	106	-0.7%	9	1.3%	5	0.0%	33,575	0.1%
2019	11,507	0.2%	621	0.2%	4,285	0.2%	6,564	1.0%	4,527	-0.5%	710	2.0%	189	-1.1%	296	0.0%	3,260	-1.0%	1,556	0.0%	106	0.0%	9	2.0%	5	0.0%	33,636	0.2%
2020	11,547	0.3%	622	0.1%	4,287	0.1%	6,622	0.9%	4,499	-0.6%	724	2.0%	187	-1.2%	296	0.0%	3,227	-1.0%	1,556	0.0%	106	0.0%	9	2.0%	5	0.0%	33,686	0.2%
2021	11,565	0.2%	618	-0.7%	4,257	-0.7%	6,635	0.2%	4,453	-1.0%	736	1.7%	183	-1.9%	295	-0.3%	3,185	-1.3%	1,551	-0.3%	106	-0.3%	10	1.7%	5	0.0%	33,597	-0.3%
Compound Annual Growth Rates:																												
2017 to 2019 Two-Year		0.1%		0.3%		0.3%		1.1%		-0.6%		3.9%		1.1%		0.0%		-1.3%		-0.1%		-0.3%		1.7%		0.0%		0.2%
2017 to 2021 Four-Year		0.2%		0.0%		0.0%		0.8%		-0.7%		2.9%		-0.2%		-0.1%		-1.2%		-0.1%		-0.2%		1.7%		0.0%		0.1%

Exhibit__(JFG-7)
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Exhibit __ (JFG-8)

Customer Count Forecast by Rate Class

CUSTOMER COUNT FORECAST by RATE CLASS (Fiscal Year, GWh)

FISCAL YEAR	SC1		SC2ND		SC2D		SC3		SC3A		SC4		SC7		SC11_12		SUM	
2017	1,482,400	0.2%	113,570	0.5%	49,278	0.4%	4,581	0.5%	190	-2.9%	95	1.1%	37	-0.1%	6	0.1%	1,650,157	0.2%
2018	1,485,759	0.2%	113,870	0.3%	49,355	0.2%	4,596	0.3%	184	-3.1%	96	0.9%	37	-0.4%	6	0.0%	1,653,904	0.2%
2019	1,489,722	0.3%	114,296	0.4%	49,485	0.3%	4,615	0.4%	178	-3.1%	97	0.8%	37	-0.3%	6	-0.1%	1,658,437	0.3%
2020	1,493,756	0.3%	114,767	0.4%	49,635	0.3%	4,635	0.4%	173	-3.1%	98	0.8%	37	-0.3%	6	-0.2%	1,663,107	0.3%
2021	1,497,798	0.3%	115,254	0.4%	49,792	0.3%	4,656	0.5%	167	-3.1%	99	0.8%	37	-0.3%	6	-0.2%	1,667,809	0.3%

Compound Annual Growth Rates:																		
2017 to 2019 Two-Year		0.2%		0.3%		0.2%		0.4%		-3.1%		0.9%		-0.3%		-0.1%		0.3%
2017 to 2021 Four-Year		0.3%		0.4%		0.3%		0.4%		-3.1%		0.8%		-0.3%		-0.1%		0.3%

Exhibit__(JFG-8)
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Exhibit__ (JFG-9)

Exhibit __ (JFG-9)

Energy Efficiency Cumulative Annual Program Goals, by Revenue Class,
Calendar Year

ENERGY EFFICIENCY (EE) CUMULATIVE ANNUAL TARGETSby Revenue Class (Calendar Year, GWh)

CALENDAR YEAR	COMPANY-SPONSORED RESIDENTIAL	COMPANY-SPONSORED NON-RESIDENTIAL	COMPANY-SPONSORED SUM	NYSERDA-ADMINISTERED RESIDENTIAL	NYSERDA-ADMINISTERED NON-RESIDENTIAL	NYSERDA-ADMINISTERED SUM	COMPANY & NYSERDA COMBINED RESIDENTIAL	COMPANY & NYSERDA COMBINED NON-RESIDENTIAL	COMPANY & NYSERDA COMBINED SUM
2017	67.4	116.1	183.6	1.9	65.7	67.6	69.4	181.8	251.2
2018	134.9	232.2	367.1	3.8	129.7	133.5	138.7	362.0	500.7
2019	202.3	348.3	550.7	5.7	192.1	197.8	208.0	540.5	748.5
2020	269.8	464.5	734.2	7.5	254.5	262.0	277.3	719.0	996.3
2021	335.6	577.7	913.2	9.3	315.4	324.7	344.8	893.0	1,237.9
2022	398.0	685.2	1,083.2	11.1	374.7	385.7	409.1	1,059.9	1,469.0

Exhibit__(JFG-9)
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Exhibit__ (JFG-10)

Exhibit __ (JFG-10)

Cumulative Annual Energy Efficiency Reductions Applied to Econometric Model, by Rate Class, Fiscal Year

CUMULATIVE ANNUAL ENERGY EFFICIENCY (EE) REDUCTIONS APPLIED TO ECONOMETRIC MODEL, by RATE CLASS
(Fiscal Year, GWh)

FISCAL YEAR	SC1	SC2ND	SC2D	SC3	SC3A	SC7	SC11_12	NYPA R&E	NYPA RNY	SUM
2017	(13.7)	(0.7)	(4.5)	(6.8)	(5.1)	-	(0.3)	(3.7)	-	(34.6)
2018	(81.2)	(3.9)	(26.5)	(40.2)	(30.1)	-	(1.8)	(21.8)	-	(205.3)
2019	(127.5)	(6.0)	(41.1)	(62.4)	(46.7)	-	(2.8)	(33.8)	-	(320.3)
2020	(173.9)	(8.1)	(55.5)	(84.4)	(63.1)	-	(3.7)	(45.7)	-	(434.4)
2021	(220.2)	(10.2)	(69.9)	(106.2)	(79.4)	-	(4.7)	(57.5)	-	(548.1)

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Exhibit__ (JFG-11)

Exhibit __ (JFG-11)

Solar- Photovoltaic Cumulative Annual Program Goals, Calendar Year

SOLAR - PHOTOVOLTAIC (PV) CUMULATIVE ANNUAL TARGETS (Calendar Year, GWh)

CALENDAR YEAR	RESIDENTIAL	NON-RESIDENTIAL	SUM
2017	18.2	55.7	73.9
2018	73.3	171.5	244.8
2019	134.1	259.6	393.7
2020	195.0	347.6	542.6
2021	255.9	435.7	691.6
2022	316.7	523.8	840.5

Exhibit__(JFG-11)
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Exhibit __ (JFG-12)

Cumulative Annual Solar - Photovoltaics Reductions Applied to Econometric Model, by Rate Class, Fiscal Year

CUMULATIVE ANNUAL SOLAR - PHOTOVOLTAICS (PV) REDUCTIONS APPLIED TO ECONOMETRIC MODEL, by RATE CLASS
(Fiscal Year, GWh)

FISCAL YEAR	SC1	SC2ND	SC2D	SC3	SC3A	SUM
2017	(0.2)	(0.0)	(0.1)	(0.1)	(0.4)	(0.9)
2018	(17.7)	(2.3)	(6.0)	(11.2)	(32.6)	(70.0)
2019	(52.8)	(6.8)	(17.4)	(28.0)	(67.6)	(173.3)
2020	(87.3)	(11.3)	(28.4)	(41.9)	(87.8)	(257.8)
2021	(119.3)	(15.4)	(38.6)	(54.8)	(106.5)	(336.1)

Exhibit__(JFG-12)
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Exhibit __ (JFG-13)

Deliveries Forecast by Rate Class, after EE & PV Reductions, Fiscal Year

DELIVERIES FORECAST by RATE CLASS (Fiscal Year, GWH)
(Historicals: *Weather-Normal,* Projections: *Weather-Normal*)

AFTER FUTURE ADDITIONAL ENERGY EFFICIENCY AND PV REDUCTIONS

FISCAL YEAR	SC1		SC2ND		SC2D		SC3		SC3A		SC4		SC7		SC11_12		NYPA R&E		NYPA RNY		NYPA HLF		NYPA PP		NYPA St Lawrence		SUM	
2017	11,461	-0.8%	618	-0.4%	4,257	-1.1%	6,420	-0.7%	4,580	-3.0%	658	8.9%	185	-7.5%	295	-0.9%	3,342	-5.2%	1,558	-1.4%	107	-7.8%	9	-49.0%	5	80.1%	33,494	-1.5%
2018	11,385	-0.7%	614	-0.6%	4,243	-0.3%	6,445	0.4%	4,486	-2.0%	696	5.9%	191	3.4%	294	-0.5%	3,270	-2.1%	1,555	-0.2%	106	-0.7%	9	1.3%	5	0.0%	33,300	-0.6%
2019	11,327	-0.5%	609	-0.9%	4,226	-0.4%	6,473	0.4%	4,412	-1.6%	710	2.0%	189	-1.1%	293	-0.3%	3,227	-1.3%	1,555	0.0%	106	0.0%	9	2.0%	5	0.0%	33,142	-0.5%
2020	11,286	-0.4%	603	-1.0%	4,203	-0.5%	6,495	0.3%	4,349	-1.4%	724	2.0%	187	-1.2%	292	-0.4%	3,181	-1.4%	1,554	-0.1%	106	0.0%	9	2.0%	5	0.0%	32,994	-0.4%
2021	11,225	-0.5%	592	-1.7%	4,148	-1.3%	6,474	-0.3%	4,267	-1.9%	736	1.7%	183	-1.9%	290	-0.6%	3,127	-1.7%	1,549	-0.3%	106	-0.3%	10	1.7%	5	0.0%	32,713	-0.9%
Compound Annual Growth Rates:																												
2017 to 2019 Two-Year		-0.6%		-0.7%		-0.4%		0.4%		-1.8%		3.9%		1.1%		-0.4%		-1.7%		-0.1%		-0.3%		1.7%		0.0%		-0.5%
2017 to 2021 Four-Year		-0.5%		-1.1%		-0.6%		0.2%		-1.8%		2.9%		-0.2%		-0.5%		-1.6%		-0.1%		-0.2%		1.7%		0.0%		-0.6%

Exhibit__(JFG-13)
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Exhibit__ (JFG-14)

Exhibit __ (JFG-14)

Regression Models

12:52 Friday, March 24, 2017 **1**

Model: UPNY Residential Energy, RES (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_r k_10_r

Number of Observations Read	384
Number of Observations Used	154
Number of Observations with Missing Values	230

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	7	2322481	331783	289.62	<.0001
Error	146	167255	1145.58174		
Corrected Total	153	2489736			

Root MSE	33.84644	**R-Square**	0.9328
Dependent Mean	955.33758	**Adj R-Sq**	0.9296
Coeff Var	3.54288		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	-346.63348	97.32293	-3.56	0.0005	0
IDX_RPI	IDX_RPI	1	2.24454	0.52138	4.31	<.0001	1.01698
hdd_10	hdd_10	1	0.32259	0.00896	35.99	<.0001	2.37923
cdd_10	cdd_10	1	1.76801	0.05289	33.43	<.0001	2.44972
nybdays	nybdays	1	27.36264	2.84749	9.61	<.0001	1.05707
apr	apr	1	-39.21340	10.13171	-3.87	0.0002	1.06655
may	may	1	-39.80689	10.73104	-3.71	0.0003	1.19646
mar05		1	-119.94422	34.49580	-3.48	0.0007	1.03199

Model: UPNY Residential Energy, RES (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_r k_10_r

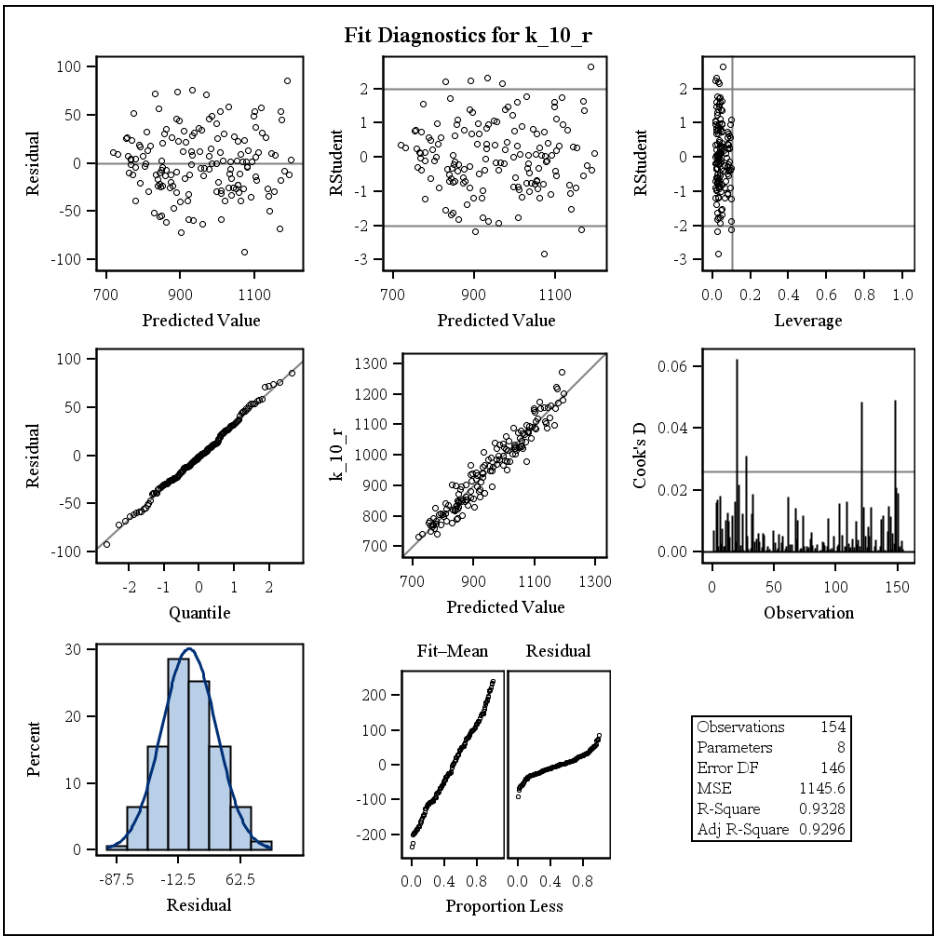
Test of First and Second Moment Specification		
DF	**Chi-Square**	**Pr > ChiSq**
26	32.63	0.1732

Durbin-Watson D	1.783
Number of Observations	154
1st Order Autocorrelation	0.105

12:52 Friday, March 24, 2017 **17**

Model: UPNY Residential Energy, RES (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1



12:52 Friday, March 24, 2017 1

Model: UPNY Commercial Energy, COM (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_c k_10_c

Number of Observations Read	384
Number of Observations Used	154
Number of Observations with Missing Values	230

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	11	621383	56489	68.46	<.0001
Error	142	117168	825.12936		
Corrected Total	153	738551			

Root MSE	28.72507	**R-Square**	0.8414
Dependent Mean	1063.48549	**Adj R-Sq**	0.8291
Coeff Var	2.70103		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	-791.49525	361.94079	-2.19	0.0304	0
IDX_empl_non_manuf	IDX_empl_non_manuf	1	13.34896	3.68148	3.63	0.0004	3.05098
time_trend	time_trend	1	-7.95143	1.07626	-7.39	<.0001	2.96698
hdd_10	hdd_10	1	0.07063	0.00808	8.74	<.0001	2.68342
cdd_10	cdd_10	1	0.82378	0.04731	17.41	<.0001	2.72189
nybdays	nybdays	1	17.73759	2.51872	7.04	<.0001	1.14828
may	may	1	-35.41326	9.28709	-3.81	0.0002	1.24417
nov	nov	1	-33.14789	9.31562	-3.56	0.0005	1.16373
jan04		1	-154.46869	29.95941	-5.16	<.0001	1.08072
feb04		1	113.64412	30.20883	3.76	0.0002	1.09879
jun04		1	-94.64540	29.68099	-3.19	0.0018	1.06073
jun05		1	-114.04842	29.13289	-3.91	0.0001	1.02192

Model: UPNY Commercial Energy, COM (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_c k_10_c

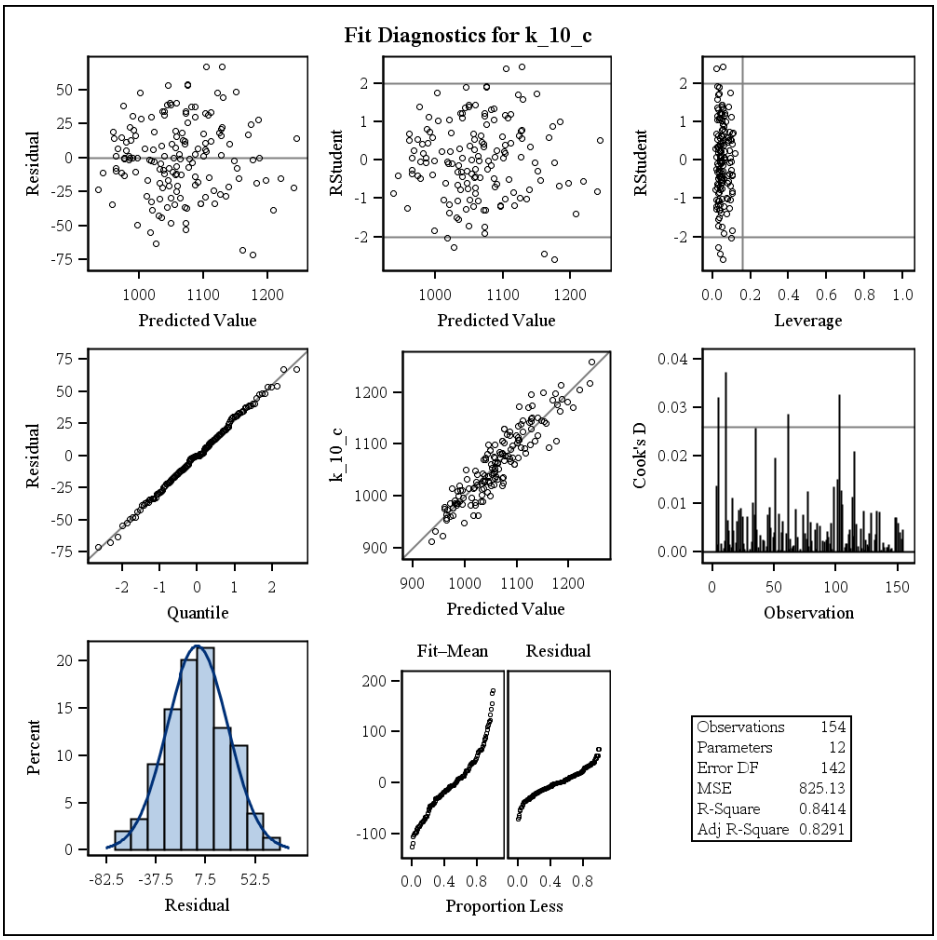
Test of First and Second Moment Specification		
DF	**Chi-Square**	**Pr > ChiSq**
40	30.04	0.8740

Durbin-Watson D	2.175
Number of Observations	154
1st Order Autocorrelation	-0.091

12:52 Friday, March 24, 2017 **17**

Model: UPNY Commercial Energy, COM (Est.Period: Jan2004 to Oct2016)

The REG Procedure
Model: MODEL1



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Model: UPNY Industrial Energy, IND (Est.Period: Jan2005 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_i k_10_i

Number of Observations Read	372
Number of Observations Used	142
Number of Observations with Missing Values	230

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	12	1895974	157998	69.57	<.0001
Error	129	292964	2271.03633		
Corrected Total	141	2188938			

Root MSE	47.65539	**R-Square**	0.8662
Dependent Mean	797.71432	**Adj R-Sq**	0.8537
Coeff Var	5.97399		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	440.06633	55.64177	7.91	<.0001	0
IDX_empl_manuf	IDX_empl_manuf	1	3.30560	0.53262	6.21	<.0001	1.04572
cdd_10	cdd_10	1	0.25362	0.05198	4.88	<.0001	1.15794
jul10		1	-180.53819	48.88282	-3.69	0.0003	1.04477
aug10		1	197.80589	49.12182	4.03	<.0001	1.05501
aug11		1	-873.15631	49.34064	-17.70	<.0001	1.06443
sep11		1	802.94023	48.11139	16.69	<.0001	1.01205
nov11		1	-169.48023	48.01220	-3.53	0.0006	1.00788
apr12		1	-244.57602	48.01114	-5.09	<.0001	1.00784
may12		1	213.73360	47.96962	4.46	<.0001	1.00610
apr14		1	236.07737	47.97539	4.92	<.0001	1.00634
may15		1	-227.55129	47.90433	-4.75	<.0001	1.00336
jun15		1	276.48517	47.95154	5.77	<.0001	1.00534

Model: UPNY Industrial Energy, IND (Est.Period: Jan2005 to Oct2016)

The REG Procedure
Model: MODEL1
Dependent Variable: k_10_i k_10_i

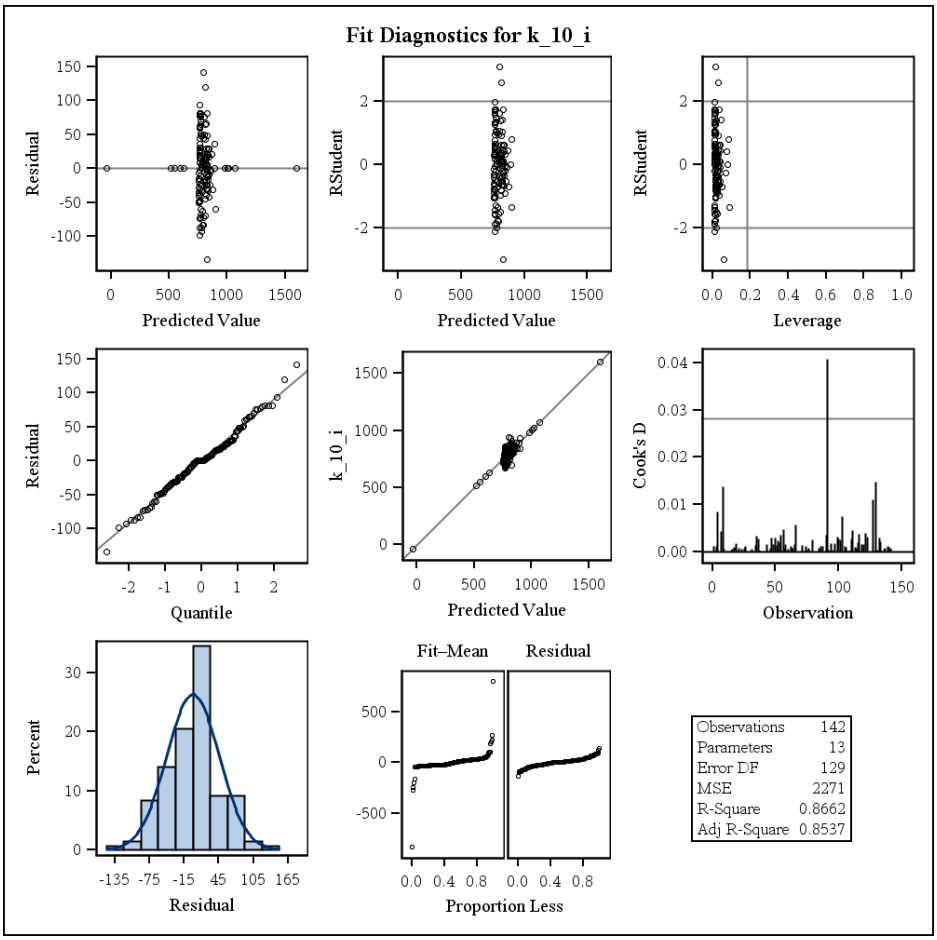
Test of First and Second Moment Specification		
DF	**Chi-Square**	**Pr > ChiSq**
19	22.46	0.2618

Durbin-Watson D	1.576
Number of Observations	142
1st Order Autocorrelation	0.211

12:52 Friday, March 24, 2017 **16**

Model: UPNY Industrial Energy, IND (Est.Period: Jan2005 to Oct2016)

The REG Procedure
Model: MODEL1



Model: UPNY Residential Customer Counts, RES (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Dependent Variable	c_10_r
	c_10_r

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Model: UPNY Residential Customer Counts, RES (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	656817109	**DFE**	150
MSE	4378781	**Root MSE**	2093
SBC	2808.13927	**AIC**	2795.99146
MAE	1768.26399	**AICC**	2796.25991
MAPE	0.12131899	**HQC**	2800.92587
Durbin-Watson	0.3001	**Regress R-Square**	0.9968
		Total R-Square	0.9968

Tests for ARCH Disturbances Based on OLS Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	168.7604	<.0001	66.9675	<.0001
2	221.2068	<.0001	68.2713	<.0001
3	235.0056	<.0001	68.2733	<.0001
4	235.2069	<.0001	69.6652	<.0001
5	235.2638	<.0001	70.5221	<.0001
6	235.4031	<.0001	70.7979	<.0001
7	235.4337	<.0001	71.1494	<.0001
8	237.8901	<.0001	72.4282	<.0001
9	241.7490	<.0001	72.4303	<.0001
10	246.7430	<.0001	72.5637	<.0001
11	247.3440	<.0001	73.7902	<.0001
12	250.0938	<.0001	74.8032	<.0001

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	1418359	462.4402	3067.12	<.0001	
time_trend	1	4024	45.6123	88.22	<.0001	time_trend
Jun12	1	280068	2102	133.27	<.0001	
Jul12	1	285881	2102	136.02	<.0001	

Model: UPNY Residential Customer Counts, RES (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Estimates of Autocorrelations			
Lag	**Covariance**	**Correlation**	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	4265046	1.000000	|**********|
1	3573600	0.837881	|**********

Preliminary MSE	1270795

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.837881	0.044718	-18.74

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Model: UPNY Residential Customer Counts, RES (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Yule-Walker Estimates			
SSE	176498574	**DFE**	149
MSE	1184554	**Root MSE**	1088
SBC	2612.01674	**AIC**	2596.83197
MAE	894.344947	**AICC**	2597.23738
MAPE	0.06142527	**HQC**	2602.99999
Durbin-Watson	1.0181	**Regress R-Square**	0.9988
		Total R-Square	0.9991

Tests for ARCH Disturbances Based on Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	2.1645	0.1412	0.8131	0.3672
2	11.1639	0.0038	4.5408	0.1033
3	20.9051	0.0001	7.0751	0.0695
4	25.5471	<.0001	8.6693	0.0699
5	26.0607	<.0001	8.6921	0.1220
6	30.6252	<.0001	9.1971	0.1628
7	50.8696	<.0001	15.4058	0.0311
8	53.8024	<.0001	16.7006	0.0334
9	79.2783	<.0001	20.5945	0.0146
10	84.9776	<.0001	21.0592	0.0207
11	85.8212	<.0001	21.2112	0.0312
12	109.7585	<.0001	26.1132	0.0103

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	1418454	1358	1044.37	<.0001	
time_trend	1	4030	132.4996	30.41	<.0001	time_trend
Jun12	1	282377	958.5856	294.58	<.0001	
Jul12	1	287803	958.5866	300.24	<.0001	

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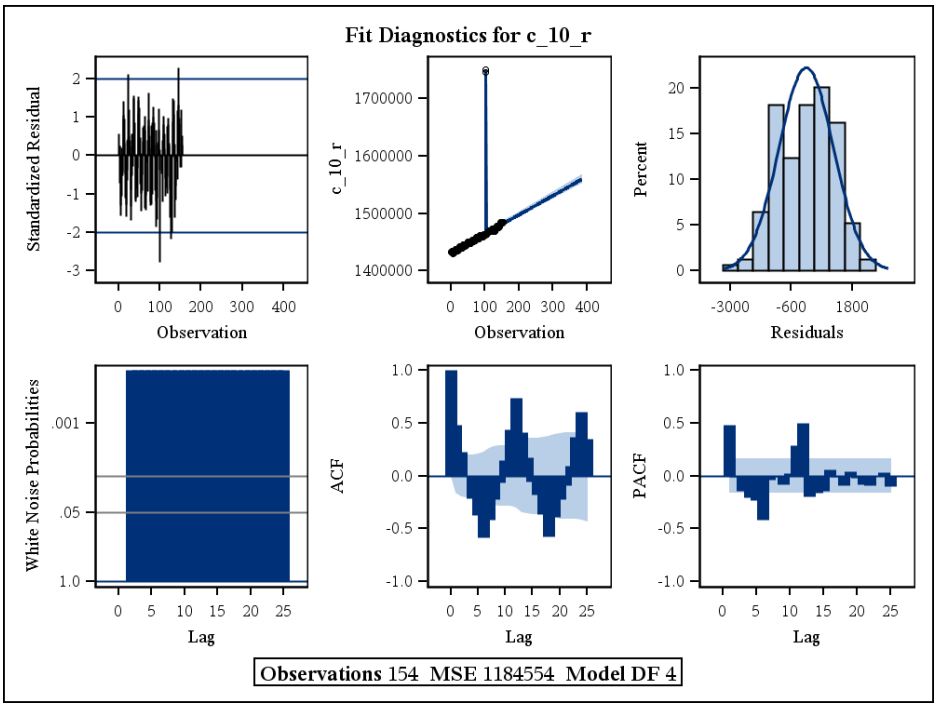
Model: UPNY Residential Customer Counts, RES (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure



Model: UPNY Customer Count, COM (Est. Period: Jan2004 to Aug2016)

The AUTOREG Procedure

Dependent Variable	c_10_c
	c_10_c

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Model: UPNY Customer Count, COM (Est. Period: Jan2004 to Aug2016)

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	66319049.2	**DFE**	151
MSE	439199	**Root MSE**	662.72091
SBC	2449.99134	**AIC**	2440.88048
MAE	529.856519	**AICC**	2441.04048
MAPE	0.32453339	**HQC**	2444.58129
Durbin-Watson	0.1249	**Regress R-Square**	0.9198
		Total R-Square	0.9198

Tests for ARCH Disturbances Based on OLS Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	273.2838	<.0001	111.1576	<.0001
2	396.8728	<.0001	122.2819	<.0001
3	440.3207	<.0001	123.8470	<.0001
4	456.4603	<.0001	123.8941	<.0001
5	461.6269	<.0001	124.7832	<.0001
6	462.9992	<.0001	125.3652	<.0001
7	465.1225	<.0001	126.3746	<.0001
8	473.8970	<.0001	126.3781	<.0001
9	491.1310	<.0001	126.4068	<.0001
10	510.8239	<.0001	126.5162	<.0001
11	528.4505	<.0001	126.5175	<.0001
12	541.0883	<.0001	126.8263	<.0001

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	157931	146.4429	1078.45	<.0001	
time_trend	1	585.7700	14.4299	40.59	<.0001	time_trend
jun12	1	4918	665.5441	7.39	<.0001	

Model: UPNY Customer Count, COM (Est. Period: Jan2004 to Aug2016)

The AUTOREG Procedure

Estimates of Autocorrelations			
Lag	**Covariance**	**Correlation**	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	430643	1.000000	|**********|
1	395418	0.918202	|********* |

Preliminary MSE	67569.7

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.918202	0.032342	-28.39

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Model: UPNY Customer Count, COM (Est. Period: Jan2004 to Aug2016)

The AUTOREG Procedure

Yule-Walker Estimates			
SSE	8161088.81	**DFE**	150
MSE	54407	**Root MSE**	233.25364
SBC	2134.23507	**AIC**	2122.08726
MAE	149.617568	**AICC**	2122.35572
MAPE	0.09156439	**HQC**	2127.02167
Durbin-Watson	1.1535	**Regress R-Square**	0.8702
		Total R-Square	0.9901

Tests for ARCH Disturbances Based on Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	1.4734	0.2248	0.5862	0.4439
2	1.9813	0.3713	0.8298	0.6604
3	2.0605	0.5599	0.8894	0.8280
4	2.0932	0.7186	0.9136	0.9226
5	2.1193	0.8324	0.9175	0.9689
6	2.1196	0.9084	0.9178	0.9885
7	2.3397	0.9387	0.9996	0.9948
8	2.4540	0.9638	1.0235	0.9981
9	2.5204	0.9803	1.0558	0.9993
10	2.5276	0.9905	1.0579	0.9998
11	2.6811	0.9943	1.1051	0.9999
12	2.6824	0.9974	1.1056	1.0000

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	157401	524.8254	299.91	<.0001	
time_trend	1	644.2227	50.6341	12.72	<.0001	time_trend
jun12	1	4986	171.8146	29.02	<.0001	

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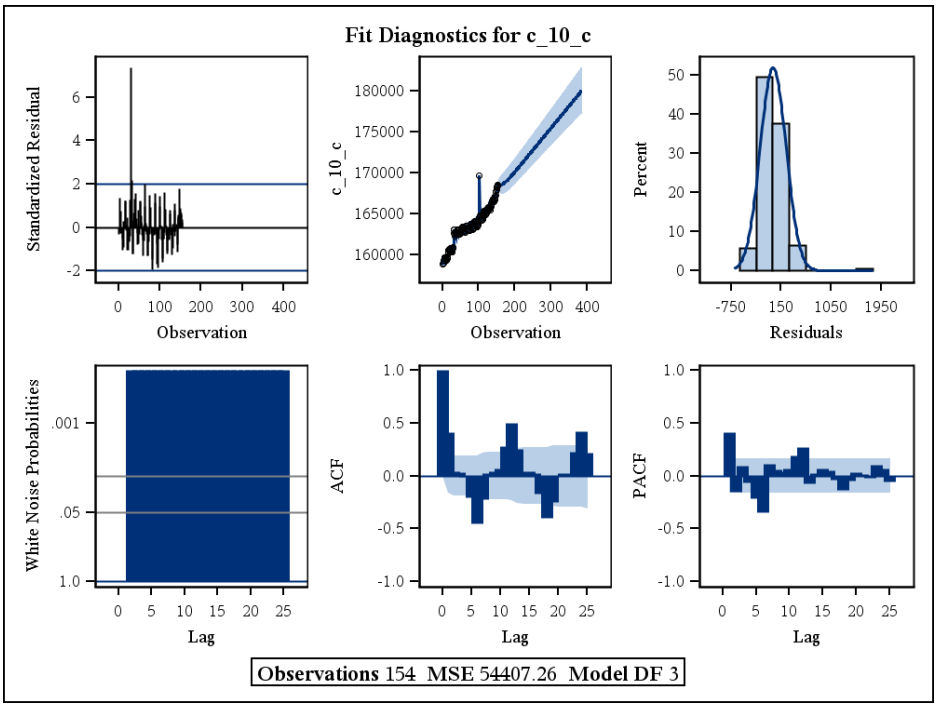
Model: UPNY Customer Count, COM (Est. Period: Jan2004 to Aug2016)

The AUTOREG Procedure



12:52 Friday, March 24, 2017 **1**

Model: UPNY Commercial Customer Count, IND (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Dependent Variable	c_10_i
	c_10_i

12:52 Friday, March 24, 2017 2

Model: UPNY Commercial Customer Count, IND (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	148634.218	**DFE**	152
MSE	977.85670	**Root MSE**	31.27070
SBC	1505.4398	**AIC**	1499.36589
MAE	17.035824	**AICC**	1499.44536
MAPE	1.01621887	**HQC**	1501.8331
Durbin-Watson	0.3325	**Regress R-Square**	0.7403
		Total R-Square	0.7403

Tests for ARCH Disturbances Based on OLS Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	212.0429	<.0001	84.5085	<.0001
2	338.9054	<.0001	84.7072	<.0001
3	414.9351	<.0001	84.7090	<.0001
4	490.1611	<.0001	87.9777	<.0001
5	555.5985	<.0001	88.0051	<.0001
6	603.0504	<.0001	88.1449	<.0001
7	646.6250	<.0001	89.1303	<.0001
8	667.3049	<.0001	91.4424	<.0001
9	678.4528	<.0001	91.5345	<.0001
10	678.9469	<.0001	93.7269	<.0001
11	679.8770	<.0001	94.4046	<.0001
12	681.1691	<.0001	94.4389	<.0001

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	1793	6.9095	259.53	<.0001	
time_trend	1	-14.1579	0.6802	-20.81	<.0001	time_trend

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Model: UPNY Commercial Customer Count, IND (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Estimates of Autocorrelations			
Lag	**Covariance**	**Correlation**	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	965.2	1.000000	||********************|
1	804.3	0.833290	||***************** |

Preliminary MSE	295.0

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.833290	0.044989	-18.52

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Model: UPNY Commercial Customer Count, IND (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure

Yule-Walker Estimates			
SSE	45327.0773	**DFE**	151
MSE	300.17932	**Root MSE**	17.32568
SBC	1328.77423	**AIC**	1319.66337
MAE	5.59856345	**AICC**	1319.82337
MAPE	0.33388609	**HQC**	1323.36418
Durbin-Watson	2.0005	**Regress R-Square**	0.2444
		Total R-Square	0.9208

Tests for ARCH Disturbances Based on Residuals				
Order	**Q**	**Pr > Q**	**LM**	**Pr > LM**
1	1.4685	0.2256	0.5864	0.4438
2	2.6555	0.2651	0.9998	0.6066
3	3.9514	0.2668	1.4120	0.7027
4	3.9684	0.4103	1.4486	0.8357
5	3.9886	0.5511	1.4680	0.9167
6	4.0162	0.6745	1.4783	0.9609
7	4.1046	0.7677	1.5229	0.9815
8	4.7817	0.7806	1.7779	0.9871
9	4.8648	0.8459	1.7806	0.9945
10	46.5660	<.0001	17.2097	0.0699
11	46.6178	<.0001	17.7217	0.0883
12	46.6745	<.0001	17.9813	0.1163

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	1795	21.0840	85.16	<.0001	
time_trend	1	-14.3799	2.0574	-6.99	<.0001	time_trend

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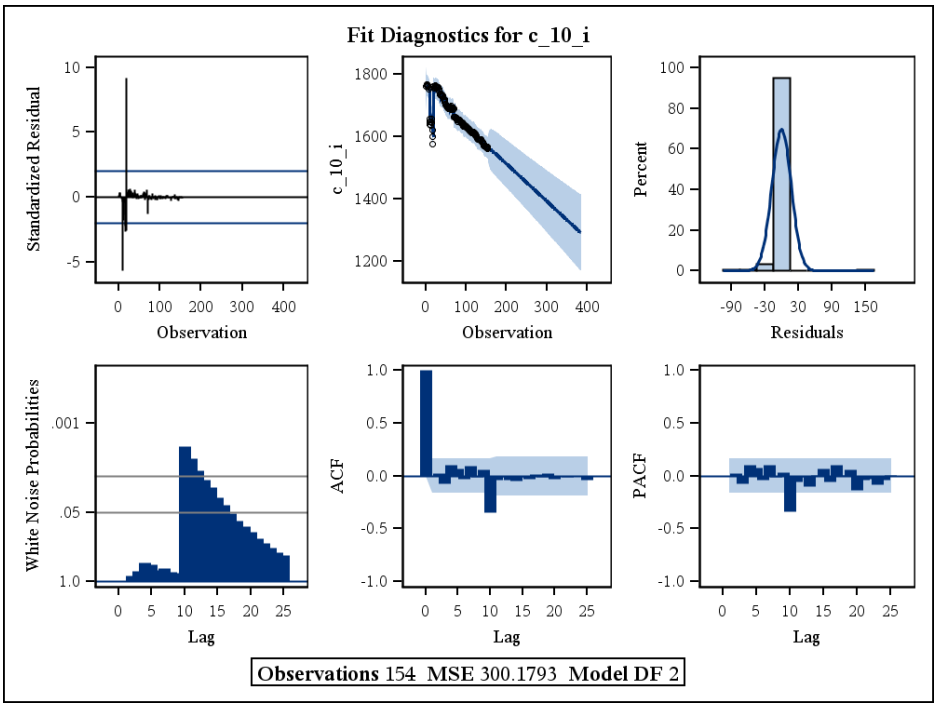
Model: UPNY Commercial Customer Count, IND (Est.Period: Jan2004 to Oct2016)

The AUTOREG Procedure



Testimony of
Theodore E. Poe Jr.

Before the New York State Public Service Commission

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Direct Testimony

of

Theodore Poe, Jr.

Dated: April 28, 2017

Testimony of Theodore Poe, Jr.

Table of Contents

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Theodore Poe, Jr. and my business address is 40 Sylvan Road, Waltham, Massachusetts 02451.

Q. By whom are you employed and in what capacity?

A. I am employed by National Grid USA Service Company, Inc., a subsidiary of National Grid USA ("National Grid"), as the Manager of Gas Load Forecasting and Analysis. I am responsible for supervising the development of the gas load forecasts for National Grid's gas utilities, including Niagara Mohawk Power Corporation d/b/a National Grid ("Niagara Mohawk" or "Company").

Q. Please describe your educational background and experience.

A. I graduated from the Massachusetts Institute of Technology in 1978 with a Bachelor of Science degree in Geology. From 1981 to 1989, I worked as a Research Associate with Jensen Associates, Inc. of Boston where I was responsible for developing a variety of computer forecasting models to analyze natural gas supply and demand for interstate pipeline and local distribution companies. Upon accepting employment with Boston Gas Company in 1989, I was responsible for modeling and forecasting the natural gas resource requirements of the company's customers and managing its resource-planning process. In 1998 and 1999, I undertook the same responsibility for Essex Gas Company and Colonial Gas Company, respectively. In 2000, I assumed

responsibility for modeling and forecasting the natural gas resource requirements of The Brooklyn Union Gas Company d/b/a National Grid NY ("KEDNY") and KeySpan Gas East Corporation d/b/a National Grid ("KEDLI"). In 2008, I assumed the additional responsibility for modeling and forecasting the natural gas resource requirements of The Narragansett Electric Company, as well as Niagara Mohawk.

Q. Are you a member of any professional organizations?

A. I am a member of the Northeast Gas Association, the New England-Canada Business Council, and the American Meteorological Society.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide historic and forecast customer and customer demand data used by the Company to prepare the forecast of gas revenues and gas costs for the twelve months ending March 31, 2019 ("Rate Year"). The data includes historic data through September 2016 and forecast data for the Rate Year and the following two years ending March 31, 2020 and March 31, 2021 ("Data Year 1" and "Data Year 2," respectively).

Q. Are you sponsoring any exhibits as part of your testimony?

A. Yes. I am sponsoring the following exhibits that were prepared by me or under my direct supervision:

Exhibit	Description
Exhibit _ (TEP-1)	Fiscal Year Deliveries by Service and Revenue Class for the Period April 2012 – March 2017 (Fiscal Year ("FY")13 – FY17)
Exhibit _ (TEP-2)	Average Annual Fiscal Year Use-Per-Customer Based on Total Residential Deliveries for the Historical Period FY13 – FY17 and the Forecast Period FY18 – FY21
Exhibit _ (TEP-3)	End of Fiscal Year Customer Count by Service and Revenue Class for the Period FY13 – FY17
Exhibit _ (TEP-4)	Forecast Fiscal Year Deliveries by Service and Revenue Class for the Period FY17 – FY21
Exhibit _ (TEP-5)	Forecast End of Fiscal Year Customer Count by Service and Revenue Class for the Period FY17 – FY21
Exhibit _ (TEP-6)	Historical and Projected Economic Indicators
Exhibit _ (TEP-7)	Historical Actual Deliveries by Service and Revenue Class for the Period April 2012 – March 2017 (monthly)
Exhibit _ (TEP-8)	Historical Weather Normalized Billed Sales Data by Service and Revenue Class for the Period April 2012 – March 2017 (monthly)
Exhibit _ (TEP-9)	Historical Actual Customer Count by Service and Revenue Class for the Period April 2012 – March 2017 (monthly)
Exhibit _ (TEP-10)	Delivery Forecast Model Specifications
Exhibit _ (TEP-11)	Thirty-Year Mean Heating Degree Days (July 1986 – June 2016)
Exhibit _ (TEP-12)	Fiscal Year Actual Use Per Customer by Service and Revenue Class for the Period FY13 – FY17
Exhibit _ (TEP-13)	Fiscal Year Normalized Use Per Customer by Service and Revenue Class for the Period FY13 – FY17
Exhibit _ (TEP-14)	Forecast Fiscal Year Use Per Customer by Service and Revenue Class for the Period FY17 – FY21

III. Overview of the Company's Retail Gas Market

Q. What were the Company's historic gas deliveries from FY2013 through FY2017 as shown in Exhibit __ (TEP-1)?

A. Actual retail gas deliveries have ranged from 1.625 billion therms to 1.835 billion therms to all customers (Exhibit ___ (TEP-1)). Retail refers to gas delivered and metered at the customers' burner tips, while wholesale refers to metered gas

received and flowing into the Company's distribution system. The range in volumes of actual retail gas deliveries was primarily driven by fluctuations in the weather such as the prolonged cold experienced in the winters of 2013-2014 and 2014-2015 and the abnormally warm winter of 2015-2016.

On a weather-normalized basis, retail gas deliveries to all customers have grown at a compound annual growth rate of 1.7 percent per annum from 1.643 billion therms in FY2013 to 1.755 billion therms in FY 2017 (Exhibit ___ (TEP-8)). This growth reflects continued recovery from the 2007-2009 recession and the decrease in domestic natural gas prices. Historic actual billed sales by month and by class for FYs 2013 – 2017 are provided in Exhibit ___ (TEP-7). Historic weather-normalized billed sales by month and by class for FYs 2013 – 2017 are provided in Exhibit ___ (TEP-8).

Q. What was the Company's historic number of customers from FY 2013 through FY 2017, as shown in Exhibit _ (TEP-3)?

A. As shown in Exhibit ___ (TEP-3), the total number of customers has grown at a compound average net growth rate of 0.9 percent from 595,025 at the end of FY 2013 to a projected 616,477 at the end of FY 2017, or an average annual addition of 5,363 customers per year. Historic customer counts by month and by class are provided in Exhibit ___ (TEP-9).

IV. Gas Delivery Forecast

Q. Please describe the Company's individual service and revenue classes.

A. The Company's tariff (PSC No. 219 Gas) includes the following service classifications: SC1, SC2, SC3, SC4, SC5, SC6, SC7, SC8, SC9, SC10, SC12, SC13, and SC14. The Company also has an SC11 service class that sets forth the terms and conditions that apply to other service classes for load aggregation and balancing services under the Company's retail choice and transportation programs.

Within certain service classifications, there are distinct revenue classes. These revenue classes are Residential Non-Heat, Residential Heat, Commercial Non-Heat, Commercial Heat, and Industrial. For these revenue classes, the Company developed forecasts at the rate code level. For example, for the Residential heating class, there are separate forecasts for SC1 Residential Heat, SC1 Residential Heat Monthly Balancing, SC2 Residential Heat, and SC2 Residential Heat Monthly Balancing.

In addition to the distinct revenue classes named above, there are five other special categories that are forecast: deliveries to New York State Electric and Gas Corporation ("NYSEG") under the Mechanicsville SC9 contract, sales of natural gas for vehicular use under SC10, SC12 distributed generation ("DG") sales, SC13 sales to Residential DG customers, and SC14 transportation.

Q. Please explain how the Company prepared its gas delivery forecast.

A. The Company prepared its gas delivery forecast using econometric/statistical forecast models developed for two geographic regions ("East Gate" and "West Gate") and six major groupings of its rate classes ("Customer Groups"). The Company's West Gate region is the area west of Amsterdam and includes Syracuse and Watertown. The Company's East Gate region includes Amsterdam and the area east of Amsterdam, as well as municipalities such as Albany, Schenectady, and Troy. The forecasts were based on historic billing data from April 2006 through September 2016. Two different models were used for each combination: (1) a model to forecast the number of customers; and (2) a model to forecast use-per-customer.

In the number of customer (meter count) models, the independent variables are a combination of time trends and economic variables such as population, households, employment, and gross domestic product ("GDP"). In the models calculating use-per-customer, the independent variables are a combination of time trends, heating degree days, and economic variables such as GDP.

The Company performed econometric forecasts of meter counts and use-per-customer to derive its volume forecast. The input data for the volume forecast included monthly meter count and volume data from the Company's billing system disaggregated into 38 internal rate codes covering 13 Service Classifications (SC1 - SC14, there being no customers in the SC11 class).

For econometric regression analysis, the Company used monthly historic division-specific economic and gas and oil price data from Moody's (publication date: November 2016) and the U.S. Department of Energy ("DOE"), Energy Information Administration "EIA"). The independent variables tested for modeling include:

Table 1 – Independent Variables

Economic Variable	Definition
CONST	Employment: Construction (Ths.)
MFG	Employment: Manufacturing (Ths.)
EMPL	Employment: Total Nonfarm Payroll (Ths.)
GDP	Gross Product: Total (Mil. Chained 2009 $)
HH	Number of Households: Total (Ths.)
POP	Total Population (Ths.)
RETSALES	Total Retail Sales (Mil $2009)
INCOME	Income: Total Personal (Mil. $2005)
ICP	Income: Per Capita ($2009)
NONMFG	Non-Manufacturing Employment
HSTOCK	Housing Stock: Total (Ths. of units)
NGPRCR	Natural Gas Residential Price
NGPRCC	Price of Natural Gas Sold to Commercial Consumers
OILPRCR	No 2 Distillate Residential Price by All Sellers
OILPRCC	No 2 Distillate Commercial Price by All Sellers
GORR	Natural Gas and Oil Ratio for Residential sector
GORC	Natural Gas and Oil Ratio for Commercial sector
BDD	Billing Degree Days

For weather data, the Company used the arithmetic average heating degree day ("HDD") data for the Albany ("KALB") and Syracuse ("KSYR") weather stations provided by its weather services vendor, Weather Services International.

The Company performed a two-level hierarchical econometric forecast of meter counts and use-per-customer to derive its volume forecast. For each geographic

region, the Company analyzed meter count and use-per-customer for six major retail Customer Groups:

Table 2 – Customer Groups

Customer Group	Service Classification(s)
Residential ("RES")	All SC1 and SC2 Residential data, including SC13 RES DG
Commercial/Industrial (C/I)	All non-residential SC2 and SC3 data
Large Volume Accounts ("LARGE")	SC5, SC6, SC8, SC9, and SC14
Distributed Generation ("DG")	SC12
Natural Gas Vehicles ("NGV")	SC10
Interruptible ("IT")	SC4

Although the models are all developed in the Company's Excel spreadsheet, it was necessary for the Company to perform one step outside of Excel. The Company used the "stl" package in the R programming language to disaggregate its Customer Group-level time series data into seasonal, trend, and residual components using LOESS regression analysis. This approach is used because the monthly Company meter count and use-per-customer data contain both short-term oscillations as well as long-term trends, and the Company's forecast began by testing econometric models of the long-term trends from the "stl" analysis. If the trend models were successful, then seasonality is restored to the forecast data from the seasonality component of the "stl" analysis.

After completing its Customer Group-level modeling and forecasting of meter count and use-per-customer, the Company performed a disaggregation of its Customer Group-level forecasts to the level of its internal rate codes (leaf-level). This leaf-level forecast allows the Company to aggregate the data to the Service

Classification level for presentation and for use in its associated wholesale forecast for each geographic region. The total gas delivery forecast is the result of customer count forecasts multiplied by use-per-customer forecasts that are modeled separately.

Q. Please describe how you derived the customer count forecast.

A. The Company first forecasts meter counts, using linear regression analysis of the trend component of historical meter counts as a function of economic and demographic variables. This provides meter count forecasts for the six Customer Groups reflecting the long-term trends.

For its Residential meter count regression analysis, the Company tested the employment, GDP, household/population, personal income, price (gas and oil), and time variables to choose the most appropriate variable(s). For all other meter count regression analyses, the Company tested the employment, GDP, household/population, retail sales, personal income, price (gas and oil), and time variables to choose the most appropriate causative variable(s).

The monthly variation of the seasonal component was then added to the forecast meter count trend. The monthly results of these meter count forecasts were then allocated to the internal rate code level by allocating the forecast monthly change in meter counts at the Customer Group level to the internal rate codes that belong to the Customer Group. The meter count forecast is then converted to a customer

count forecast based on the average number of meters per customer per internal rate code.

The meter count models for each Customer Group and the data used to derive them are described in more detail below. Details regarding the customer count modeling are provided in Exhibit ___ (TEP-10), page one of two.

Q. Please describe the derivation of the use-per-customer forecast.

A. The historic monthly use-per-customer values are obtained by dividing the total billed therms for each month by the number of billed meters for the month.

The Company's use-per-customer data for the six Customer Groups contain both long-term trends and annual variability that reflect the seasonality of usage. For modeling purposes, the Company uses its use-per-customer data as a function primarily of weather. Other independent variables (*e.g.*, economic and demographic variables, natural gas prices) were then tested for goodness-of-fit of the equations to the data.

For its Residential use-per-customer regression analysis, the Company tested the employment, personal income, gas price, and billing degree day variables to choose the most appropriate variable(s). For all other use-per-customer regression analysis, the Company tested the employment, GDP, retail sales, gas

price, and billing degree day variables to choose the most appropriate causative variable(s).

The monthly results of these use-per-customer forecasts were then allocated to the internal rate code level based on the meter count forecast and the normalized use-per-customer by internal rate code from the most recent 12 months.

The use-per-customer models for each Customer Group and the data used to derive them are described in more detail below. Details regarding the use-per-customer modeling are provided in Exhibit ___ (TEP-10), page two of two.

Q. How is the weather variable in the models determined?

A. Weather is a fundamental variable in modeling the natural gas requirements of the Company's customers. The Company uses gas day (10am – 9am) HDD based on temperature observations from two weather stations: KSYR and KALB. For both its East Gate and West Gate modeling, the Company uses the arithmetic average of the two weather stations. For its forecast, as shown in Exhibit ___ (TEP-11), the Company defined its normal HDD based on a thirty-year average of the period from July 1986 to June 2016 as 6,498 HDD.

Q. Please explain how the Company adjusted the initial forecast to reflect additional efficiency gains resulting from the energy efficiency programs sponsored by the Company and the New York State Energy and Research Development Authority ("NYSERDA").

A. The Company's volume forecasts are based on models of meter count and use-per-customer developed for Residential and Commercial/Industrial ("C/I") rate classes. The dependent use-per-customer variable in the Company's load forecast models is the quotient of historic sales data divided by historic meter count. The Company's historic sales data includes the impact of actual energy efficiency savings from both NYSERDA- and Company-sponsored energy efficiency programs. Because the forecast includes this historic trend in load reduction from energy efficiency penetration, no further adjustments were made to the forecasts to reflect additional energy efficiency reductions.

Q. Please explain how the forecasts were adjusted for initiatives in the Company's service territory that could impact the amount of natural gas consumed during the Rate Years and Data Years.

A. While the Company is proposing several initiatives in the testimony of the Gas Customer Panel, the Company has determined that no further adjustments to its forecast should be made due to the preliminary nature of these initiatives.

Q. Please describe the annual forecast deliveries and the year-end customer count forecast.

A. As shown in Exhibit ___ (TEP-4), the Company's forecast of normalized retail gas deliveries is 1.724 billion therms in FY 2017, rising to 1.793 billion therms in FY 2021. Natural gas deliveries are projected to increase by 17.128 million therms per year or a compound average annual growth rate of 1.0 percent per annum.

Q. Please summarize Moody's economic forecast for Upstate New York, which underlies the economic delivery forecast.

A. For Niagara Mohawk's East Gate region, population is projected to increase by 0.19 percent per annum over the period FY 2017-2021, slightly higher than the 0.15 percent per annum growth rate over the period FY 2013-2017. The number of households is projected to increase by 0.53 percent per annum over the period FY 2017-2021, slightly higher than the 0.51 percent per annum growth rate over the period FY 2013-2017. The per capita personal income (in 2005 dollars) is projected to increase by 2.35 percent per annum over the period FY 2017-2021, slightly higher than the 2.22 percent per annum growth rate over the period FY 2013-2017. After growing 8.51 percent per annum over the period FY 2013-2017, the residential natural gas-to-oil price ratio is forecast to moderate to 3.08 percent per annum over the period FY 2017-2021 (Exhibit ___ (TEP-6), page three of six).

For Niagara Mohawk's West Gate, population is projected to decrease by 0.21 percent per annum over the period FY 2017-2021, slightly lower than the 0.23

percent per annum negative growth rate over the period FY 2013-2017. The number of households is projected to increase by 0.21 percent per annum over the period FY 2017-2021, slightly higher than the 0.19 percent per annum growth rate over the period FY 2013-2017. The per capita personal income (in 2005 dollars) is projected to increase by 2.20 percent per annum over the period FY 2017-2021, slightly higher than the 1.86 percent per annum growth rate over the period FY 2013-2017. After growing 8.51 percent per annum over the period FY 2013-2017, the residential natural gas-to-oil price ratio is forecast to moderate to 3.08 percent per annum over the period FY 2017-2021 (Exhibit ___ (TEP-6), page six of six).

V. Modeling and Forecast Summary

Q. Please explain how the Company modeled the Residential customer counts and Dekatherms ("Dth").

A. The Residential class comprises the Company's SC1 and SC2 Residential heating and non-heating customers, along with its SC13 Residential Distributed Generation.

Residential Meter Counts

The Residential classes accounted for 550,071 customers at year end FY 2013, or 92.4 percent of total customers (Exhibit ___ (TEP-3)). The Residential classes are projected to increase to 589,254 customers at year end FY2021 (Exhibit ___ (TEP-5)). Annual meter counts for the Residential classes were modeled

primarily as functions of population and manufacturing employment in the East Gate and as a function of time in the West Gate.

Residential Use per Customer

Residential normalized use-per-customer was 933 therms per year in FY 2013 (Exhibit ___ (TEP-13)). For FY 2021, Residential normalized use-per-customer is projected to decrease to 915 therms per year (Exhibit ___ (TEP-14)).

Use-per-customer for the Residential classes was modeled as a function of HDD for both the East Gate and West Gate. Because of the high correlation between Residential use-per-customer and billing degree days, no other economic variable contributed to improving the model equations. Because this would lead to flat Residential use-per-customer forecasts (on an annual basis under normal weather), the Company also analyzed the time trends of the historic normalized monthly Residential use-per-customer values to see if there were any time trends. Where there were statistically significant changes in the monthly temperature-sensitive use-per-degree-day values, individual months' coefficients were modeled as a function of time.

Residential Volumes

The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the volume delivery forecast presented in Exhibit ___ (TEP-4). Residential volumes alone accounted for 0.513 billion

therms in FY 2013 on a normalized basis, or 31.2 percent of total volume (Exhibit ___ (TEP-8)). By the end of FY 2021, Residential volumes are projected to increase to 0.539 billion therms, 30.1 percent of total volume (Exhibit ___ (TEP-4)).

Q. How were the C/I customer counts and Dth modeled?

A. The C/I class is composed of the Company's SC2 and SC3 C/I customers, along with its SC7 Small Volume Firm Transportation.

C/I Meter Counts

The C/I classes account for 44,686 customers at year end FY 2013, or 7.5 percent of total customers (Exhibit ___ (TEP-3)). Combined, the C/I classes are projected to increase to 46,720 customers at year end FY 2021 (Exhibit ___ (TEP-5)).

The Company found that annual meter counts for the C/I classes were modeled best as a function of employment and personal income in the East Gate and as a function of employment and GDP in the West Gate.

C/I Use per Customer

C/I normalized use-per-customer was 5,999 therms per year in FY2013 (Exhibit ___ (TEP-13)). For FY 2021, C/I normalized use-per-customer is projected to increase to 6,279 therms per year (Exhibit ___ (TEP-14)).

The Company found that use-per-customer for the C/I classes was modeled best as a function of billing degree days and GDP for East Gate and of billing degree days for the West Gate.

C/I Volumes

The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the volume delivery forecast presented in Exhibit ___ (TEP-4). C/I volumes alone accounted for 0.268 billion therms in FY 2013 on a normalized basis, or 16.3 percent of total volume (Exhibit ___ (TEP-8)). By the end of FY 2021, C/I volumes are projected to increase to 0.293 billion therms, or 16.4 percent of total volume (Exhibit ___ (TEP-4)).

Q. Please explain how the Company modeled Large Volume customer counts and Dth.

A. The Large Volume class comprises the Company's SC5, SC6, SC8, SC9, and SC14 customers.

Large Volume Meter Counts

The Large Volume classes account for 248 customers at year end FY 2013, or 0.042 percent of total customers (Exhibit ___ (TEP-3)). Combined, the Large Volume classes are projected to decline to 244 customers at year end FY 2021 (Exhibit ___ (TEP-5)).

Annual meter counts for the Large Volume classes were modeled as function of GDP for both the East Gate and West Gate.

Large Volume Use per Customer

Large Volume normalized use-per-customer was 3,459,792 therms per year in FY 2013 (Exhibit ___ (TEP-13)). For FY 2021, Large Volume normalized use-per-customer is projected to increase to 3,876,997 therms per year (Exhibit ___ (TEP-14)).

Use-per-customer for the Large Volume classes was modeled as a function of billing degree days and time for both the East Gate and West Gate.

Large Volume Volumes

The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the volume delivery forecast presented in Exhibit ___ (TEP-4). Large Volume volumes alone accounted for 0.858 billion therms in FY 2013 on a normalized basis, or 52.2 percent of total volume (Exhibit ___ (TEP-8)). By the end of FY2021, Large Volume volumes are projected to increase to 0.945 billion therms, or 52.8 percent of total volume (Exhibit ___ (TEP-4)).

Q. Please explain how the Company modeled the DG customer counts and Dth?

A. The DG class comprises the Company's SC12 customers.

DG Meter Counts

The DG class accounts for 17 customers at year end FY 2013, or 0.003 percent of total customers (Exhibit ___ (TEP-3)). Combined, the DG class is projected to decline to 14 customers at year end FY 2021 (Exhibit ___ (TEP-5)).

Annual meter counts for the DG classes were modeled as function of GDP for the East Gate and as a function of time for the West Gate.

DG Use per Customer

DG normalized use-per-customer was 225,633 therms per year in FY 2013 (Exhibit ___ (TEP-13)). For FY 2021, DG normalized use-per-customer is projected to increase to 1,048,480 therms per year (Exhibit ___ (TEP-14)).

Use-per-customer for the DG classes was modeled as a function of GDP for the East Gate. For the West Gate, no reliable use-per-customer model was found so the Company used the most-recent twelve monthly use-per-customer values for the forecast period.

DG Volumes

The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the volume delivery forecast presented in Exhibit ___ (TEP-4). DG volumes alone accounted for 0.003 billion therms in FY 2013 on a normalized basis, or 0.2 percent of total volume (Exhibit ___ (TEP-8)). By the end of FY 2021, DG volumes are projected to increase to 0.014 billion therms, or 0.8 percent of total volume (Exhibit ___ (TEP-4)).

Q. How were the Natural Gas Vehicles customer counts and Dth modeled?

A. The Natural Gas Vehicles class comprises the Company's SC10 customers.

Natural Gas Vehicles Meter Counts

The Natural Gas Vehicles class accounts for three customers at year end FY 2013, or 0.001 percent of total customers (Exhibit ___ (TEP-3)). Combined, the Natural Gas Vehicles class is projected to decline to two customers at year end FY 2021 (Exhibit ___ (TEP-5)).

For the East Gate and the West Gate, no reliable model was found for meter counts for the Natural Gas Vehicles class. Accordingly, the Company used the most-recent twelve monthly meter counts for the forecast period.

Natural Gas Vehicles Use per Customer

Natural Gas Vehicles normalized use-per-customer was 21,508 therms per year in FY 2013 (Exhibit ___ (TEP-13)). For FY 2021, Natural Gas Vehicles normalized use-per-customer is projected to increase to 84,889 therms per year (Exhibit ___ (TEP-14)).

Use-per-customer for the Natural Gas Vehicles classes was modeled as a function of time for the East Gate. For the West Gate, no reliable use-per-customer model was found so the Company used the most recent twelve monthly observations for the forecast period.

Natural Gas Vehicles Volumes

The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the volume delivery forecast presented in Exhibit ___ (TEP-4). Natural Gas Vehicles volumes alone accounted for less than 0.001 billion therms in FY 2013 on a normalized basis, or 0.004 percent of total volume (Exhibit ___ (TEP-8)). By the end of FY 2021, Natural Gas Vehicles volumes are projected to remain less than 0.001 billion therms, or 0.009 percent of total volume (Exhibit ___ (TEP-4)).

Q. How were the Interruptible customer counts and Dth modeled?

A. The Interruptible class comprises the Company's SC4 customers. There have been no customers in SC4 for either the East Gate or the West Gate since 2011.

For its meter count forecasts, the Company assumed that meter counts would remain at zero. For its use-per-customer forecasts, the Company assumed that use-per-customer would remain at zero. The results of the customer count forecasts and the use-per-customer forecasts were multiplied together to derive the zero volume delivery forecast.

VI. Conclusion

Q. Does this conclude your testimony?

A. Yes, it does.

Exhibits of
Theodore E. Poe Jr.

Index of Exhibits

Exhibit __ (TEP-13) Fiscal Year Normalized Use Per Customer by Service and Revenue Class for the Period FY13 – FY17

Exhibit __ (TEP-14) Forecast Fiscal Year Use Per Customer by Service and Revenue Class for the Period FY17 – FY21

Exhibit __ (TEP-1)

Fiscal Year Deliveries by Service and Revenue Class for
the Period April 2012 – March 2017 (Fiscal Year ("FY")13 – FY17)

Niagara Mohawk Fiscal Year Deliveries by Service and Revenue Class for the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

	1	2	3	4	5
Class Name	FY2013	FY2014	FY2015	FY2016	FY2017
SC1 Residential Non Heat	11,609,648	13,890,321	14,454,542	6,953,261	4,195,229
SC1 Residential Heat	336,237,166	400,870,655	412,677,774	358,666,511	413,971,116
SC1 MB Residential Non-Heat	3,505,262	3,997,659	3,973,913	1,611,023	681,235
SC1 MB Residential Heat	117,346,751	135,642,038	130,757,154	97,853,648	100,070,679
Total SC1	468,698,827	554,400,673	561,863,382	465,084,444	518,918,260
SC2 Residential Non Heat	53,412	64,900	74,811	30,494	11,679
SC2 Residential Heat	1,398,248	1,847,534	1,889,402	1,543,295	1,710,735
SC2 Commercial Non Heat	3,040,343	3,598,374	3,651,153	3,239,357	3,379,595
SC2 Commercial Heat	79,135,983	95,768,718	98,531,591	83,449,450	99,019,313
SC2 Industrial	1,229,013	1,494,906	1,686,336	1,170,451	1,365,478
SC2 MB Residential Non Heat	34,731	38,966	34,177	12,604	3,393
SC2 MB Residential Heat	796,508	943,954	991,046	883,181	1,006,580
SC2 MB Commercial Non Heat	3,307,647	3,508,299	3,436,964	2,943,186	3,004,658
SC2 MB Commercial Heat	89,529,397	106,095,664	109,576,783	90,985,217	99,911,189
SC2 MB Industrial	10,146,533	997,086	1,097,151	1,150,715	1,307,206
Total SC2	188,671,816	214,358,402	220,969,414	185,407,950	210,719,825
SC3 Commercial Non Heat	67,876	49,967	0	0	0
SC3 Commercial Heat	7,721,827	8,007,045	8,069,571	7,430,376	7,730,378
SC3 Industrial	322,183	325,279	558,081	1,568,965	1,781,929
Total SC3	8,111,887	8,382,291	8,627,651	8,999,341	9,512,306
SC5 Firm Gas Transportation	72,445,557	75,366,983	79,324,453	72,103,173	77,278,003
SC6 Interruptible	87,643,252	87,477,445	76,620,290	79,367,611	74,804,819
SC7 Small Volume Firm Transportation	58,479,276	66,061,024	66,384,373	54,943,872	62,061,447
SC8 Transportation Service with Standby Sales Service	177,637,334	185,192,859	195,765,722	195,804,942	218,553,435
SC9 Negotiated Transportation Service	544,299,587	543,947,667	592,840,028	532,863,626	449,677,201
SC9 NYSEG Transportation	2,462,168	2,917,698	3,042,511	2,464,938	2,773,570
SC10 Natural Gas Vehicles	67,939	84,431	145,132	184,233	194,037
SC11 Load Aggregation Service	0	0	0	0	0
SC12 Distributed Generation	3,795,054	8,889,501	9,939,559	12,794,195	13,149,067
SC13 Residential Distributed Generation	6,055	6,542	4,706	4,182	3,757
Total SC5 - SC13	946,836,221	969,944,150	1,024,066,774	950,530,772	898,495,336
SC14 Dual Fuel Electric Generators	12,705,899	11,910,409	19,207,806	72,309,253	87,126,467
TOTAL	1,625,024,650	1,758,995,925	1,834,735,028	1,682,331,759	1,724,772,194
RES	470,987,782	557,302,569	564,857,523	467,558,200	521,654,404
C/I	252,980,080	285,906,363	292,992,004	246,881,588	279,561,192
LARGE	897,193,796	906,813,061	966,800,810	954,913,543	910,213,495
DG	3,795,054	8,889,501	9,939,559	12,794,195	13,149,067
NGV	67,939	84,431	145,132	184,233	194,037
IT	0	0	0	0	0
Total	1,625,024,650	1,758,995,925	1,834,735,028	1,682,331,759	1,724,772,194

Exhibit __ (TEP-2)

Average Annual Fiscal Year Use-Per-Customer Based on Total Residential Deliveries for the Historical Period FY13 – FY17 and the Forecast Period FY18 – FY21

NMPC Average Annual Fiscal Year Use-per-Customer Based on Total Residential Deliveries
For the Historical Period FY13 - FY17 and the Forecast Period FY18-FY21
(Therms/Customer)

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Normalized Historical Residential UPC	934.10	939.10	936.60	921.52	926.21	#N/A	#N/A	#N/A	#N/A
Forecast Residential UPC	#N/A	#N/A	#N/A	#N/A	#N/A	923.94	921.82	918.92	917.94

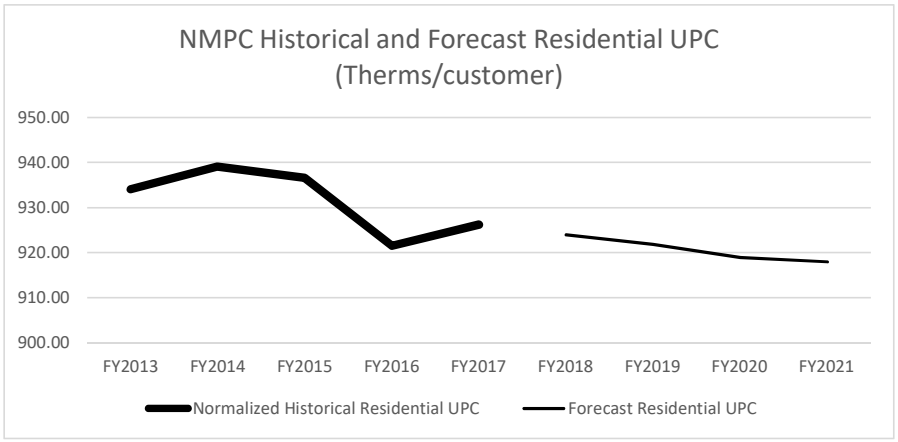


Exhibit__ (TEP-3)

Exhibit __ (JFG-3)

End of Fiscal Year Customer Count by Service and
Revenue Class for the Period FY13 – FY17

Niagara Mohawk End of Fiscal Year Customer Count by Service and Revenue Class for the Period FY2013 - FY2017

Class Name	1 FY2013	2 FY2014	3 FY2015	4 FY2016	5 FY2017	FY13-FY17 Change	FY13-FY17 PA Change	FY13-FY17 PPA Change
SC1 Residential Non Heat	35,129	34,684	35,087	25,065	24,740	-10,389	-2,597	-8.4%
SC1 Residential Heat	381,432	389,440	403,355	429,990	445,152	63,720	15,930	3.9%
SC1 MB Residential Non-Heat	8,545	8,236	7,634	4,274	3,687	-4,858	-1,215	-19.0%
SC1 MB Residential Heat	123,315	120,097	110,991	102,428	94,951	-28,364	-7,091	-6.3%
Total SC1	548,421	552,457	557,067	561,757	568,529	20,108	5,027	0.9%
SC2 Residential Non Heat	119	113	117	91	89	-30	-8	-7.0%
SC2 Residential Heat	1,202	1,210	1,225	1,265	1,320	118	29	2.4%
SC2 Commercial Non Heat	1,361	1,314	1,301	1,331	1,331	-30	-8	-0.6%
SC2 Commercial Heat	24,977	25,212	25,779	26,528	27,514	2,536	634	2.4%
SC2 Industrial	69	67	68	71	78	9	2	3.0%
SC2 MB Residential Non Heat	31	35	32	17	18	-13	-3	-13.0%
SC2 MB Residential Heat	293	294	296	304	300	7	2	0.6%
SC2 MB Commercial Non Heat	828	826	809	752	720	-108	-27	-3.4%
SC2 MB Commercial Heat	16,636	16,646	16,338	16,038	15,502	-1,134	-284	-1.7%
SC2 MB Industrial	63	60	63	71	70	7	2	2.6%
Total SC2	45,580	45,778	46,028	46,468	46,941	1,361	340	0.7%
SC3 Commercial Non Heat	1	0	0	0	0	-1	0	-100.0%
SC3 Commercial Heat	44	45	38	41	36	-8	-2	-5.1%
SC3 Industrial	5	6	6	7	7	2	0	7.2%
Total SC3	50	51	44	48	42	-8	-2	-4.1%
SC5 Firm Gas Transportation	161	161	162	160	158	-3	-1	-0.5%
SC6 Interruptible	20	20	17	17	17	-3	-1	-4.0%
SC7 Small Volume Firm Transportation	701	706	692	702	701	0	0	0.0%
SC8 Transportation Service with Standby Sales Service	60	60	61	59	59	-1	0	-0.4%
SC9 Negotiated Transportation Service	5	5	5	5	5	0	0	0.0%
SC9 NYSEG Transportation	1	1	1	1	1	0	0	0.0%
SC10 Natural Gas Vehicles	3	3	3	3	2	-1	0	-9.6%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0.0%
SC12 Distributed Generation	17	12	8	13	14	-3	-1	-4.7%
SC13 Residential Distributed Generation	5	4	4	4	3	-2	-1	-12.0%
Total SC5 - SC13	973	972	953	964	960	-13	-3	-0.3%
SC14 Dual Fuel Electric Generators	1	1	1	4	4	3	1	41.4%
TOTAL	595,025	599,259	604,093	609,241	616,477	21,452	5,363	0.9%
RES	550,071	554,113	558,741	563,438	570,259	20,188	5,047	0.9%
C/I	44,686	44,883	45,094	45,541	45,958	1,273	318	0.7%
LARGE	248	248	247	246	244	-4	-1	-0.4%
DG	17	12	8	13	14	-3	-1	-4.7%
NGV	3	3	3	3	2	-1	0	-9.6%
IT	0	0	0	0	0	0	0	0.0%
Total	595,025	599,259	604,093	609,241	616,477	21,452	5,363	0.9%
RES	92.445%	92.466%	92.493%	92.482%	92.503%			
C/I	7.510%	7.490%	7.465%	7.475%	7.455%			
LARGE	0.042%	0.041%	0.041%	0.040%	0.040%			
DG	0.003%	0.002%	0.001%	0.002%	0.002%			
NGV	0.001%	0.001%	0.000%	0.000%	0.000%			
IT	0.000%	0.000%	0.000%	0.000%	0.000%			

Exhibit__ (TEP-4)

Exhibit __ (TEP-4)

Forecast Fiscal Year Deliveries by Service and
Revenue Class for the Period FY17 – FY21

Niagara Mohawk Forecast Fiscal Year Deliveries by Service and Revenue Class for the Period FY2017 - FY2021
(Therms)

Class Name	5 FY2017	6 FY2018	7 FY2019	8 FY2020	9 FY2021	FY17-FY21 Change	FY17-FY21 PA Change	FY17-FY21 PPA Change
SC1 Residential Non Heat	4,195,229	4,346,426	4,440,425	4,483,714	4,448,622	253,393	63,348	1.5%
SC1 Residential Heat	413,971,116	426,560,030	434,566,095	442,078,609	452,049,114	38,077,998	9,519,499	2.2%
SC1 MB Residential Non-Heat	681,235	615,458	529,638	449,572	369,559	-311,677	-77,919	-14.2%
SC1 MB Residential Heat	100,070,679	95,607,410	90,773,784	85,626,446	79,081,086	-20,989,592	-5,247,398	-5.7%
Total SC1	518,918,260	527,129,324	530,309,942	532,638,342	535,948,381	17,030,122	4,257,530	0.8%
SC2 Residential Non Heat	11,679	13,049	14,042	14,638	14,434	2,755	689	5.4%
SC2 Residential Heat	1,710,735	1,858,358	2,008,204	2,104,739	2,105,195	394,460	98,615	5.3%
SC2 Commercial Non Heat	3,379,595	3,371,659	3,342,220	3,267,147	3,155,218	-224,377	-56,094	-1.7%
SC2 Commercial Heat	99,019,313	101,092,023	103,481,352	105,370,981	106,198,579	7,179,266	1,794,817	1.8%
SC2 Industrial	1,365,478	1,412,585	1,465,234	1,515,830	1,563,137	197,659	49,415	3.4%
SC2 MB Residential Non Heat	3,393	3,101	2,496	2,154	2,435	-958	-240	-8.0%
SC2 MB Residential Heat	1,006,580	1,016,509	1,025,141	1,026,857	1,018,022	11,442	2,861	0.3%
SC2 MB Commercial Non Heat	3,004,658	2,966,999	3,004,721	3,071,342	3,111,764	107,107	26,777	0.9%
SC2 MB Commercial Heat	99,911,189	99,523,665	100,586,592	101,568,369	101,604,520	1,693,331	423,333	0.4%
SC2 MB Industrial	1,307,206	1,289,892	1,308,788	1,325,397	1,325,319	18,114	4,528	0.3%
Total SC2	210,719,825	212,547,840	216,238,792	219,267,454	220,098,623	9,378,799	2,344,700	1.1%
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0.0%
SC3 Commercial Heat	7,730,378	7,845,959	7,876,391	7,813,909	7,635,243	-95,134	-23,784	-0.3%
SC3 Industrial	1,781,929	1,985,282	2,093,699	2,188,696	2,279,091	497,162	124,291	6.3%
Total SC3	9,512,306	9,831,241	9,970,089	10,002,605	9,914,334	402,028	100,507	1.0%
SC5 Firm Gas Transportation	77,278,003	78,899,964	80,150,830	81,034,431	81,862,546	4,584,543	1,146,136	1.5%
SC6 Interruptible	74,804,819	75,774,595	76,968,229	77,815,911	78,607,110	3,802,291	950,573	1.2%
SC7 Small Volume Firm Transportation	62,061,447	63,346,028	64,251,101	65,450,783	66,483,357	4,421,909	1,105,477	1.7%
SC8 Transportation Service with Standby Sales Service	218,553,435	217,628,668	221,615,999	224,442,991	227,107,555	8,554,120	2,138,530	1.0%
SC9 Negotiated Transportation Service	449,677,201	454,748,868	455,577,927	456,095,788	455,869,066	6,191,865	1,547,966	0.3%
SC9 NYSEG Transportation	2,773,570	2,792,784	2,879,234	2,941,111	3,007,767	234,197	58,549	2.0%
SC10 Natural Gas Vehicles	194,037	157,524	161,609	165,693	169,778	-24,259	-6,065	-3.3%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0.0%
SC12 Distributed Generation	13,149,067	14,164,860	14,281,886	14,596,371	14,678,713	1,529,646	382,412	2.8%
SC13 Residential Distributed Generation	3,757	3,624	3,618	3,607	3,605	-153	-38	-1.0%
Total SC5 - SC13	898,495,336	907,516,915	915,890,433	922,546,688	927,789,497	29,294,161	7,323,540	0.8%
SC14 Dual Fuel Electric Generators	87,126,467	92,461,072	95,383,119	97,470,745	99,533,212	12,406,744	3,101,686	3.4%
TOTAL	1,724,772,194	1,749,486,392	1,767,792,375	1,781,925,833	1,793,284,047	68,511,853	17,127,963	1.0%
RES	521,654,404	530,023,965	533,363,444	535,790,336	539,092,072	17,437,668	4,359,417	0.8%
C/I	279,561,192	282,834,092	287,410,098	291,572,455	293,356,228	13,795,037	3,448,759	1.2%
LARGE	910,213,495	922,305,950	932,575,338	939,800,977	945,987,256	35,773,761	8,943,440	1.0%
DG	13,149,067	14,164,860	14,281,886	14,596,371	14,678,713	1,529,646	382,412	2.8%
NGV	194,037	157,524	161,609	165,693	169,778	-24,259	-6,065	-3.3%
IT	0	0	0	0	0	0	0	0.0%
Total	1,724,772,194	1,749,486,392	1,767,792,375	1,781,925,833	1,793,284,047	68,511,853	17,127,963	1.0%
RES	30.245%	30.296%	30.171%	30.068%	30.062%			
C/I	16.209%	16.167%	16.258%	16.363%	16.359%			
LARGE	52.773%	52.719%	52.754%	52.741%	52.752%			
DG	0.762%	0.810%	0.808%	0.819%	0.819%			
NGV	0.011%	0.009%	0.009%	0.009%	0.009%			
IT	0.000%	0.000%	0.000%	0.000%	0.000%			

Exhibit__ (TEP-5)

Exhibit __ (TEP-5)

Forecast End of Fiscal Year Customer Count by Service and
Revenue Class for the Period FY17 – FY21

Niagara Mohawk Forecast End of Fiscal Year Customer Count by Service and Revenue Class for the Period FY2017 - FY2021

Class Name	5 FY2017	6 FY2018	7 FY2019	8 FY2020	9 FY2021	FY17-FY21 Change	FY17-FY21 PA Change	FY17-FY21 PPA Change
SC1 Residential Non Heat	24,740	25,338	26,025	26,356	26,147	1,407	352	1.4%
SC1 Residential Heat	445,152	454,621	463,818	472,946	484,275	39,123	9,781	2.1%
SC1 MB Residential Non-Heat	3,687	3,222	2,753	2,350	1,918	-1,769	-442	-15.1%
SC1 MB Residential Heat	94,951	90,278	85,809	81,252	74,873	-20,078	-5,020	-5.8%
Total SC1	568,529	573,459	578,405	582,904	587,213	18,684	4,671	0.8%
SC2 Residential Non Heat	89	99	111	118	114	25	6	6.3%
SC2 Residential Heat	1,320	1,425	1,543	1,614	1,607	288	72	5.1%
SC2 Commercial Non Heat	1,331	1,297	1,257	1,207	1,160	-171	-43	-3.4%
SC2 Commercial Heat	27,514	27,801	28,076	28,246	28,410	897	224	0.8%
SC2 Industrial	78	79	81	82	84	6	2	1.9%
SC2 MB Residential Non Heat	18	15	12	11	13	-5	-1	-7.7%
SC2 MB Residential Heat	300	302	305	307	304	4	1	0.4%
SC2 MB Commercial Non Heat	720	718	720	733	739	19	5	0.6%
SC2 MB Commercial Heat	15,502	15,510	15,516	15,517	15,497	-5	-1	0.0%
SC2 MB Industrial	70	71	71	72	72	2	1	0.8%
Total SC2	46,941	47,319	47,694	47,906	48,001	1,060	265	0.6%
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0.0%
SC3 Commercial Heat	36	34	33	31	29	-7	-2	-5.3%
SC3 Industrial	7	7	8	8	9	2	1	8.0%
Total SC3	42	41	40	39	38	-5	-1	-2.8%
SC5 Firm Gas Transportation	158	158	158	158	158	0	0	0.0%
SC6 Interruptible	17	17	17	17	17	0	0	0.0%
SC7 Small Volume Firm Transportation	701	702	703	710	720	19	5	0.7%
SC8 Transportation Service with Standby Sales Service	59	59	59	59	59	0	0	0.0%
SC9 Negotiated Transportation Service	5	5	5	5	5	0	0	0.0%
SC9 NYSEG Transportation	1	1	1	1	1	0	0	0.0%
SC10 Natural Gas Vehicles	2	2	2	2	2	0	0	0.0%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0.0%
SC12 Distributed Generation	14	14	14	14	14	0	0	0.0%
SC13 Residential Distributed Generation	3	3	3	3	3	0	0	0.0%
Total SC5 - SC13	960	961	962	969	979	19	5	0.5%
SC14 Dual Fuel Electric Generators	4	4	4	4	4	0	0	0.0%
TOTAL	616,477	621,783	627,105	631,822	636,234	19,758	4,939	0.8%
RES	570,259	575,304	580,380	584,956	589,254	18,995	4,749	0.8%
C/I	45,958	46,220	46,465	46,606	46,720	762	191	0.4%
LARGE	244	244	244	244	244	0	0	0.0%
DG	14	14	14	14	14	0	0	0.0%
NGV	2	2	2	2	2	0	0	0.0%
IT	0	0	0	0	0	0	0	0.0%
Total	616,477	621,783	627,105	631,822	636,234	19,758	4,939	0.8%
RES	92.503%	92.525%	92.549%	92.582%	92.616%			
C/I	7.455%	7.433%	7.409%	7.376%	7.343%			
LARGE	0.040%	0.039%	0.039%	0.039%	0.038%			
DG	0.002%	0.002%	0.002%	0.002%	0.002%			
NGV	0.000%	0.000%	0.000%	0.000%	0.000%			
IT	0.000%	0.000%	0.000%	0.000%	0.000%			

Exhibit __ (TEP-6)

Historical and Projected Economic Indicators

Niagara Mohawk Historical and Projected Economic Indicators
East Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Apr-2006	21.66	38.38	551.16	61871.68	452.73	1123.59	44636.01	39726.09	512.78	515.51	17.23	21.46	0.80	15.64	18.49	0.85
May-2006	21.69	38.35	551.37	61925.18	453.14	1124.11	44654.21	39724.13	513.02	515.86	19.59	21.98	0.89	15.93	18.96	0.84
Jun-2006	21.71	38.31	551.53	61973.30	453.53	1124.57	44622.60	39679.54	513.22	516.21	24.93	21.52	1.16	15.58	18.76	0.83
Jul-2006	21.72	38.26	551.62	62015.86	453.89	1124.99	44605.35	39649.71	513.36	516.56	22.65	21.67	1.05	13.89	18.91	0.73
Aug-2006	21.72	38.21	551.65	62053.37	454.22	1125.34	44687.08	39709.67	513.44	516.92	22.45	21.80	1.03	14.69	19.65	0.75
Sep-2006	21.70	38.15	551.63	62085.18	454.53	1125.65	44905.46	39892.96	513.49	517.27	18.72	20.99	0.89	14.06	17.22	0.82
Oct-2006	21.68	38.08	551.58	62112.28	454.82	1125.91	45178.44	40126.13	513.50	517.61	15.74	20.42	0.77	14.19	16.72	0.85
Nov-2006	21.66	38.01	551.52	62135.12	455.10	1126.14	45383.63	40300.21	513.51	517.96	15.81	20.68	0.76	15.72	16.41	0.96
Dec-2006	21.64	37.94	551.46	62154.11	455.36	1126.34	45438.12	40341.35	513.52	518.30	14.68	20.93	0.70	14.86	16.92	0.88
Jan-2007	21.61	37.87	551.42	62169.80	455.64	1126.53	45380.32	40283.38	513.55	518.65	12.72	20.12	0.63	12.96	15.47	0.84
Feb-2007	21.59	37.81	551.42	62181.92	455.90	1126.69	45292.03	40199.02	513.61	518.97	13.88	20.95	0.66	13.81	16.72	0.83
Mar-2007	21.58	37.74	551.47	62191.61	456.17	1126.86	45230.25	40138.27	513.72	519.30	14.63	21.01	0.70	14.31	16.97	0.84
Apr-2007	21.57	37.69	551.59	62199.44	456.47	1127.04	45217.82	40120.98	513.90	519.63	16.48	21.19	0.78	14.93	17.86	0.84
May-2007	21.58	37.63	551.79	62205.49	456.79	1127.23	45271.00	40161.43	514.16	519.96	19.01	21.32	0.89	15.43	17.95	0.86
Jun-2007	21.60	37.59	552.10	62210.17	457.14	1127.44	45389.94	40259.47	514.51	520.29	24.36	21.78	1.12	15.22	18.44	0.83
Jul-2007	21.63	37.56	552.53	62213.79	457.51	1127.67	45542.98	40386.69	514.97	520.61	22.89	22.24	1.03	14.29	18.80	0.76
Aug-2007	21.69	37.53	553.08	62216.22	457.93	1127.95	45685.62	40503.39	515.54	520.93	19.43	21.48	0.90	11.82	18.55	0.64
Sep-2007	21.75	37.51	553.70	62216.68	458.36	1128.24	45780.51	40576.93	516.18	521.25	16.74	22.16	0.76	12.19	19.85	0.61
Oct-2007	21.82	37.49	554.36	62214.48	458.81	1128.56	45844.05	40621.89	516.87	521.55	15.08	23.14	0.65	13.97	20.68	0.68
Nov-2007	21.90	37.47	555.04	62208.90	459.27	1128.89	45905.03	40663.99	517.57	521.85	14.64	25.17	0.58	14.56	22.86	0.64
Dec-2007	21.97	37.44	555.69	62199.14	459.72	1129.23	45985.51	40722.91	518.26	522.15	13.48	25.58	0.53	13.66	22.82	0.60
Jan-2008	22.04	37.39	556.31	62184.49	460.17	1129.58	46090.80	40803.34	518.91	522.44	12.71	26.00	0.49	12.94	22.74	0.57
Feb-2008	22.10	37.33	556.81	62164.72	460.59	1129.93	46212.86	40898.91	519.48	522.71	14.13	26.24	0.54	13.64	23.31	0.59
Mar-2008	22.14	37.25	557.20	62138.69	460.98	1130.27	46335.57	40995.12	519.95	522.98	14.21	28.29	0.50	13.90	26.62	0.52
Apr-2008	22.17	37.14	557.44	62105.41	461.35	1130.61	46394.97	41035.36	520.30	523.24	16.95	29.22	0.58	15.47	28.16	0.55
May-2008	22.17	37.00	557.49	62064.35	461.67	1130.94	46309.25	40947.74	520.50	523.48	21.53	31.32	0.69	18.12	31.21	0.58
Jun-2008	22.15	36.82	557.33	62014.89	461.95	1131.24	46069.58	40724.73	520.51	523.72	28.03	32.86	0.85	19.34	32.44	0.60
Jul-2008	22.10	36.61	556.91	61956.43	462.16	1131.53	45843.12	40514.32	520.30	523.94	29.78	33.58	0.89	21.66	31.92	0.68
Aug-2008	22.01	36.35	556.24	61890.24	462.32	1131.80	45849.26	40510.21	519.88	524.16	24.25	30.38	0.80	17.06	28.18	0.61
Sep-2008	21.90	36.07	555.35	61821.18	462.43	1132.04	46207.48	40818.03	519.28	524.36	19.48	29.22	0.67	15.14	26.30	0.58
Oct-2008	21.77	35.77	554.29	61752.00	462.49	1132.26	46762.24	41299.92	518.53	524.56	15.39	26.18	0.59	14.34	21.85	0.66
Nov-2008	21.62	35.44	553.09	61686.22	462.51	1132.47	47262.32	41733.88	517.65	524.75	14.65	23.78	0.62	14.56	18.52	0.79
Dec-2008	21.46	35.11	551.78	61627.23	462.50	1132.67	47517.22	41951.64	516.67	524.94	14.91	20.90	0.71	15.09	15.52	0.97
Jan-2009	21.28	34.77	550.38	61578.73	462.47	1132.86	47559.18	41981.54	515.61	525.13	13.29	20.55	0.65	13.51	15.89	0.85
Feb-2009	21.11	34.45	549.01	61545.39	462.43	1133.04	47499.09	41921.89	514.56	525.31	13.70	19.75	0.69	13.63	14.50	0.94
Mar-2009	20.94	34.14	547.64	61528.47	462.38	1133.21	47420.87	41846.33	513.51	525.50	13.68	18.81	0.73	13.36	13.93	0.96
Apr-2009	20.77	33.83	546.26	61531.71	462.32	1133.40	47338.02	41766.44	512.44	525.69	13.34	18.81	0.71	11.84	14.18	0.84
May-2009	20.61	33.54	544.96	61559.52	462.27	1133.59	47248.40	41680.46	511.41	525.90	12.78	18.47	0.69	9.33	14.28	0.65
Jun-2009	20.46	33.29	543.76	61615.19	462.23	1133.78	47151.21	41587.56	510.47	526.11	21.02	19.45	1.08	10.69	16.43	0.65
Jul-2009	20.32	33.06	542.70	61701.74	462.22	1133.99	47056.28	41496.32	509.63	526.34	21.05	18.30	1.15	10.73	15.69	0.68
Aug-2009	20.20	32.88	541.77	61818.77	462.22	1134.21	46972.59	41414.52	508.90	526.58	19.61	20.08	0.98	11.02	17.12	0.64
Sep-2009	20.11	32.73	541.00	61957.08	462.25	1134.43	46911.56	41352.60	508.27	526.82	15.14	19.48	0.78	10.52	16.25	0.65
Oct-2009	20.03	32.61	540.36	62111.93	462.30	1134.65	46885.80	41321.64	507.75	527.07	14.42	20.37	0.71	9.59	17.23	0.56
Nov-2009	19.96	32.53	539.83	62276.90	462.37	1134.88	46909.98	41334.69	507.30	527.31	11.91	21.69	0.55	11.60	17.70	0.66
Dec-2009	19.91	32.47	539.39	62445.99	462.46	1135.11	46992.77	41399.45	506.92	527.55	10.70	21.56	0.50	10.68	17.71	0.60
Jan-2010	19.88	32.44	539.04	62614.14	462.58	1135.33	47124.37	41507.24	506.59	527.77	11.16	22.81	0.49	11.18	18.74	0.60
Feb-2010	19.86	32.44	538.77	62766.61	462.71	1135.53	47278.14	41635.24	506.33	527.98	11.33	22.43	0.51	11.03	18.18	0.61
Mar-2010	19.84	32.45	538.55	62905.23	462.86	1135.72	47445.23	41775.35	506.10	528.16	11.49	22.09	0.52	10.92	18.88	0.58
Apr-2010	19.84	32.49	538.37	63027.31	463.04	1135.91	47619.66	41922.18	505.88	528.32	12.73	22.45	0.57	10.99	19.63	0.56
May-2010	19.85	32.54	538.23	63121.80	463.23	1136.07	47785.47	42062.05	505.68	528.46	15.15	21.94	0.69	11.41	18.88	0.60
Jun-2010	19.86	32.61	538.10	63182.65	463.45	1136.21	47932.48	42186.13	505.49	528.56	22.64	21.22	1.07	11.99	18.50	0.65
Jul-2010	19.88	32.70	537.98	63204.28	463.68	1136.33	48051.65	42286.61	505.28	528.62	22.82	20.89	1.09	12.28	18.13	0.68
Aug-2010	19.91	32.79	537.86	63187.51	463.94	1136.43	48137.47	42358.53	505.07	528.65	21.47	20.99	1.02	12.72	18.49	0.69
Sep-2010	19.94	32.90	537.76	63139.24	464.20	1136.50	48185.70	42398.18	504.86	528.64	16.14	21.36	0.76	12.29	18.74	0.66
Oct-2010	19.97	33.01	537.68	63066.65	464.48	1136.56	48206.47	42414.24	504.67	528.60	13.48	22.29	0.60	10.51	19.72	0.53
Nov-2010	20.01	33.13	537.64	62977.12	464.76	1136.61	48211.60	42416.95	504.51	528.54	11.70	23.17	0.51	11.31	20.42	0.55
Dec-2010	20.05	33.26	537.63	62877.44	465.05	1136.65	48209.00	42413.14	504.37	528.46	10.78	24.47	0.44	10.71	21.52	0.50
Jan-2011	20.09	33.39	537.67	62774.70	465.34	1136.69	48197.42	42401.44	504.28	528.36	11.09	25.43	0.44	11.12	22.68	0.49
Feb-2011	20.13	33.51	537.76	62680.41	465.61	1136.73	48173.83	42379.25	504.25	528.25	11.91	26.47	0.45	11.60	23.87	0.49
Mar-2011	20.17	33.64	537.92	62596.64	465.88	1136.78	48139.49	42347.40	504.28	528.14	11.87	28.12	0.42	11.29	25.37	0.44
Apr-2011	20.21	33.77	538.15	62528.90	466.15	1136.83	48110.79	42320.07	504.38	528.03	14.35	28.89	0.50	12.39	26.06	0.48
May-2011	20.25	33.90	538.46	62487.13	466.41	1136.90	48111.56	42318.14	504.56	527.91	16.38	27.89	0.59	12.21	25.15	0.49
Jun-2011	20.29	34.02	538.86	62478.24	466.66	1136.99	48157.15	42354.94	504.84	527.80	22.47	27.10	0.83	12.10	24.45	0.50
Jul-2011	20.32	34.13	539.35	62508.73	466.88	1137.10	48244.59	42427.71	505.22	527.70	22.33	27.07	0.82	12.58	24.42	0.52
Aug-2011	20.36	34.25	539.95	62580.59	467.09	1137.24	48364.54	42528.11	505.71	527.62	21.18	26.51	0.80	12.49	23.91	0.52
Sep-2011	20.39	34.35	540.62	62685.87	467.28	1137.39	48498.96	42640.52	506.27	527.54	16.86	26.61	0.63	11.60	24.00	0.48
Oct-2011	20.43	34.45	541.36	62819.84	467.45	1137.56	48631.27	42750.38	506.91	527.48	12.60	26.61	0.47	11.19	24.00	0.47
Nov-2011	20.46	34.54	542.15	62976.35	467.62	1137.75	48742.45	42841.08	507.61	527.42	10.79	27.50	0.39	5.13	24.81	0.21
Dec-2011	20.49	34.64	542.99	63149.78	467.78	1137.95	48823.37	42904.70	508.35	527.37	9.84	27.27	0.36	4.37	24.60	0.18
Jan-2012	20.52	34.73	543.87	63336.91	467.95	1138.16	48894.68	42959.34	509.13	527.32	9.13	27.68	0.33	9.22	24.96	0.37
Feb-2012	20.55	34.83	544.73	63523.03	468.11	1138.37	48980.05	43026.33	509.91	527.28	9.69	28.33	0.34	9.19	25.55	0.36
Mar-2012	20.58	34.92	545.60	63708.36	468.27	1138.59	49096.66	43120.59	510.68	527.24	10.46	28.70	0.36	9.93	25.89	0.38
Apr-2012	20.61	35.02	546.47	63890.07	468.44	1138.81	49227.25	43226.90	511.45	527.20	12.84	28.35	0.45	10.96	25.57	0.43
May-2012	20.64	35.13	547.32	64059.14	468.63	1139.03	49339.25	43316.88	512.19	527.16	14.40	27.30	0.53	10.37	24.62	0.42
Jun-2012	20.67	35.24	548.13	64209.86	468.83	1139.25	49408.39	43369.36	512.89	527.11	20.31	25.59	0.79	10.17	23.08	0.44
Jul-2012	20.70	35.35	548.89	64336.64	469.05	1139.46	49428.54	43379.08	513.53	527.06	19.07	25.85	0.74	9.55	23.31	0.41
Aug-2012	20.73	35.48	549.60	64439.47	469.29	1139.66	49402.98	43348.78	514.12	527.01	18.12	26.91	0.67	9.66	24.27	0.40
Sep-2012	20.76	35.61	550.25	64517.74	469.54	1139.86	49340.54	43286.59	514.64	526.95	14.08	27.67	0.51	9.02	24.96	0.36
Oct-2012	20.79	35.74	550.85	64576.01	469.81	1140.04	49254.03	43203.62	515.11	526.88	10.46	28.07	0.37	9.15	25.32	0.36
Nov-2012	20.82	35.86	551.40	64617.38	470.09	1140.22	49158.03	43112.67	515.54	526.82	8.81	28.21	0.31	8.60	25.45	0.34
Dec-2012	20.85	35.99	551.90	64644.58	470.37	1140.39	49069.20	43028.42	515.92	526.75	8.64	28.01	0.31	8.67	25.26	0.34
Jan-2013	20.87	36.11	552.37	64660.86	470.66	1140.55	49010.46	42970.73	516.27	526.68	9.15	28.00	0.33	9.28	25.25	0.37
Feb-2013	20.90	36.21	552.79	64668.44	470.94	1140.70	49007.01	42962.28	516.58	526.61	9.64	28.63	0.34	9.44	25.82	0.37
Mar-2013	20.93	36.30	553.16	64670.79	471.22	1140.83	49063.62	43006.91	516.86	526.55	9.84	28.13	0.35	9.37	25.38	0.37
Apr-2013	20.96	36.39	553.52	64670.78	471.50	1140.96	49145.53	43073.89	517.13	526.48	11.18	26.85	0.42	9.34	24.21	0.39
May-2013	20.99	36.45	553.85	64671.08	471.77	1141.07	49198.14	43115.62	517.39	526.41	13.61	26.26	0.52	9.63	23.69	0.41

Niagara Mohawk Historical and Projected Economic Indicators
East Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Jun-2013	21.02	36.50	554.14	64674.57	472.03	1141.18	49190.12	43104.67	517.64	526.34	19.80	25.97	0.76	8.78	23.42	0.37
Jul-2013	21.05	36.53	554.42	64684.08	472.28	1141.27	49152.08	43067.93	517.89	526.28	19.36	26.16	0.74	8.96	23.60	0.38
Aug-2013	21.09	36.53	554.68	64701.64	472.52	1141.35	49132.36	43047.66	518.15	526.21	18.82	26.15	0.72	9.65	23.59	0.41
Sep-2013	21.13	36.52	554.93	64725.95	472.74	1141.41	49160.88	43070.17	518.41	526.15	14.13	26.55	0.53	9.02	23.95	0.38
Oct-2013	21.17	36.50	555.18	64756.86	472.95	1141.47	49223.16	43122.68	518.68	526.10	10.44	26.44	0.39	9.26	23.85	0.39
Nov-2013	21.22	36.46	555.42	64793.74	473.14	1141.51	49291.82	43181.14	518.96	526.04	9.16	26.34	0.35	8.99	23.76	0.38
Dec-2013	21.27	36.43	555.67	64835.96	473.33	1141.55	49347.88	43228.92	519.25	525.99	8.04	26.96	0.30	8.18	24.32	0.34
Jan-2014	21.33	36.39	555.95	64884.36	473.50	1141.58	49396.01	43269.94	519.56	525.94	7.48	27.70	0.27	7.62	24.99	0.30
Feb-2014	21.40	36.36	556.22	64934.19	473.66	1141.60	49444.25	43311.39	519.87	525.89	8.44	29.06	0.29	8.25	26.21	0.31
Mar-2014	21.47	36.33	556.52	64987.41	473.82	1141.61	49504.06	43363.21	520.19	525.84	11.23	28.33	0.40	10.72	25.55	0.42
Apr-2014	21.55	36.32	556.86	65045.82	473.97	1141.63	49582.42	43431.37	520.54	525.79	11.54	27.01	0.43	9.67	24.36	0.40
May-2014	21.65	36.32	557.23	65106.92	474.12	1141.64	49681.20	43517.56	520.91	525.74	13.99	26.45	0.53	9.96	23.85	0.42
Jun-2014	21.75	36.34	557.65	65170.16	474.26	1141.64	49798.70	43620.20	521.31	525.70	20.93	26.11	0.80	9.99	23.55	0.42
Jul-2014	21.87	36.39	558.11	65234.80	474.40	1141.65	49920.20	43726.40	521.73	525.65	19.57	25.77	0.76	8.58	23.25	0.37
Aug-2014	22.00	36.46	558.63	65301.59	474.54	1141.66	50029.95	43822.24	522.17	525.60	17.27	25.45	0.68	7.52	22.96	0.33
Sep-2014	22.13	36.55	559.16	65368.56	474.68	1141.67	50124.15	43904.34	522.62	525.56	12.85	25.09	0.51	6.90	22.63	0.31
Oct-2014	22.27	36.65	559.72	65437.03	474.82	1141.68	50245.82	44010.27	523.06	525.51	8.89	24.21	0.37	6.86	21.84	0.31
Nov-2014	22.40	36.77	560.28	65507.25	474.96	1141.71	50447.24	44185.73	523.50	525.47	7.51	23.62	0.32	6.53	21.31	0.31
Dec-2014	22.54	36.90	560.83	65579.54	475.11	1141.74	50747.90	44447.69	523.93	525.42	7.07	22.41	0.32	6.38	20.22	0.32
Jan-2015	22.68	37.04	561.38	65655.04	475.26	1141.79	51071.38	44729.03	524.34	525.38	6.89	20.79	0.33	6.27	18.75	0.33
Feb-2015	22.80	37.17	561.87	65729.47	475.40	1141.86	51290.57	44918.56	524.69	525.35	7.25	20.88	0.35	6.78	18.83	0.36
Mar-2015	22.92	37.31	562.32	65806.67	475.56	1141.94	51356.07	44972.80	525.02	525.32	7.97	21.65	0.37	7.22	19.53	0.37
Apr-2015	23.02	37.44	562.74	65889.24	475.72	1142.04	51329.44	44945.46	525.30	525.28	8.81	20.05	0.44	6.67	18.09	0.37
May-2015	23.12	37.57	563.10	65975.08	475.89	1142.16	51311.15	44924.52	525.53	525.26	11.07	19.89	0.56	6.69	17.94	0.37
Jun-2015	23.19	37.68	563.37	66064.39	476.08	1142.31	51373.59	44973.27	525.70	525.24	18.61	19.52	0.95	7.35	17.60	0.42
Jul-2015	23.25	37.78	563.57	66157.62	476.27	1142.49	51497.29	45074.53	525.79	525.22	17.74	18.79	0.94	6.70	16.95	0.40
Aug-2015	23.28	37.86	563.68	66256.16	476.48	1142.70	51633.47	45185.47	525.82	525.21	17.07	17.55	0.97	7.21	15.83	0.46
Sep-2015	23.30	37.93	563.72	66356.38	476.69	1142.93	51746.37	45275.19	525.79	525.20	12.82	17.08	0.75	6.75	15.41	0.44
Oct-2015	23.31	37.99	563.70	66459.19	476.92	1143.18	51861.97	45366.41	525.72	525.20	8.58	16.84	0.51	6.49	15.19	0.43
Nov-2015	23.31	38.03	563.65	66563.93	477.14	1143.45	52020.32	45494.31	525.62	525.20	7.15	16.86	0.42	6.22	15.21	0.41
Dec-2015	23.29	38.07	563.58	66670.00	477.38	1143.73	52239.33	45674.66	525.52	525.20	6.39	15.87	0.40	5.78	14.31	0.40
Jan-2016	23.27	38.09	563.51	66778.40	477.62	1144.02	52474.30	45868.27	525.41	525.22	5.90	15.24	0.39	5.37	13.75	0.39
Feb-2016	23.25	38.12	563.44	66883.39	477.86	1144.31	52647.49	46007.94	525.33	525.23	6.66	14.87	0.45	6.22	13.41	0.46
Mar-2016	23.23	38.13	563.41	66987.82	478.10	1144.61	52727.52	46066.02	525.28	525.25	7.19	14.96	0.48	6.52	13.50	0.48
Apr-2016	23.22	38.15	563.42	67092.74	478.34	1144.91	52757.39	46080.08	525.27	525.28	7.33	15.10	0.49	5.55	13.62	0.41
May-2016	23.21	38.16	563.49	67195.78	478.59	1145.20	52803.25	46108.25	525.33	525.31	10.43	15.48	0.67	6.30	13.96	0.45
Jun-2016	23.21	38.18	563.64	67296.33	478.83	1145.49	52908.28	46188.38	525.46	525.35	17.83	15.58	1.14	7.04	14.06	0.50
Jul-2016	23.22	38.20	563.88	67393.76	479.07	1145.77	53047.00	46298.29	525.68	525.39	17.64	15.33	1.15	6.66	13.83	0.48
Aug-2016	23.25	38.22	564.22	67489.37	479.31	1146.04	53173.42	46397.72	526.00	525.43	16.23	15.27	1.06	6.85	13.77	0.50
Sep-2016	23.28	38.24	564.63	67580.82	479.55	1146.29	53252.90	46456.76	526.39	525.48	12.01	15.39	0.78	6.32	13.88	0.45
Oct-2016	23.33	38.27	565.12	67670.24	479.78	1146.53	53301.40	46489.12	526.85	525.54	7.82	16.01	0.49	5.91	14.44	0.41
Nov-2016	23.39	38.30	565.67	67758.30	480.01	1146.77	53346.65	46518.96	527.37	525.59	7.31	16.52	0.44	5.88	14.90	0.39
Dec-2016	23.46	38.32	566.26	67845.69	480.25	1147.00	53406.95	46562.15	527.94	525.65	6.33	17.28	0.37	5.23	15.58	0.34
Jan-2017	23.53	38.35	566.90	67934.12	480.48	1147.23	53475.49	46612.55	528.55	525.71	6.29	17.89	0.35	5.27	16.13	0.33
Feb-2017	23.61	38.37	567.53	68019.00	480.70	1147.45	53532.94	46653.87	529.16	525.78	7.76	17.84	0.43	6.09	16.09	0.38
Mar-2017	23.70	38.39	568.17	68105.15	480.93	1147.66	53573.71	46680.72	529.78	525.84	8.63	17.81	0.48	6.77	16.06	0.42
Apr-2017	23.79	38.41	568.84	68195.81	481.16	1147.88	53606.92	46700.71	530.42	525.90	9.15	17.38	0.53	5.64	15.67	0.36
May-2017	23.89	38.43	569.49	68288.93	481.40	1148.10	53644.78	46724.72	531.06	525.97	13.30	17.46	0.76	6.51	15.75	0.41
Jun-2017	23.99	38.44	570.11	68385.10	481.63	1148.33	53696.47	46760.68	531.67	526.03	20.33	17.48	1.16	7.39	15.76	0.47
Jul-2017	24.09	38.45	570.71	68485.06	481.87	1148.55	53758.25	46805.27	532.26	526.10	18.78	17.60	1.07	6.98	15.88	0.44
Aug-2017	24.19	38.45	571.27	68590.34	482.12	1148.78	53822.38	46851.58	532.81	526.16	16.66	17.79	0.94	7.57	16.05	0.47
Sep-2017	24.29	38.45	571.78	68697.09	482.37	1149.02	53881.42	46893.45	533.33	526.23	11.97	17.93	0.67	6.74	16.17	0.42
Oct-2017	24.39	38.45	572.27	68806.23	482.62	1149.25	53941.06	46935.71	533.82	526.29	7.76	18.27	0.43	6.20	16.48	0.38
Nov-2017	24.49	38.44	572.73	68917.04	482.87	1149.49	54009.01	46985.07	534.29	526.35	7.23	18.68	0.39	6.14	16.85	0.36
Dec-2017	24.59	38.43	573.17	69028.87	483.12	1149.73	54089.49	47045.22	534.74	526.41	6.26	18.93	0.33	5.47	17.08	0.32
Jan-2018	24.69	38.42	573.60	69142.58	483.38	1149.98	54177.69	47111.81	535.18	526.47	6.36	19.58	0.32	5.51	16.81	0.33
Feb-2018	24.77	38.41	574.00	69250.52	483.63	1150.22	54259.46	47173.23	535.60	526.53	7.84	19.53	0.40	6.36	16.37	0.39
Mar-2018	24.86	38.39	574.40	69357.46	483.88	1150.45	54333.66	47228.03	536.01	526.59	8.73	19.49	0.45	7.07	16.47	0.43
Apr-2018	24.94	38.38	574.81	69466.13	484.15	1150.70	54406.11	47280.92	536.43	526.65	9.25	19.03	0.49	5.89	16.62	0.35
May-2018	25.02	38.37	575.23	69572.26	484.41	1150.94	54480.79	47335.73	536.86	526.70	13.45	19.12	0.70	6.80	17.05	0.40
Jun-2018	25.10	38.36	575.65	69675.16	484.67	1151.19	54561.00	47395.34	537.29	526.76	20.57	19.15	1.07	7.72	17.15	0.45
Jul-2018	25.16	38.35	576.09	69774.14	484.94	1151.43	54641.01	47454.79	537.74	526.82	19.00	19.29	0.99	7.29	16.85	0.43
Aug-2018	25.23	38.34	576.55	69870.38	485.21	1151.68	54713.38	47507.46	538.21	526.87	16.86	19.49	0.86	7.91	16.76	0.47
Sep-2018	25.28	38.33	577.02	69961.09	485.48	1151.92	54770.92	47547.44	538.68	526.93	12.12	19.65	0.62	7.04	16.88	0.42
Oct-2018	25.33	38.33	577.49	70048.03	485.75	1152.16	54818.28	47578.64	539.16	526.98	7.86	20.02	0.39	6.48	17.55	0.37
Nov-2018	25.37	38.32	577.96	70131.50	486.02	1152.40	54861.62	47606.40	539.64	527.03	7.32	20.48	0.36	6.41	18.11	0.35
Dec-2018	25.41	38.32	578.43	70211.74	486.29	1152.64	54905.18	47634.39	540.11	527.09	6.33	20.74	0.31	5.71	18.93	0.30
Jan-2019	25.45	38.31	578.90	70290.09	486.57	1152.88	54948.69	47662.23	540.59	527.14	6.61	22.12	0.30	5.97	19.08	0.31
Feb-2019	25.48	38.31	579.34	70362.14	486.83	1153.10	54987.27	47686.34	541.04	527.20	8.15	22.06	0.37	6.89	18.57	0.37
Mar-2019	25.50	38.30	579.77	70431.88	487.10	1153.33	55021.49	47706.74	541.47	527.26	9.07	22.02	0.41	7.66	18.68	0.41
Apr-2019	25.53	38.29	580.19	70501.71	487.37	1153.56	55052.96	47724.51	541.90	527.31	9.61	21.49	0.45	6.38	18.86	0.34
May-2019	25.55	38.28	580.59	70569.51	487.64	1153.79	55081.81	47740.08	542.31	527.38	13.97	21.59	0.65	7.37	19.34	0.38
Jun-2019	25.56	38.27	580.96	70635.57	487.91	1154.01	55109.22	47754.48	542.69	527.44	21.35	21.62	0.99	8.36	19.45	0.43
Jul-2019	25.58	38.25	581.30	70700.14	488.18	1154.24	55135.77	47768.22	543.04	527.51	19.73	21.78	0.91	7.90	19.11	0.41
Aug-2019	25.59	38.23	581.61	70764.57	488.46	1154.46	55162.45	47782.01	543.37	527.58	17.50	22.01	0.80	8.57	19.00	0.45
Sep-2019	25.60	38.21	581.88	70827.22	488.73	1154.68	55188.84	47795.77	543.67	527.65	12.58	22.19	0.57	7.63	19.15	0.40
Oct-2019	25.61	38.19	582.13	70889.54	489.00	1154.90	55214.77	47809.20	543.94	527.72	8.16	22.62	0.36	7.02	19.91	0.35
Nov-2019	25.62	38.16	582.35	70951.92	489.27	1155.12	55239.38	47821.53	544.19	527.79	7.61	23.14	0.33	6.95	20.55	0.34
Dec-2019	25.62	38.13	582.55	71014.79	489.54	1155.33	55262.15	47832.32	544.41	527.87	6.58	23.44	0.28	6.19	21.49	0.29
Jan-2020	25.62	38.10	582.73	71079.55	489.81	1155.55	55284.03	47842.20	544.62	527.94	6.83	23.43	0.29	6.21	20.08	0.31
Feb-2020	25.63	38.07	582.88	71143.50	490.08	1155.76	55304.87	47851.51	544.81	528.02	8.43	23.37	0.36	7.17	19.56	0.37
Mar-2020	25.63	38.04	583.02	71209.12	490.34	1155.97	55326.13	47861.20	544.99	528.09	9.38	23.33	0.40	7.97	19.67	0.41
Apr-2020	25.62	38.00	583.15	71277.87	490.61	1156.18	55348.44	47871.65	545.15	528.17	9.95	22.78	0.44	6.64	19.87	0.33
May-2020	25.62	37.96	583.27	71349.13	490.87	1156.40	55371.65	47882.86	545.31	528.25	14.46	22.89	0.63	7.67	20.38	0.38
Jun-2020	25.62	37.93	583.38	71423.27	491.14	1156.61	55396.03	47895.06	545.45	528.32	22.11	22.92	0.96	8.71	20.51	0.42
Jul-2020	25.61	37.89	583.49	71500.71	491.41	1156.83	55422.24	47908.82	545.60	528.39	20.43	23.10	0.88	8.23	20.15	0.41

Niagara Mohawk Historical and Projected Economic Indicators
East Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Aug-2020	25.61	37.85	583.59	71582.79	491.67	1157.05	55451.24	47924.79	545.74	528.47	18.13	23.35	0.78	8.93	20.04	0.45
Sep-2020	25.60	37.81	583.69	71666.74	491.94	1157.26	55482.23	47942.61	545.87	528.54	13.04	23.54	0.55	7.95	20.20	0.39
Oct-2020	25.59	37.78	583.78	71753.63	492.20	1157.48	55515.43	47962.30	546.00	528.60	8.46	24.00	0.35	7.32	21.01	0.35
Nov-2020	25.58	37.74	583.87	71843.21	492.46	1157.70	55550.45	47983.55	546.13	528.67	7.88	24.56	0.32	7.25	21.68	0.33
Dec-2020	25.57	37.70	583.96	71935.33	492.72	1157.92	55586.89	48006.00	546.26	528.74	6.82	24.88	0.27	6.46	22.68	0.28
Jan-2021	25.57	37.66	584.06	72031.14	492.99	1158.14	55624.61	48029.39	546.40	528.81	6.92	24.55	0.28	6.29	20.94	0.30
Feb-2021	25.56	37.62	584.14	72124.35	493.24	1158.35	55660.51	48051.64	546.52	528.87	8.54	24.49	0.35	7.26	20.39	0.36
Mar-2021	25.55	37.58	584.23	72219.39	493.49	1158.56	55696.07	48073.61	546.65	528.93	9.50	24.45	0.39	8.08	20.51	0.39
end of	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
FY2007	21.58	37.74	551.47	62191.61	456.17	1126.86	45230.25	40138.27	513.72	519.30	14.63	21.01	0.70	14.31	16.97	0.84
FY2008	22.14	37.25	557.20	62138.69	460.98	1130.27	46335.57	40995.12	519.95	522.98	14.21	28.29	0.50	13.90	26.62	0.52
FY2009	20.94	34.14	547.64	61528.47	462.38	1133.21	47420.87	41846.33	513.51	525.50	13.68	18.81	0.73	13.36	13.93	0.96
FY2010	19.84	32.45	538.55	62905.23	462.86	1135.72	47445.23	41775.35	506.10	528.16	11.49	22.09	0.52	10.92	18.88	0.58
FY2011	20.17	33.64	537.92	62596.64	465.88	1136.78	48139.49	42347.40	504.28	528.14	11.87	28.12	0.42	11.29	25.37	0.44
FY2012	20.58	34.92	545.60	63708.36	468.27	1138.59	49096.66	43120.59	510.68	527.24	10.46	28.70	0.36	9.93	25.89	0.38
FY2013	20.93	36.30	553.16	64670.79	471.22	1140.83	49063.62	43006.91	516.86	526.55	9.84	28.13	0.35	9.37	25.38	0.37
FY2014	21.47	36.33	556.52	64987.41	473.82	1141.61	49504.06	43363.21	520.19	525.84	11.23	28.33	0.40	10.72	25.55	0.42
FY2015	22.92	37.31	562.32	65806.67	475.56	1141.94	51356.07	44972.80	525.02	525.32	7.97	21.65	0.37	7.22	19.53	0.37
FY2016	23.23	38.13	563.41	66987.82	478.10	1144.61	52727.52	46066.02	525.28	525.25	7.19	14.96	0.48	6.52	13.50	0.48
FY2017	23.70	38.39	568.17	68105.15	480.93	1147.66	53573.71	46680.72	529.78	525.84	8.63	17.81	0.48	6.77	16.06	0.42
FY2018	24.86	38.39	574.40	69357.46	483.88	1150.45	54333.66	47228.03	536.01	526.59	8.73	19.49	0.45	7.07	16.47	0.43
FY2019	25.50	38.30	579.77	70431.88	487.10	1153.33	55021.49	47706.74	541.47	527.26	9.07	22.02	0.41	7.66	18.68	0.41
FY2020	25.63	38.04	583.02	71209.12	490.34	1155.97	55326.13	47861.20	544.99	528.09	9.38	23.33	0.40	7.97	19.67	0.41
FY2021	25.55	37.58	584.23	72219.39	493.49	1158.56	55696.07	48073.61	546.65	528.93	9.50	24.45	0.39	8.08	20.51	0.39
FY13-FY17	3.16%	1.41%	0.67%	1.30%	0.51%	0.15%	2.22%	2.07%	0.62%	-0.03%	-3.21%	-10.80%	8.51%	-7.81%	-10.80%	3.36%
FY17-FY21	3.73%	1.39%	0.79%	1.64%	0.53%	0.19%	2.35%	2.16%	0.75%	0.04%	-6.11%	-8.92%	3.08%	-9.88%	-10.40%	0.58%

NMPC Historical and Projected Economic Indicators
West Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Apr-2006	22.17	61.32	624.37	69297.79	548.73	1417.37	47028.18	33179.85	563.04	652.92	17.23	21.46	0.80	15.64	18.49	0.85
May-2006	22.27	61.28	624.60	69390.81	549.04	1417.46	47040.07	33186.17	563.32	653.14	19.59	21.98	0.89	15.93	18.96	0.84
Jun-2006	22.37	61.21	624.82	69480.87	549.36	1417.58	47003.37	33157.36	563.60	653.36	24.93	21.52	1.16	15.58	18.76	0.83
Jul-2006	22.46	61.12	625.02	69567.79	549.69	1417.75	46985.35	33140.69	563.89	653.58	22.65	21.67	1.05	13.89	18.91	0.73
Aug-2006	22.55	61.01	625.20	69652.68	550.04	1417.97	47078.93	33201.57	564.19	653.81	22.45	21.80	1.03	14.69	19.65	0.75
Sep-2006	22.64	60.88	625.37	69731.85	550.39	1418.23	47331.81	33373.90	564.50	654.05	18.72	20.99	0.89	14.06	17.22	0.82
Oct-2006	22.72	60.73	625.54	69805.88	550.75	1418.52	47659.92	33598.41	564.82	654.29	15.74	20.42	0.77	14.19	16.72	0.85
Nov-2006	22.80	60.57	625.72	69874.04	551.12	1418.83	47929.75	33781.11	565.15	654.53	15.81	20.68	0.76	15.72	16.41	0.96
Dec-2006	22.88	60.41	625.91	69935.40	551.50	1419.17	48042.10	33852.27	565.50	654.78	14.68	20.93	0.70	14.86	16.92	0.88
Jan-2007	22.96	60.24	626.12	69990.16	551.91	1419.53	48032.69	33837.12	565.88	655.03	12.72	20.12	0.63	12.96	15.47	0.84
Feb-2007	23.04	60.09	626.34	70034.25	552.30	1419.87	47985.01	33795.28	566.25	655.28	13.88	20.95	0.66	13.81	16.72	0.83
Mar-2007	23.11	59.95	626.60	70069.59	552.71	1420.22	47963.13	33771.61	566.65	655.53	14.63	21.01	0.70	14.31	16.97	0.84
Apr-2007	23.18	59.82	626.91	70096.48	553.15	1420.58	47992.01	33783.49	567.09	655.79	16.48	21.19	0.78	14.93	17.86	0.84
May-2007	23.26	59.70	627.27	70112.55	553.60	1420.92	48087.13	33842.26	567.56	656.05	19.01	21.32	0.89	15.43	17.95	0.86
Jun-2007	23.33	59.62	627.68	70117.11	554.07	1421.25	48249.97	33949.07	568.06	656.31	24.36	21.78	1.12	15.22	18.44	0.83
Jul-2007	23.41	59.56	628.15	70109.32	554.56	1421.55	48446.56	34080.14	568.59	656.58	22.89	22.24	1.03	14.29	18.80	0.76
Aug-2007	23.48	59.53	628.69	70088.77	555.07	1421.83	48628.93	34201.68	569.16	656.85	19.43	21.48	0.90	11.82	18.55	0.64
Sep-2007	23.55	59.52	629.24	70056.68	555.58	1422.08	48752.83	34282.81	569.72	657.12	16.74	22.16	0.76	12.19	19.85	0.61
Oct-2007	23.62	59.52	629.78	70013.33	556.09	1422.30	48835.87	34335.78	570.27	657.38	15.08	23.14	0.65	13.97	20.68	0.68
Nov-2007	23.68	59.51	630.30	69959.46	556.59	1422.50	48910.12	34383.11	570.79	657.65	14.64	25.17	0.58	14.56	22.86	0.64
Dec-2007	23.73	59.50	630.76	69895.62	557.08	1422.68	49001.31	34442.88	571.25	657.90	13.48	25.58	0.53	13.66	22.82	0.60
Jan-2008	23.76	59.47	631.13	69820.94	557.55	1422.84	49117.01	34520.30	571.66	658.16	12.71	26.00	0.49	12.94	22.74	0.57
Feb-2008	23.79	59.41	631.37	69740.26	557.98	1422.98	49249.94	34610.41	571.96	658.40	14.13	26.24	0.54	13.64	23.31	0.59
Mar-2008	23.79	59.31	631.47	69651.70	558.37	1423.10	49387.76	34704.38	572.16	658.63	14.21	28.29	0.50	13.90	26.62	0.52
Apr-2008	23.78	59.16	631.40	69554.17	558.73	1423.20	49464.76	34755.96	572.24	658.85	16.95	29.22	0.58	15.47	28.16	0.55
May-2008	23.74	58.96	631.13	69449.64	559.03	1423.29	49389.05	34700.63	572.17	659.06	21.53	31.32	0.69	18.12	31.21	0.58
Jun-2008	23.69	58.68	630.62	69338.82	559.28	1423.36	49137.48	34522.12	571.94	659.26	28.03	32.86	0.85	19.34	32.44	0.60
Jul-2008	23.60	58.33	629.86	69222.32	559.46	1423.42	48884.39	34342.88	571.53	659.44	29.78	33.58	0.89	21.66	31.92	0.68
Aug-2008	23.49	57.90	628.82	69099.98	559.58	1423.47	48871.76	34332.81	570.92	659.61	24.25	30.38	0.80	17.06	28.18	0.61
Sep-2008	23.36	57.40	627.58	68981.20	559.64	1423.51	49249.03	34596.83	570.18	659.76	19.48	29.22	0.67	15.14	26.30	0.58
Oct-2008	23.21	56.86	626.17	68868.82	559.65	1423.55	49858.65	35024.07	569.31	659.91	15.39	26.18	0.59	14.34	21.85	0.66
Nov-2008	23.06	56.28	624.64	68767.72	559.63	1423.60	50428.13	35423.03	568.36	660.05	14.65	23.78	0.62	14.56	18.52	0.79
Dec-2008	22.89	55.67	623.02	68683.24	559.57	1423.65	50735.26	35637.49	567.35	660.18	14.91	20.90	0.71	15.09	15.52	0.97
Jan-2009	22.72	55.04	621.34	68618.49	559.50	1423.71	50808.07	35687.03	566.30	660.32	13.29	20.55	0.65	13.51	15.89	0.85
Feb-2009	22.56	54.44	619.74	68582.36	559.42	1423.79	50764.42	35654.45	565.30	660.45	13.70	19.75	0.69	13.63	14.50	0.94
Mar-2009	22.40	53.86	618.20	68576.14	559.33	1423.89	50700.42	35607.08	564.34	660.58	13.68	18.81	0.73	13.36	13.93	0.96
Apr-2009	22.26	53.28	616.69	68604.49	559.26	1424.01	50632.58	35556.32	563.41	660.72	13.34	18.81	0.71	11.84	14.18	0.84
May-2009	22.12	52.74	615.31	68674.09	559.20	1424.17	50557.30	35499.59	562.57	660.87	12.78	18.47	0.69	9.33	14.28	0.65
Jun-2009	22.01	52.25	614.11	68789.39	559.16	1424.35	50472.45	35435.31	561.86	661.03	21.02	19.45	1.08	10.69	16.43	0.65
Jul-2009	21.92	51.83	613.14	68955.84	559.16	1424.58	50388.07	35370.41	561.31	661.21	21.05	18.30	1.15	10.73	15.69	0.68
Aug-2009	21.85	51.47	612.39	69175.56	559.20	1424.85	50313.80	35311.57	560.92	661.40	19.61	20.08	0.98	11.02	17.12	0.64
Sep-2009	21.81	51.18	611.86	69430.93	559.28	1425.15	50260.96	35267.13	560.68	661.59	15.14	19.48	0.78	10.52	16.25	0.65
Oct-2009	21.78	50.95	611.53	69714.80	559.39	1425.47	50243.22	35246.73	560.58	661.80	14.42	20.37	0.71	9.59	17.23	0.56
Nov-2009	21.77	50.77	611.34	70016.12	559.54	1425.81	50276.79	35261.92	560.58	661.99	11.91	21.69	0.55	11.60	17.70	0.66
Dec-2009	21.76	50.63	611.29	70323.99	559.71	1426.16	50372.45	35320.41	560.67	662.19	10.70	21.56	0.50	10.68	17.71	0.60
Jan-2010	21.76	50.52	611.35	70633.86	559.92	1426.51	50521.41	35416.05	560.83	662.37	11.16	22.81	0.49	11.18	18.74	0.60
Feb-2010	21.77	50.45	611.47	70914.01	560.14	1426.85	50693.05	35528.07	561.03	662.54	11.33	22.43	0.51	11.03	18.18	0.61
Mar-2010	21.77	50.39	611.64	71169.61	560.39	1427.17	50878.06	35649.69	561.25	662.68	11.49	22.09	0.52	10.92	18.88	0.58
Apr-2010	21.77	50.36	611.84	71399.48	560.66	1427.48	51071.07	35777.05	561.49	662.80	12.73	22.45	0.57	10.99	19.63	0.56
May-2010	21.75	50.32	612.04	71582.56	560.95	1427.77	51254.18	35898.10	561.72	662.90	15.15	21.94	0.69	11.41	18.88	0.60
Jun-2010	21.73	50.29	612.21	71708.70	561.26	1428.02	51416.38	36005.29	561.91	662.96	22.64	21.22	1.07	11.99	18.50	0.65
Jul-2010	21.69	50.26	612.31	71766.56	561.59	1428.24	51547.71	36091.87	562.05	662.98	22.82	20.89	1.09	12.28	18.13	0.68
Aug-2010	21.63	50.21	612.35	71754.52	561.93	1428.41	51641.96	36153.47	562.14	662.97	21.47	20.99	1.02	12.72	18.49	0.69
Sep-2010	21.56	50.16	612.32	71683.11	562.27	1428.54	51693.56	36186.23	562.17	662.92	16.14	21.36	0.76	12.29	18.74	0.66
Oct-2010	21.48	50.09	612.25	71563.07	562.62	1428.64	51713.05	36197.37	562.15	662.83	13.48	22.29	0.60	10.51	19.72	0.53
Nov-2010	21.39	50.02	612.13	71405.83	562.96	1428.71	51713.42	36195.82	562.11	662.73	11.70	23.17	0.51	11.31	20.42	0.55
Dec-2010	21.30	49.94	611.98	71222.21	563.31	1428.76	51704.00	36188.00	562.04	662.60	10.78	24.47	0.44	10.71	21.52	0.50
Jan-2011	21.21	49.85	611.80	71018.54	563.65	1428.79	51682.86	36172.48	561.95	662.45	11.09	25.43	0.44	11.12	22.68	0.49
Feb-2011	21.13	49.76	611.62	70821.03	563.96	1428.81	51647.85	36147.58	561.87	662.30	11.91	26.47	0.45	11.60	23.87	0.49
Mar-2011	21.06	49.66	611.45	70629.87	564.26	1428.81	51598.50	36112.84	561.79	662.15	11.87	28.12	0.42	11.29	25.37	0.44
Apr-2011	20.99	49.55	611.27	70447.92	564.56	1428.82	51550.83	36079.39	561.72	661.98	14.35	28.89	0.50	12.39	26.06	0.48
May-2011	20.94	49.44	611.11	70293.67	564.83	1428.82	51531.56	36065.78	561.68	661.82	16.38	27.89	0.59	12.21	25.15	0.49
Jun-2011	20.91	49.31	610.98	70177.65	565.08	1428.83	51558.61	36084.45	561.67	661.66	22.47	27.10	0.83	12.10	24.45	0.50
Jul-2011	20.90	49.19	610.89	70111.20	565.30	1428.85	51629.29	36133.38	561.71	661.51	22.33	27.07	0.82	12.58	24.42	0.52
Aug-2011	20.91	49.05	610.85	70096.42	565.49	1428.89	51733.40	36205.39	561.79	661.38	21.18	26.51	0.80	12.49	23.91	0.52
Sep-2011	20.94	48.92	610.84	70127.42	565.65	1428.93	51852.45	36287.66	561.92	661.26	16.86	26.61	0.63	11.60	24.00	0.48
Oct-2011	20.98	48.78	610.88	70196.24	565.80	1428.97	51968.26	36367.55	562.09	661.15	12.60	26.61	0.47	11.19	24.00	0.47
Nov-2011	21.04	48.65	610.95	70294.93	565.92	1429.02	52059.67	36430.36	562.30	661.04	10.79	27.50	0.39	5.13	24.81	0.21
Dec-2011	21.10	48.51	611.06	70416.18	566.03	1429.06	52114.50	36467.65	562.55	660.95	9.84	27.27	0.36	4.37	24.60	0.18
Jan-2012	21.16	48.38	611.20	70554.83	566.13	1429.09	52153.29	36493.93	562.82	660.86	9.13	27.68	0.33	9.22	24.96	0.37
Feb-2012	21.23	48.25	611.37	70696.10	566.23	1429.12	52204.05	36528.90	563.12	660.77	9.69	28.33	0.34	9.19	25.55	0.36
Mar-2012	21.29	48.13	611.56	70837.13	566.32	1429.12	52286.37	36586.35	563.43	660.69	10.46	28.70	0.36	9.93	25.89	0.38
Apr-2012	21.35	48.02	611.79	70973.07	566.41	1429.11	52381.91	36653.56	563.77	660.60	12.84	28.35	0.45	10.96	25.57	0.43
May-2012	21.40	47.91	612.03	71093.78	566.51	1429.07	52455.92	36706.32	564.12	660.51	14.40	27.30	0.53	10.37	24.62	0.42
Jun-2012	21.43	47.82	612.29	71191.92	566.62	1429.00	52481.01	36725.57	564.48	660.43	20.31	25.59	0.79	10.17	23.08	0.44
Jul-2012	21.46	47.73	612.57	71259.87	566.75	1428.91	52450.00	36706.37	564.84	660.33	19.07	25.85	0.74	9.55	23.31	0.41
Aug-2012	21.46	47.66	612.88	71296.17	566.88	1428.77	52365.17	36650.44	565.22	660.23	18.12	26.91	0.67	9.66	24.27	0.40
Sep-2012	21.46	47.60	613.18	71302.65	567.03	1428.61	52238.65	36566.00	565.59	660.13	14.08	27.67	0.51	9.02	24.96	0.36
Oct-2012	21.44	47.55	613.50	71283.71	567.19	1428.43	52083.70	36462.28	565.95	660.02	10.46	28.07	0.37	9.15	25.32	0.36
Nov-2012	21.41	47.50	613.81	71243.31	567.36	1428.22	51916.45	36350.44	566.31	659.91	8.81	28.21	0.31	8.60	25.45	0.34
Dec-2012	21.37	47.47	614.12	71184.92	567.53	1428.00	51754.85	36242.94	566.65	659.80	8.64	28.01	0.31	8.67	25.26	0.34
Jan-2013	21.32	47.44	614.42	71111.08	567.71	1427.76	51622.33	36156.26	566.98	659.69	9.15	28.00	0.33	9.28	25.25	0.37
Feb-2013	21.27	47.42	614.70	71030.83	567.89	1427.52	51552.07	36113.02	567.28	659.58	9.64	28.63	0.34	9.44	25.82	0.37
Mar-2013	21.22	47.41	614.96	70944.15	568.07	1427.28	51549.51	36117.25	567.55	659.47	9.84	28.13	0.35	9.37	25.38	0.37
Apr-2013	21.16	47.39	615.20	70851.36	568.25	1427.03	51578.30	36143.71	567.81	659.35	11.18	26.85	0.42	9.34	24.21	0.39
May-2013	21.11	47.39	615.42	70759.01	568.43	1426.79	51582.46	36152.82	568.03	659.24	13.61	26.26	0.52	9.63	23.69	0.41
Jun-2013	21.05	47.38	615.60	70670.77	568.61	1426.55	51525.23	36118.68	568.22	659.13	19.80	25.97	0.76	8.78	23.42	0.37
Jul-2013	20.99	47.37	615.74	70590.23	568.79	1426.33	51438.20	36063.33	568.37	659.02	19.36	26.16	0.74	8.96	23.60	0.38
Aug-2013	20.94	47.37	615.84	70517.29	568.96	1426.11	51372.69	36022.87	568.47	658.91	18.82	26.15	0.72	9.65	23.59	0.41

NMPC Historical and Projected Economic Indicators
West Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Sep-2013	20.89	47.36	615.90	70453.90	569.11	1425.91	51364.10	36022.08	568.54	658.81	14.13	26.55	0.53	9.02	23.95	0.38
Oct-2013	20.84	47.36	615.92	70397.82	569.26	1425.70	51396.78	36050.28	568.56	658.71	10.44	26.44	0.39	9.26	23.85	0.39
Nov-2013	20.80	47.36	615.91	70348.04	569.39	1425.48	51440.66	36086.55	568.55	658.61	9.16	26.34	0.35	8.99	23.76	0.38
Dec-2013	20.75	47.36	615.87	70303.83	569.51	1425.25	51473.32	36115.34	568.51	658.51	8.04	26.96	0.30	8.18	24.32	0.34
Jan-2014	20.72	47.36	615.79	70262.96	569.61	1424.99	51498.04	36139.28	568.43	658.41	7.48	27.70	0.27	7.62	24.99	0.30
Feb-2014	20.68	47.37	615.70	70227.80	569.68	1424.71	51523.91	36164.38	568.33	658.32	8.44	29.06	0.29	8.25	26.21	0.31
Mar-2014	20.66	47.38	615.59	70195.34	569.74	1424.41	51561.23	36198.36	568.21	658.23	11.23	28.33	0.40	10.72	25.55	0.42
Apr-2014	20.63	47.39	615.46	70163.19	569.77	1424.05	51615.99	36245.93	568.06	658.14	11.54	27.01	0.43	9.67	24.36	0.40
May-2014	20.61	47.41	615.31	70131.84	569.77	1423.64	51690.38	36308.57	567.90	658.05	13.99	26.45	0.53	9.96	23.85	0.42
Jun-2014	20.60	47.44	615.15	70100.34	569.75	1423.18	51782.85	36385.36	567.71	657.95	20.93	26.11	0.80	9.99	23.55	0.42
Jul-2014	20.59	47.46	614.98	70068.04	569.70	1422.65	51877.46	36465.29	567.52	657.86	19.57	25.77	0.76	8.58	23.25	0.37
Aug-2014	20.59	47.50	614.81	70035.06	569.61	1422.06	51956.45	36536.07	567.31	657.77	17.27	25.45	0.68	7.52	22.96	0.33
Sep-2014	20.59	47.54	614.65	70004.33	569.51	1421.43	52014.37	36593.03	567.11	657.67	12.85	25.09	0.51	6.90	22.63	0.31
Oct-2014	20.60	47.58	614.49	69977.34	569.38	1420.76	52095.44	36667.18	566.91	657.58	8.89	24.21	0.37	6.86	21.84	0.31
Nov-2014	20.61	47.63	614.34	69956.00	569.25	1420.08	52257.10	36798.63	566.71	657.49	7.51	23.62	0.32	6.53	21.31	0.31
Dec-2014	20.63	47.67	614.20	69942.31	569.12	1419.40	52527.81	37007.16	566.53	657.41	7.07	22.41	0.32	6.38	20.22	0.32
Jan-2015	20.65	47.72	614.08	69938.56	568.99	1418.71	52832.70	37240.06	566.36	657.32	6.89	20.79	0.33	6.27	18.75	0.33
Feb-2015	20.66	47.76	613.98	69945.84	568.88	1418.07	53038.01	37401.51	566.22	657.24	7.25	20.88	0.35	6.78	18.83	0.36
Mar-2015	20.68	47.81	613.91	69965.89	568.78	1417.47	53083.36	37449.35	566.10	657.16	7.97	21.65	0.37	7.22	19.53	0.37
Apr-2015	20.69	47.85	613.86	70001.89	568.71	1416.90	53029.38	37426.40	566.02	657.09	8.81	20.05	0.44	6.67	18.09	0.37
May-2015	20.71	47.88	613.85	70055.45	568.67	1416.39	52984.11	37407.93	565.96	657.02	11.07	19.89	0.56	6.69	17.94	0.37
Jun-2015	20.72	47.91	613.86	70128.37	568.67	1415.95	53030.28	37452.02	565.95	656.95	18.61	19.52	0.95	7.35	17.60	0.42
Jul-2015	20.72	47.94	613.92	70222.48	568.71	1415.61	53151.08	37546.47	565.98	656.89	17.74	18.79	0.94	6.70	16.95	0.40
Aug-2015	20.72	47.95	614.02	70339.26	568.80	1415.35	53295.07	37655.04	566.07	656.83	17.07	17.55	0.97	7.21	15.83	0.46
Sep-2015	20.72	47.96	614.15	70471.90	568.93	1415.18	53419.67	37747.68	566.19	656.78	12.82	17.08	0.75	6.75	15.41	0.44
Oct-2015	20.72	47.97	614.33	70619.19	569.09	1415.07	53549.38	37842.08	566.36	656.73	8.58	16.84	0.51	6.49	15.19	0.43
Nov-2015	20.71	47.97	614.53	70777.90	569.29	1415.03	53725.98	37968.12	566.56	656.69	7.15	16.86	0.42	6.22	15.21	0.41
Dec-2015	20.71	47.97	614.78	70944.99	569.50	1415.03	53971.86	38141.88	566.80	656.66	6.39	15.87	0.40	5.78	14.31	0.40
Jan-2016	20.70	47.97	615.06	71120.28	569.74	1415.06	54242.55	38332.22	567.09	656.63	5.90	15.24	0.39	5.37	13.75	0.39
Feb-2016	20.70	47.97	615.37	71291.97	569.98	1415.12	54452.39	38478.96	567.40	656.61	6.66	14.87	0.45	6.22	13.41	0.46
Mar-2016	20.70	47.98	615.71	71462.73	570.23	1415.19	54562.70	38555.07	567.73	656.59	7.19	14.96	0.48	6.52	13.50	0.48
Apr-2016	20.70	47.98	616.09	71632.43	570.48	1415.26	54615.22	38590.31	568.11	656.58	7.33	15.10	0.49	5.55	13.62	0.41
May-2016	20.71	47.99	616.49	71795.01	570.73	1415.31	54678.62	38633.55	568.51	656.57	10.43	15.48	0.67	6.30	13.96	0.45
Jun-2016	20.73	48.00	616.93	71947.47	570.97	1415.35	54801.89	38719.71	568.93	656.57	17.83	15.58	1.14	7.04	14.06	0.50
Jul-2016	20.75	48.02	617.40	72086.78	571.18	1415.35	54959.35	38830.96	569.38	656.58	17.64	15.33	1.15	6.66	13.83	0.48
Aug-2016	20.78	48.04	617.90	72214.51	571.39	1415.31	55102.43	38933.12	569.86	656.59	16.23	15.27	1.06	6.85	13.77	0.50
Sep-2016	20.81	48.08	618.42	72327.96	571.57	1415.24	55191.61	38998.12	570.35	656.60	12.01	15.39	0.78	6.32	13.88	0.45
Oct-2016	20.85	48.11	618.96	72431.10	571.74	1415.14	55243.17	39037.35	570.85	656.62	7.82	16.01	0.49	5.91	14.44	0.41
Nov-2016	20.90	48.15	619.50	72525.81	571.90	1415.01	55287.09	39071.86	571.35	656.64	7.31	16.52	0.44	5.88	14.90	0.39
Dec-2016	20.95	48.20	620.06	72613.76	572.05	1414.86	55344.76	39116.66	571.86	656.67	6.33	17.28	0.37	5.23	15.58	0.34
Jan-2017	21.01	48.24	620.63	72698.51	572.19	1414.70	55410.51	39167.68	572.39	656.70	6.29	17.89	0.35	5.27	16.13	0.33
Feb-2017	21.07	48.29	621.17	72776.03	572.33	1414.53	55464.38	39210.38	572.88	656.74	7.76	17.84	0.43	6.09	16.09	0.38
Mar-2017	21.13	48.33	621.70	72852.20	572.46	1414.36	55499.65	39240.09	573.37	656.77	8.63	17.81	0.48	6.77	16.06	0.42
Apr-2017	21.20	48.38	622.24	72931.59	572.59	1414.18	55525.69	39263.51	573.86	656.81	9.15	17.38	0.53	5.64	15.67	0.36
May-2017	21.27	48.43	622.77	73013.29	572.74	1414.00	55556.15	39289.98	574.34	656.85	13.30	17.46	0.76	6.51	15.75	0.41
Jun-2017	21.34	48.47	623.27	73099.04	572.88	1413.83	55602.03	39327.15	574.80	656.89	20.33	17.48	1.16	7.39	15.76	0.47
Jul-2017	21.42	48.52	623.75	73190.53	573.04	1413.68	55660.26	39372.74	575.23	656.93	18.78	17.60	1.07	6.98	15.88	0.44
Aug-2017	21.49	48.56	624.21	73289.94	573.20	1413.53	55722.91	39421.15	575.66	656.97	16.66	17.79	0.94	7.57	16.05	0.47
Sep-2017	21.57	48.59	624.64	73392.94	573.38	1413.40	55781.23	39466.12	576.05	657.02	11.97	17.93	0.67	6.74	16.17	0.42
Oct-2017	21.65	48.63	625.06	73500.09	573.56	1413.27	55840.73	39511.65	576.43	657.06	7.76	18.27	0.43	6.20	16.48	0.38
Nov-2017	21.72	48.66	625.46	73610.29	573.74	1413.16	55909.40	39563.44	576.80	657.11	7.23	18.68	0.39	6.14	16.85	0.36
Dec-2017	21.80	48.69	625.85	73722.43	573.93	1413.05	55992.13	39625.01	577.16	657.15	6.26	18.93	0.33	5.47	17.08	0.32
Jan-2018	21.87	48.72	626.24	73837.53	574.13	1412.94	56084.46	39693.31	577.52	657.19	6.36	19.58	0.32	5.51	16.81	0.33
Feb-2018	21.94	48.74	626.60	73946.76	574.33	1412.85	56170.59	39757.01	577.86	657.24	7.84	19.53	0.40	6.36	16.37	0.39
Mar-2018	22.01	48.77	626.97	74054.72	574.52	1412.75	56248.65	39814.99	578.20	657.28	8.73	19.49	0.45	7.07	16.47	0.43
Apr-2018	22.08	48.80	627.36	74164.22	574.72	1412.65	56324.62	39871.61	578.56	657.32	9.25	19.03	0.49	5.89	16.62	0.35
May-2018	22.14	48.83	627.75	74270.34	574.93	1412.55	56402.47	39929.65	578.93	657.37	13.45	19.12	0.70	6.80	17.05	0.40
Jun-2018	22.20	48.85	628.16	74372.07	575.13	1412.44	56486.14	39991.95	579.31	657.41	20.57	19.15	1.07	7.72	17.15	0.45
Jul-2018	22.25	48.88	628.58	74468.28	575.34	1412.32	56569.66	40054.32	579.70	657.46	19.00	19.29	0.99	7.29	16.85	0.43
Aug-2018	22.30	48.92	629.03	74560.23	575.54	1412.20	56645.28	40111.38	580.12	657.50	16.86	19.49	0.86	7.91	16.76	0.47
Sep-2018	22.34	48.95	629.49	74645.15	575.74	1412.07	56704.70	40157.09	580.54	657.54	12.12	19.65	0.62	7.04	16.88	0.42
Oct-2018	22.38	48.98	629.95	74724.96	575.94	1411.94	56752.66	40194.86	580.97	657.59	7.86	20.02	0.39	6.48	17.55	0.37
Nov-2018	22.41	49.01	630.41	74800.12	576.14	1411.80	56795.72	40229.31	581.40	657.63	7.32	20.48	0.36	6.41	18.11	0.35
Dec-2018	22.44	49.04	630.88	74870.94	576.34	1411.66	56838.63	40263.79	581.84	657.67	6.33	20.74	0.31	5.71	18.93	0.30
Jan-2019	22.47	49.07	631.34	74939.11	576.54	1411.51	56881.49	40298.42	582.27	657.72	6.61	22.12	0.30	5.97	19.08	0.31
Feb-2019	22.49	49.10	631.78	75000.55	576.73	1411.36	56919.08	40329.19	582.68	657.77	8.15	22.06	0.37	6.89	18.57	0.37
Mar-2019	22.51	49.12	632.20	75058.98	576.92	1411.21	56951.80	40356.59	583.07	657.81	9.07	22.02	0.41	7.66	18.68	0.41
Apr-2019	22.52	49.15	632.61	75116.84	577.11	1411.06	56981.37	40381.95	583.47	657.86	9.61	21.49	0.45	6.38	18.86	0.34
May-2019	22.54	49.16	633.01	75172.37	577.31	1410.91	57007.97	40405.25	583.84	657.91	13.97	21.59	0.65	7.37	19.34	0.38
Jun-2019	22.55	49.18	633.37	75226.00	577.51	1410.75	57032.93	40427.40	584.19	657.97	21.35	21.62	0.99	8.36	19.45	0.43
Jul-2019	22.56	49.19	633.71	75278.06	577.71	1410.59	57056.84	40448.80	584.52	658.02	19.73	21.78	0.91	7.90	19.11	0.41
Aug-2019	22.57	49.20	634.01	75329.85	577.91	1410.44	57080.74	40470.26	584.81	658.08	17.50	22.01	0.80	8.57	19.00	0.45
Sep-2019	22.57	49.20	634.28	75380.02	578.11	1410.28	57104.34	40491.42	585.08	658.14	12.58	22.19	0.57	7.63	19.15	0.40
Oct-2019	22.57	49.19	634.51	75429.86	578.31	1410.13	57127.45	40512.23	585.32	658.21	8.16	22.62	0.36	7.02	19.91	0.35
Nov-2019	22.58	49.19	634.73	75479.77	578.52	1409.98	57149.17	40532.04	585.54	658.27	7.61	23.14	0.33	6.95	20.55	0.34
Dec-2019	22.58	49.18	634.91	75530.14	578.72	1409.82	57168.87	40550.41	585.74	658.34	6.58	23.44	0.28	6.19	21.49	0.29
Jan-2020	22.58	49.16	635.08	75582.28	578.92	1409.67	57187.46	40568.06	585.92	658.40	6.83	23.43	0.29	6.21	20.08	0.31
Feb-2020	22.57	49.14	635.22	75633.96	579.12	1409.52	57204.99	40584.81	586.08	658.47	8.43	23.37	0.36	7.17	19.56	0.37
Mar-2020	22.57	49.12	635.34	75687.28	579.32	1409.37	57222.88	40601.80	586.22	658.53	9.38	23.33	0.40	7.97	19.67	0.41
Apr-2020	22.57	49.10	635.45	75743.56	579.52	1409.22	57241.75	40619.55	586.36	658.60	9.95	22.78	0.44	6.64	19.87	0.33
May-2020	22.56	49.07	635.55	75802.34	579.72	1409.07	57261.47	40637.91	586.48	658.66	14.46	22.89	0.63	7.67	20.38	0.38
Jun-2020	22.56	49.04	635.64	75864.01	579.92	1408.91	57282.32	40657.06	586.60	658.72	22.11	22.92	0.96	8.71	20.51	0.42
Jul-2020	22.55	49.01	635.71	75928.97	580.12	1408.76	57305.00	40677.51	586.71	658.78	20.43	23.10	0.88	8.23	20.15	0.41
Aug-2020	22.54	48.97	635.79	75998.53	580.32	1408.61	57330.49	40700.03	586.81	658.84	18.13	23.35	0.78	8.93	20.04	0.45
Sep-2020	22.53	48.93	635.85	76070.18	580.51	1408.46	57358.15	40724.02	586.92	658.90	13.04	23.54	0.55	7.95	20.20	0.39
Oct-2020	22.52	48.90	635.91	76144.84	580.71	1408.31	57388.15	40749.69	587.02	658.96	8.46	24.00	0.35	7.32	21.01	0.35
Nov-2020	22.51	48.85	635.97	76222.25	580.90	1408.16	57420.13	40776.77	587.11	659.01	7.88	24.56	0.32	7.25	21.68	0.33
Dec-2020	22.50	48.81	636.02	76302.17	581.09	1408.01	57453.68	40804.99	587.21	659.07	6.82	24.88	0.27	6.46	22.68	0.28
Jan-2021	22.50	48.77	636.07	76385.91	581.28	1407.85	57488.72	40834.37	587.31	659.12	6.92	24.55	0.28	6.29	20.94	0.30

NMPC Historical and Projected Economic Indicators
West Gate

Date	CONST	MFG	EMPL	GDP	HH	POP	INCOME	ICP	NONMFG	HSTOCK	NGPRCR	OILPRCR	GORR	NGPRCC	OILPRCC	GORC
Feb-2021	22.49	48.72	636.13	76467.49	581.46	1407.70	57522.15	40862.42	587.40	659.17	8.54	24.49	0.35	7.26	20.39	0.36
Mar-2021	22.48	48.68	636.18	76550.76	581.64	1407.55	57555.29	40890.28	587.50	659.22	9.50	24.45	0.39	8.08	20.51	0.39
end of	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
FY2007	23.11	59.95	626.60	70069.59	552.71	1420.22	47963.13	33771.61	566.65	655.53	14.63	21.01	0.70	14.31	16.97	0.84
FY2008	23.79	59.31	631.47	69651.70	558.37	1423.10	49387.76	34704.38	572.16	658.63	14.21	28.29	0.50	13.90	26.62	0.52
FY2009	22.40	53.86	618.20	68576.14	559.33	1423.89	50700.42	35607.08	564.34	660.58	13.68	18.81	0.73	13.36	13.93	0.96
FY2010	21.77	50.39	611.64	71169.61	560.39	1427.17	50878.06	35649.69	561.25	662.68	11.49	22.09	0.52	10.92	18.88	0.58
FY2011	21.06	49.66	611.45	70629.87	564.26	1428.81	51598.50	36112.84	561.79	662.15	11.87	28.12	0.42	11.29	25.37	0.44
FY2012	21.29	48.13	611.56	70837.13	566.32	1429.12	52286.37	36586.35	563.43	660.69	10.46	28.70	0.36	9.93	25.89	0.38
FY2013	21.22	47.41	614.96	70944.15	568.07	1427.28	51549.51	36117.25	567.55	659.47	9.84	28.13	0.35	9.37	25.38	0.37
FY2014	20.66	47.38	615.59	70195.34	569.74	1424.41	51561.23	36198.36	568.21	658.23	11.23	28.33	0.40	10.72	25.55	0.42
FY2015	20.68	47.81	613.91	69965.89	568.78	1417.47	53083.36	37449.35	566.10	657.16	7.97	21.65	0.37	7.22	19.53	0.37
FY2016	20.70	47.98	615.71	71462.73	570.23	1415.19	54562.70	38555.07	567.73	656.59	7.19	14.96	0.48	6.52	13.50	0.48
FY2017	21.13	48.33	621.70	72852.20	572.46	1414.36	55499.65	39240.09	573.37	656.77	8.63	17.81	0.48	6.77	16.06	0.42
FY2018	22.01	48.77	626.97	74054.72	574.52	1412.75	56248.65	39814.99	578.20	657.28	8.73	19.49	0.45	7.07	16.47	0.43
FY2019	22.51	49.12	632.20	75058.98	576.92	1411.21	56951.80	40356.59	583.07	657.81	9.07	22.02	0.41	7.66	18.68	0.41
FY2020	22.57	49.12	635.34	75687.28	579.32	1409.37	57222.88	40601.80	586.22	658.53	9.38	23.33	0.40	7.97	19.67	0.41
FY2021	22.48	48.68	636.18	76550.76	581.64	1407.55	57555.29	40890.28	587.50	659.22	9.50	24.45	0.39	8.08	20.51	0.39
FY13-FY17	-0.11%	0.49%	0.27%	0.67%	0.19%	-0.23%	1.86%	2.09%	0.26%	-0.10%	-3.21%	-10.80%	8.51%	-7.81%	-10.80%	3.36%
FY17-FY21	1.60%	0.73%	0.46%	1.35%	0.21%	-0.21%	2.20%	2.41%	0.44%	-0.04%	-6.11%	-8.92%	3.08%	-9.88%	-10.40%	0.58%

Exhibit __ (TEP-7)

Historical Actual Deliveries by Service and

Revenue Class for the Period April 2012 – March 2017 (monthly)

Niagara Mohawk Historical Actual Deliveries by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	1 Apr-2012	2 May-2012	3 Jun-2012	4 Jul-2012	5 Aug-2012	6 Sep-2012	7 Oct-2012	8 Nov-2012	9 Dec-2012	10 Jan-2013	11 Feb-2013	12 Mar-2013
SC1 Residential Non Heat	937,279	735,257	541,094	451,767	414,176	463,185	487,612	811,414	1,357,837	1,816,118	1,932,505	1,661,406
SC1 Residential Heat	28,652,072	20,054,333	8,489,153	6,178,329	5,767,103	6,270,870	11,024,708	24,808,304	44,642,370	60,757,629	64,777,212	54,815,083
SC1 MB Residential Non-Heat	269,934	225,399	171,823	142,354	132,768	142,337	152,130	248,110	410,404	539,649	573,557	496,797
SC1 MB Residential Heat	9,765,760	6,993,545	2,994,789	2,104,238	1,998,188	2,167,725	3,872,273	8,642,361	15,602,620	21,270,881	22,837,623	19,096,750
Total SC1	39,625,046	28,008,534	12,196,858	8,876,688	8,312,234	9,044,117	15,536,722	34,510,188	62,013,231	84,384,278	90,120,897	76,070,035
SC2 Residential Non Heat	4,646	3,377	2,586	2,298	2,251	2,401	2,693	4,176	5,841	7,866	7,888	7,390
SC2 Residential Heat	118,142	74,847	35,325	27,000	36,574	26,056	46,311	100,328	177,820	244,136	273,256	238,453
SC2 Commercial Non Heat	218,707	565,313	-145,680	52,652	139,703	148,192	170,136	228,298	349,892	420,537	548,230	344,365
SC2 Commercial Heat	6,544,142	4,349,338	1,968,229	1,520,853	1,500,326	1,557,245	2,480,348	5,553,988	10,133,462	14,696,315	15,690,617	13,141,120
SC2 Industrial	100,805	60,992	24,415	24,287	22,320	21,990	30,357	78,459	167,548	241,828	255,920	200,091
SC2 MB Residential Non Heat	3,578	2,206	2,171	1,833	1,889	1,822	2,242	2,795	3,906	4,617	4,017	3,654
SC2 MB Residential Heat	67,268	47,129	24,402	20,732	20,573	21,511	30,229	56,729	96,555	139,871	148,692	122,817
SC2 MB Commercial Non Heat	298,242	236,706	180,820	159,004	162,891	166,825	190,141	265,353	349,986	436,379	460,820	400,480
SC2 MB Commercial Heat	7,209,219	5,266,106	2,662,777	2,055,203	2,087,785	2,216,949	3,360,141	6,739,610	11,448,966	15,689,713	16,605,529	14,187,398
SC2 MB Industrial	69,161	45,452	20,704	12,373	11,316	971,567	8,336,780	51,344	117,547	166,434	184,298	159,558
Total SC2	14,633,910	10,651,468	4,775,750	3,876,234	3,985,629	5,134,558	14,649,378	13,081,078	22,851,522	32,047,696	34,179,268	28,805,325
SC3 Commercial Non Heat	3,596	5,872	1,926	1,217	1,244	1,284	3,521	5,718	9,219	11,147	12,367	10,765
SC3 Commercial Heat	844,741	654,967	472,325	376,175	362,061	400,433	408,342	587,102	747,951	780,052	1,155,785	931,892
SC3 Industrial	32,728	26,368	23,534	24,882	23,510	16,338	24,396	20,693	29,344	33,900	34,270	32,219
Total SC3	881,064	687,207	497,785	402,275	386,816	418,056	436,259	613,514	786,514	825,099	1,202,422	974,877
SC5 Firm Gas Transportation	5,948,217	5,519,325	5,614,944	4,017,383	4,385,864	4,389,475	5,253,284	6,443,217	7,157,945	7,932,895	7,784,215	7,998,793
SC6 Interruptible	7,231,862	6,348,106	6,371,212	5,792,445	7,576,002	7,037,344	5,475,476	5,481,776	11,249,668	7,684,867	8,494,883	8,899,611
SC7 Small Volume Firm Transportation	5,043,417	2,954,149	1,707,889	1,467,711	1,713,959	1,763,811	3,090,670	5,989,848	7,969,649	9,418,315	9,112,614	8,247,245
SC8 Transportation Service with Standby Sales Service	15,592,149	14,210,397	11,330,837	11,833,647	13,179,137	13,964,992	10,692,568	13,690,930	26,370,894	8,856,620	17,724,107	20,191,056
SC9 Negotiated Transportation Service	29,584,340	41,091,716	44,595,498	50,074,128	58,658,579	63,692,402	35,593,738	32,810,169	32,901,877	44,510,795	49,338,466	61,447,879
SC9 NYSEG Transportation	245,245	173,411	77,323	44,812	43,462	45,169	52,595	104,531	330,053	401,431	462,426	481,711
SC10 Natural Gas Vehicles	4,817	4,557	4,723	4,221	5,399	6,745	5,796	6,594	6,307	6,420	6,237	6,122
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	284,930	332,512	334,132	325,697	324,415	349,317	273,607	281,015	299,124	296,483	292,828	400,995
SC13 Residential Distributed Generation	478	347	207	147	154	151	256	460	807	1,000	1,101	946
Total SC5 - SC13	63,935,455	70,634,521	70,036,766	73,560,190	85,886,970	91,249,406	60,437,991	64,808,540	86,286,323	79,108,826	93,216,877	107,674,356
SC14 Dual Fuel Electric Generators	0	55,546	1,793,342	1,310,705	2,405,188	2,295,521	1,399,299	1,596,051	1,383,466	202,963	224,125	39,692
TOTAL	119,075,476	110,037,276	89,300,499	88,026,092	100,976,837	108,141,656	92,459,650	114,609,371	173,321,056	196,568,862	218,943,590	213,564,285

Exhibit ___ (TEP-7)
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Niagara Mohawk Historical Actual Deliveries by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	13 Apr-2013	14 May-2013	15 Jun-2013	16 Jul-2013	17 Aug-2013	18 Sep-2013	19 Oct-2013	20 Nov-2013	21 Dec-2013	22 Jan-2014	23 Feb-2014	24 Mar-2014
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	1,375,733	732,636	584,633	458,844	455,761	481,962	449,229	894,220	1,765,762	2,255,919	2,310,262	2,125,359
SC1 MB Residential Heat	43,269,335	20,032,775	10,183,859	6,610,941	6,022,219	6,877,433	9,844,216	27,285,817	56,814,386	71,677,899	73,729,883	68,521,892
	410,141	236,825	180,935	142,182	138,519	143,305	139,821	260,413	492,107	624,370	634,080	594,961
	15,290,302	7,150,596	3,626,713	2,295,251	2,077,417	2,340,619	3,374,714	9,101,047	18,680,686	24,182,716	24,638,603	22,883,374
Total SC1	60,345,511	28,152,832	14,576,140	9,507,219	8,693,915	9,843,319	13,807,981	37,541,496	77,752,942	98,740,904	101,312,828	94,125,586
SC2 Residential Non Heat	5,960	3,683	2,802	2,357	2,495	2,614	3,063	4,830	8,955	9,289	9,662	9,190
SC2 Residential Heat	191,673	91,533	45,325	30,579	30,260	36,492	49,459	118,251	253,472	321,686	352,054	326,751
SC2 Commercial Non Heat	275,249	244,049	168,954	204,411	160,930	164,509	188,669	236,421	474,798	495,053	506,885	478,445
SC2 Commercial Heat	10,174,923	4,459,141	2,243,557	1,655,943	1,536,719	1,745,230	2,472,986	5,807,795	14,184,773	16,739,592	17,906,365	16,841,692
SC2 Industrial	125,606	48,252	21,511	23,181	23,740	30,129	41,268	107,093	226,039	299,801	286,039	262,247
SC2 MB Residential Non Heat	3,175	2,158	1,694	1,583	1,769	1,845	2,252	3,422	4,889	5,778	5,274	5,129
SC2 MB Residential Heat	95,631	47,968	28,579	21,839	20,954	23,446	28,855	64,387	123,041	169,085	165,614	154,555
SC2 MB Commercial Non Heat	352,957	226,091	178,814	157,586	157,199	163,289	180,080	258,329	402,537	495,930	478,437	457,050
SC2 MB Commercial Heat	11,104,493	5,387,429	3,015,274	2,238,767	2,186,858	2,401,209	3,353,315	7,120,475	14,210,717	18,622,401	18,849,930	17,604,797
SC2 MB Industrial	122,487	46,625	18,140	11,960	12,864	14,531	16,834	53,026	138,284	183,900	195,190	183,246
Total SC2	22,452,155	10,556,928	5,724,650	4,348,205	4,133,788	4,583,295	6,336,781	13,774,028	30,027,506	37,342,514	38,755,450	36,323,102
SC3 Commercial Non Heat	7,968	5,495	1,684	1,466	1,369	1,201	781	6,492	11,334	11,937	378	-137
SC3 Commercial Heat	794,835	583,478	405,823	349,482	376,338	387,865	390,669	596,375	872,133	1,171,797	1,180,262	897,988
SC3 Industrial	30,773	26,026	20,551	20,397	22,855	17,586	12,876	17,216	28,210	39,443	46,848	42,499
Total SC3	833,576	614,999	428,057	371,345	400,562	406,651	404,325	620,083	911,678	1,223,177	1,227,488	940,350
SC5 Firm Gas Transportation	6,209,005	4,976,662	4,470,420	4,267,409	4,614,184	4,796,555	5,545,929	6,647,915	7,824,660	8,537,133	8,912,313	8,564,799
SC6 Interruptible	8,005,950	6,682,182	6,171,532	4,929,575	6,970,848	6,383,724	5,183,166	5,183,887	10,671,808	6,396,607	10,284,019	10,614,147
SC7 Small Volume Firm Transportation	5,907,334	3,155,661	1,789,339	1,665,653	1,518,687	1,864,232	2,868,752	6,366,720	9,471,542	10,717,987	10,516,922	10,218,195
SC8 Transportation Service with Standby Sales Service	17,113,993	15,538,774	13,588,292	11,986,937	12,083,917	13,869,315	10,549,705	13,222,567	18,432,160	18,285,018	20,983,777	19,538,405
SC9 Negotiated Transportation Service	40,840,015	33,916,919	35,798,933	20,413,680	66,162,250	53,107,306	33,215,665	27,535,630	48,897,034	57,766,492	56,955,797	69,337,947
SC9 NYSEG Transportation	345,781	196,574	85,633	47,680	44,765	48,343	59,273	120,720	349,080	499,452	584,139	536,258
SC10 Natural Gas Vehicles	6,342	6,489	7,436	6,870	6,768	6,283	5,793	7,389	8,184	7,946	7,871	7,061
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	632,676	652,704	697,536	712,164	736,362	627,489	721,261	823,114	848,587	858,760	830,099	748,748
SC13 Residential Distributed Generation	745	333	240	148	130	138	175	469	855	971	1,065	1,273
Total SC5 - SC13	79,061,842	65,126,298	62,609,359	44,030,115	92,137,911	80,703,384	58,149,719	59,908,411	96,503,912	103,070,365	109,076,002	119,566,832
SC14 Dual Fuel Electric Generators	143,799	398,808	829,155	1,198,804	2,448,100	1,698,835	1,238,142	1,285,288	92,603	311,180	203,345	2,062,349
TOTAL	162,836,882	104,849,866	84,167,362	59,455,689	107,814,277	97,235,484	79,936,948	113,129,306	205,288,639	240,688,141	250,575,113	253,018,219

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Niagara Mohawk Historical Actual Deliveries by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	25 Apr-2014	26 May-2014	27 Jun-2014	28 Jul-2014	29 Aug-2014	30 Sep-2014	31 Oct-2014	32 Nov-2014	33 Dec-2014	34 Jan-2015	35 Feb-2015	36 Mar-2015
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	1,473,751	831,287	525,158	455,856	441,298	453,414	492,446	879,524	1,697,531	2,193,912	2,630,540	2,379,825
SC1 MB Residential Heat	46,223,533	22,517,185	8,903,692	6,468,976	6,117,647	6,834,461	10,702,566	26,191,053	52,963,160	69,175,045	82,101,591	74,478,865
	425,311	249,207	168,046	140,737	135,041	136,029	144,094	247,787	452,493	577,096	678,676	619,395
	15,591,336	7,638,680	3,007,451	2,134,438	2,007,653	2,188,129	3,431,626	8,280,723	16,638,329	21,438,317	25,454,516	22,945,955
Total SC1	63,713,931	31,236,359	12,604,348	9,200,008	8,701,638	9,612,034	14,770,732	35,599,086	71,751,513	93,384,370	110,865,323	100,424,040
SC2 Residential Non Heat	7,085	4,074	3,115	3,121	2,816	3,047	3,393	5,574	9,074	10,312	11,868	11,332
SC2 Residential Heat	218,893	105,893	46,134	33,783	31,813	37,314	51,104	109,426	222,358	293,141	362,537	377,005
SC2 Commercial Non Heat	338,758	270,532	166,317	195,557	174,304	190,830	196,783	280,622	425,894	458,698	500,724	452,136
SC2 Commercial Heat	10,958,585	4,869,930	2,095,340	1,648,435	1,742,751	1,786,666	2,580,859	5,868,712	12,477,792	16,602,601	19,848,967	18,050,952
SC2 Industrial	172,769	220,184	-102,413	26,450	-9,152	86,778	59,340	124,579	209,356	279,884	336,239	282,322
SC2 MB Residential Non Heat	3,621	2,365	1,631	1,430	1,472	1,492	1,801	2,775	3,620	4,843	4,933	4,195
SC2 MB Residential Heat	101,703	51,162	26,507	20,878	19,831	21,270	29,376	61,513	121,643	165,014	198,369	173,778
SC2 MB Commercial Non Heat	348,733	240,434	168,897	148,185	145,424	150,066	182,275	260,180	382,493	459,864	489,220	461,193
SC2 MB Commercial Heat	11,918,730	6,059,655	2,843,628	2,186,716	2,200,566	2,403,176	3,409,632	7,018,161	13,728,899	17,853,627	20,982,084	18,971,910
SC2 MB Industrial	127,333	50,335	22,203	13,922	15,170	18,542	27,777	53,151	135,717	185,100	240,064	207,837
Total SC2	24,196,208	11,874,564	5,271,360	4,278,477	4,324,995	4,699,182	6,542,339	13,784,694	27,716,848	36,313,084	42,975,004	38,992,659
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	1,001,286	489,151	424,961	365,139	413,067	379,989	672,680	695,936	876,357	925,502	886,827	938,676
SC3 Industrial	32,401	27,275	15,668	10,427	12,485	14,765	20,585	44,120	33,248	53,339	145,885	147,882
Total SC3	1,033,687	516,427	440,629	375,566	425,553	394,754	693,265	740,056	909,605	978,841	1,032,712	1,086,558
SC5 Firm Gas Transportation	6,279,207	5,369,598	4,291,386	4,371,596	4,808,779	4,783,584	5,588,533	6,805,740	8,216,912	9,792,546	9,762,744	9,253,829
SC6 Interruptible	9,204,999	6,622,816	5,676,213	4,259,534	4,671,615	4,247,479	4,914,239	5,493,703	6,364,834	7,912,900	10,050,989	7,200,969
SC7 Small Volume Firm Transportation	6,240,221	2,882,934	1,869,416	1,566,286	1,553,508	1,937,608	2,938,728	6,226,791	8,653,643	10,684,935	11,527,650	10,302,652
SC8 Transportation Service with Standby Sales Service	17,873,444	15,548,946	13,113,722	11,759,086	14,519,439	12,877,329	13,463,930	13,796,186	19,738,625	21,415,013	27,343,894	14,316,108
SC9 Negotiated Transportation Service	50,627,113	47,877,652	33,099,867	43,304,637	52,016,095	50,848,180	45,587,883	38,346,420	56,901,762	68,304,397	55,089,002	50,837,019
SC9 NYSEG Transportation	432,358	197,753	85,577	46,162	48,763	44,423	57,651	111,773	338,326	453,237	593,653	632,834
SC10 Natural Gas Vehicles	7,744	7,158	9,058	6,424	8,616	13,596	14,614	14,701	16,928	10,009	20,767	15,518
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	716,604	667,886	649,754	669,253	675,896	583,979	725,036	859,079	1,170,578	1,195,244	1,194,055	832,195
SC13 Residential Distributed Generation	228	280	106	81	74	98	155	398	683	908	970	724
Total SC5 - SC13	91,381,919	79,175,023	58,795,099	65,983,060	78,302,786	75,336,275	73,290,771	71,654,791	101,402,291	119,769,188	115,583,722	93,391,849
SC14 Dual Fuel Electric Generators	1,116,024	929,938	842,131	1,962,044	2,713,214	2,395,752	2,811,578	2,529,740	1,603,396	710,222	1,030,089	563,678
TOTAL	181,441,770	123,732,311	77,953,566	81,799,155	94,468,186	92,437,997	98,108,685	124,308,367	203,383,652	251,155,705	271,486,850	234,458,784

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Niagara Mohawk Historical Actual Deliveries by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	37 Apr-2015	38 May-2015	39 Jun-2015	40 Jul-2015	41 Aug-2015	42 Sep-2015	43 Oct-2015	44 Nov-2015	45 Dec-2015	46 Jan-2016	47 Feb-2016	48 Mar-2016
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	1,584,369	749,272	544,951	496,850	438,594	435,771	304,073	265,211	400,180	540,169	626,943	566,878
SC1 MB Residential Heat	48,579,057	19,169,392	9,323,742	7,072,048	6,187,192	6,448,582	11,512,979	24,861,874	40,603,689	58,550,319	66,852,947	59,504,691
	414,463	204,347	147,922	133,204	114,070	114,332	74,175	51,337	69,361	91,611	101,417	94,786
	14,588,589	5,736,839	2,693,509	1,988,198	1,721,405	1,760,068	3,101,400	6,778,424	10,799,311	15,433,000	17,666,423	15,586,484
Total SC1	65,166,478	25,859,849	12,710,124	9,690,299	8,461,260	8,758,753	14,992,627	31,956,846	51,872,541	74,615,099	85,247,730	75,752,838
SC2 Residential Non Heat	7,199	3,942	3,390	2,466	2,947	3,010	1,040	692	918	1,772	1,710	1,407
SC2 Residential Heat	226,641	86,909	45,694	35,077	36,680	35,391	54,306	103,340	164,762	235,089	279,427	239,977
SC2 Commercial Non Heat	358,270	249,835	195,042	163,130	153,404	171,817	190,728	248,653	315,129	398,332	404,813	390,204
SC2 Commercial Heat	11,301,316	4,452,827	2,306,134	1,919,287	1,714,769	1,787,755	2,892,570	5,458,259	8,979,495	13,441,158	15,649,877	13,546,002
SC2 Industrial	167,771	70,929	36,123	26,859	27,882	26,858	38,237	72,051	122,713	197,317	212,432	171,278
SC2 MB Residential Non Heat	3,076	1,689	1,360	1,361	1,312	1,188	570	352	365	456	497	379
SC2 MB Residential Heat	105,142	46,096	30,559	26,418	24,371	24,984	35,244	60,121	92,658	133,324	158,373	145,891
SC2 MB Commercial Non Heat	347,347	204,475	163,027	147,097	137,228	140,922	169,290	229,314	285,589	371,729	391,671	355,499
SC2 MB Commercial Heat	12,324,546	4,987,925	2,799,557	2,493,648	2,067,264	2,254,759	3,429,032	6,236,641	9,901,545	14,288,890	16,029,626	14,171,783
SC2 MB Industrial	154,653	56,505	32,502	24,118	24,001	28,334	42,479	70,658	127,238	177,412	210,712	202,104
Total SC2	24,995,960	10,161,132	5,613,389	4,839,461	4,189,859	4,475,017	6,853,495	12,480,081	19,990,411	29,245,479	33,339,139	29,224,524
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	833,659	536,389	346,026	296,324	326,463	334,993	411,970	635,026	740,859	870,673	1,094,813	1,003,180
SC3 Industrial	202,034	130,876	104,522	111,295	127,932	106,508	144,528	133,829	109,978	103,261	138,282	155,919
Total SC3	1,035,693	667,265	450,548	407,619	454,395	441,501	556,498	768,856	850,837	973,935	1,233,095	1,159,099
SC5 Firm Gas Transportation	6,693,835	4,662,833	4,608,213	4,523,774	4,619,273	4,335,147	5,528,505	6,174,736	7,071,897	8,434,843	8,350,740	7,099,379
SC6 Interruptible	9,580,579	5,041,204	6,522,152	5,073,681	8,640,957	8,011,173	7,093,066	6,217,885	6,916,429	5,324,559	6,904,529	4,041,395
SC7 Small Volume Firm Transportation	6,130,669	2,651,119	1,752,515	1,419,314	1,439,485	1,542,427	2,883,223	5,042,355	6,291,549	8,910,290	9,535,798	7,345,128
SC8 Transportation Service with Standby Sales Service	19,536,234	18,133,070	12,961,769	11,847,167	14,280,906	13,558,362	12,892,910	14,884,214	19,224,996	18,706,411	19,983,583	19,795,320
SC9 Negotiated Transportation Service	61,608,320	44,512,312	45,368,177	63,781,394	41,925,509	52,429,570	54,259,020	32,656,393	37,568,988	37,588,230	35,285,043	25,880,671
SC9 NYSEG Transportation	405,921	202,804	65,846	46,627	49,871	44,442	46,900	135,167	251,731	318,500	462,736	434,393
SC10 Natural Gas Vehicles	14,302	17,178	10,110	8,622	9,154	10,724	14,878	18,120	20,459	22,460	21,390	16,836
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	929,527	1,117,619	853,317	966,199	1,162,859	780,574	1,049,199	1,228,731	1,193,199	1,324,313	1,002,422	1,186,236
SC13 Residential Distributed Generation	615	168	128	82	78	81	115	378	411	699	883	544
Total SC5 - SC13	104,900,002	76,338,307	72,142,226	87,666,860	72,128,091	80,712,501	83,767,816	66,357,980	78,539,658	80,630,306	81,547,124	65,799,902
SC14 Dual Fuel Electric Generators	887,157	1,953,188	3,090,289	3,248,782	9,588,891	10,223,610	8,970,929	9,661,682	5,680,290	5,223,728	8,278,134	5,502,574
TOTAL	196,985,289	114,979,741	94,006,576	105,853,021	94,822,496	104,611,383	115,141,364	121,225,445	156,933,737	190,688,547	209,645,222	177,438,937

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Niagara Mohawk Historical Actual Deliveries by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	49 Apr-2016	50 May-2016	51 Jun-2016	52 Jul-2016	53 Aug-2016	54 Sep-2016	55 Oct-2016	56 Nov-2016	57 Dec-2016	58 Jan-2017	59 Feb-2017	60 Mar-2017
SC1 Residential Non Heat												
SC1 Residential Heat	435,141	277,985	195,712	148,212	121,838	126,428	173,300	301,017	499,938	655,296	654,307	606,056
SC1 MB Residential Non-Heat	42,084,290	23,846,624	11,394,653	7,632,924	6,316,957	6,590,252	12,421,533	29,575,453	54,294,114	75,315,868	76,676,334	67,822,113
SC1 MB Residential Heat	75,979	53,801	40,196	32,083	26,474	26,038	31,781	47,692	73,596	92,515	92,912	88,169
	11,027,482	6,210,849	2,853,364	1,871,731	1,514,622	1,560,256	3,001,071	7,110,010	12,935,346	17,854,408	18,172,256	15,959,282
Total SC1	53,622,891	30,389,258	14,483,926	9,684,950	7,979,891	8,302,974	15,627,686	37,034,173	67,802,995	93,918,087	95,595,809	84,475,620
SC2 Residential Non Heat	1,000	597	835	328	282	331	511	892	1,430	1,858	1,867	1,748
SC2 Residential Heat	174,114	101,197	47,243	34,378	31,172	32,856	52,142	120,114	220,495	306,226	312,206	278,593
SC2 Commercial Non Heat	316,979	204,568	173,754	170,069	145,910	150,796	225,538	299,827	376,036	442,562	471,989	401,568
SC2 Commercial Heat	9,287,185	5,458,965	2,787,913	2,046,656	1,893,022	1,958,668	4,208,544	8,752,378	12,967,909	16,766,674	18,416,272	14,475,127
SC2 Industrial	129,835	66,281	43,447	34,878	25,154	28,442	55,442	115,384	175,994	232,504	257,930	200,188
SC2 MB Residential Non Heat	365	187	142	139	134	147	191	277	416	472	465	458
SC2 MB Residential Heat	104,154	61,376	41,800	31,264	26,261	27,045	34,241	70,954	123,471	166,760	168,544	150,710
SC2 MB Commercial Non Heat	289,567	208,518	156,906	136,170	122,354	127,139	190,586	264,074	333,751	396,162	422,273	357,158
SC2 MB Commercial Heat	10,107,195	5,845,020	3,078,413	2,278,838	2,065,057	2,163,583	4,526,968	8,884,729	12,830,233	16,327,509	17,801,146	14,002,498
SC2 MB Industrial	121,251	84,740	48,021	31,920	32,219	28,812	60,090	116,744	164,410	212,237	226,939	179,823
Total SC2	20,531,644	12,031,447	6,378,474	4,764,640	4,341,566	4,517,818	9,354,252	18,625,372	27,194,146	34,852,963	38,079,632	30,047,872
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	765,420	660,060	348,236	258,330	174,078	178,700	544,771	717,179	909,615	1,052,252	1,145,650	976,087
SC3 Industrial	145,939	126,133	123,011	136,812	128,280	143,291	175,350	156,491	161,843	160,685	162,269	161,824
Total SC3	911,360	786,193	471,247	395,142	302,358	321,990	720,121	873,671	1,071,458	1,212,937	1,307,919	1,137,911
SC5 Firm Gas Transportation	6,321,509	5,440,216	4,561,140	4,436,349	4,419,477	4,313,500	5,559,273	7,119,023	8,060,350	8,884,357	10,085,440	8,077,369
SC6 Interruptible	5,501,227	4,996,397	4,225,978	5,831,134	8,908,338	7,857,267	5,808,228	6,339,220	6,308,582	6,123,355	6,852,203	6,052,889
SC7 Small Volume Firm Transportation	5,968,993	3,567,773	1,872,438	1,428,782	1,324,388	1,724,231	3,261,176	5,694,312	7,941,475	9,893,177	10,755,980	8,628,724
SC8 Transportation Service with Standby Sales Service	20,301,732	17,459,770	13,766,118	15,246,748	13,610,158	13,875,236	15,931,655	19,269,205	20,868,274	22,314,927	25,286,145	20,623,467
SC9 Negotiated Transportation Service	17,293,290	23,703,584	41,410,018	51,890,149	53,715,191	47,048,526	39,436,499	37,689,551	35,754,572	33,387,384	32,858,279	35,490,156
SC9 NYSEG Transportation	298,362	206,529	90,808	54,934	42,118	41,599	123,268	272,607	357,472	410,985	528,398	346,490
SC10 Natural Gas Vehicles	19,067	15,486	12,948	10,700	12,952	19,280	9,216	13,819	17,903	21,458	22,662	18,546
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	996,547	957,370	718,737	1,110,007	853,622	1,024,746	1,153,445	1,232,431	1,326,242	1,322,360	1,261,527	1,192,032
SC13 Residential Distributed Generation	534	163	82	68	48	53	87	255	483	682	698	604
Total SC5 - SC13	56,701,261	56,347,288	66,658,266	80,008,871	82,886,292	75,904,439	71,282,847	77,630,424	80,635,353	82,358,685	87,651,333	80,430,278
SC14 Dual Fuel Electric Generators	6,999,705	7,502,747	3,215,971	6,502,531	10,445,265	10,415,941	7,218,900	7,665,840	7,002,637	6,317,970	7,538,573	6,300,388
TOTAL	138,766,861	107,056,933	91,207,884	101,356,134	105,955,372	99,463,162	104,203,806	141,829,479	183,706,588	218,660,641	230,173,266	202,392,069

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Exhibit__ (TEP-8)

Exhibit __ (TEP-8)

Historical Weather Normalized Billed Sales Data by Service and

Revenue Class for the Period April 2012 – March 2017 (monthly)

Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	1 Apr-2012	2 May-2012	3 Jun-2012	4 Jul-2012	5 Aug-2012	6 Sep-2012	7 Oct-2012	8 Nov-2012	9 Dec-2012	10 Jan-2013	11 Feb-2013	12 Mar-2013
SC1 Residential Non Heat												
SC1 Residential Heat	1,229,417	786,096	533,079	375,305	357,646	411,866	686,332	1,109,407	1,491,433	1,826,396	1,967,186	1,598,214
SC1 MB Residential Non-Heat	40,729,083	21,495,735	10,504,067	4,239,056	3,592,767	5,709,006	16,453,394	33,130,119	48,325,415	61,806,021	67,543,152	53,093,390
SC1 MB Residential Heat	349,635	237,272	170,747	121,645	117,094	132,419	210,345	332,446	445,516	541,774	588,533	477,855
	13,758,331	7,364,096	3,643,573	1,478,844	1,258,261	1,998,436	5,763,260	11,630,907	16,964,999	21,665,653	23,748,192	18,619,939
Total SC1	56,066,466	29,883,198	14,851,466	6,214,850	5,325,768	8,251,727	23,113,332	46,202,879	67,227,362	85,839,844	93,847,063	73,789,398
SC2 Residential Non Heat	5,823	3,764	2,593	2,139	2,112	2,316	3,301	4,959	6,514	7,566	8,492	6,944
SC2 Residential Heat	166,578	86,396	41,437	22,439	19,604	28,037	70,753	137,732	200,674	256,042	281,995	222,816
SC2 Commercial Non Heat	297,587	203,595	150,563	112,929	108,558	121,910	185,439	280,465	370,032	447,164	478,436	394,991
SC2 Commercial Heat	9,671,345	5,031,936	2,419,264	923,477	765,000	1,263,437	3,795,840	7,750,639	11,424,388	14,668,800	16,122,794	12,643,165
SC2 Industrial	140,630	68,319	27,922	6,254	3,884	11,608	50,956	112,880	175,015	225,759	258,903	195,453
SC2 MB Residential Non Heat	3,403	2,939	2,606	1,662	1,634	1,785	2,274	3,031	3,596	4,178	4,425	3,915
SC2 MB Residential Heat	97,314	55,756	30,438	15,407	14,379	18,934	41,566	77,041	109,147	138,760	151,391	119,322
SC2 MB Commercial Non Heat	338,354	250,401	199,890	152,325	150,492	160,427	215,318	299,098	377,420	446,572	469,203	396,043
SC2 MB Commercial Heat	10,160,102	5,719,079	3,114,075	1,611,866	1,457,611	1,981,299	4,638,940	8,767,120	12,508,859	15,855,598	17,249,358	13,671,269
SC2 MB Industrial	103,809	53,494	22,321	1,341,033	1,353,605	1,312,019	1,101,184	763,515	465,732	217,745	105,803	388,238
Total SC2	20,984,946	11,475,679	6,011,108	4,189,531	3,876,879	4,901,771	10,105,571	18,196,479	25,641,375	32,268,184	35,130,801	28,042,157
SC3 Commercial Non Heat	23,215	16,792	13,105	1,323	1,204	1,599	3,603	6,702	9,506	11,970	13,018	10,324
SC3 Commercial Heat	1,007,007	638,878	427,579	360,139	354,135	373,994	474,673	630,309	771,167	875,050	1,116,046	938,623
SC3 Industrial	42,687	36,423	32,828	19,389	19,181	19,869	23,358	28,751	33,632	37,920	33,121	29,213
Total SC3	1,072,910	692,093	473,512	380,851	374,520	395,462	501,634	665,762	814,305	924,940	1,162,184	978,161
SC5 Firm Gas Transportation	6,681,936	5,613,703	4,970,878	4,279,453	4,260,354	4,396,707	5,115,711	6,191,951	7,123,870	7,975,013	8,438,832	7,538,743
SC6 Interruptible	7,337,203	6,479,804	5,987,674	6,189,798	6,165,036	6,246,940	6,662,172	7,636,071	8,243,421	8,777,093	9,004,103	8,420,648
SC7 Small Volume Firm Transportation	6,491,719	3,793,188	2,251,040	1,545,076	1,454,380	1,742,867	3,226,906	5,517,255	7,610,271	9,368,895	10,153,475	8,168,966
SC8 Transportation Service with Standby Sales Service	15,548,900	13,036,820	11,488,689	12,945,724	12,889,871	13,382,253	14,340,898	16,004,711	17,361,351	18,342,580	18,410,697	16,950,076
SC9 Negotiated Transportation Service	36,317,504	34,938,646	33,240,167	46,021,488	46,052,939	45,948,909	45,421,497	44,606,188	43,868,296	43,219,919	42,944,117	43,652,977
SC9 NYSEG Transportation	296,324	158,682	79,678	31,737	26,992	42,688	122,264	245,277	356,609	454,436	496,049	389,097
SC10 Natural Gas Vehicles	4,289	2,669	1,740	5,969	5,963	5,981	6,070	6,208	6,333	6,443	6,490	6,370
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	367,760	389,333	401,716	322,295	317,774	316,163	307,997	295,374	286,292	275,451	270,840	284,768
SC13 Residential Distributed Generation	697	388	210	124	114	148	323	592	836	1,050	1,141	907
Total SC5 - SC13	73,046,333	64,413,233	58,421,793	71,341,665	71,173,425	72,082,656	75,203,839	80,503,627	84,857,280	88,420,880	89,725,743	85,412,552
SC14 Dual Fuel Electric Generators	0	0	269,365	1,678,409	1,695,372	1,639,262	1,354,799	915,055	517,067	167,359	18,603	400,933
TOTAL	151,170,654	106,464,203	80,027,244	83,805,306	82,445,964	87,270,879	110,279,174	146,483,802	179,057,389	207,621,208	219,884,395	188,623,200
RES	56,340,281	30,032,442	14,928,750	6,256,622	5,363,610	8,302,948	23,231,548	46,426,234	67,548,128	86,247,440	94,294,508	74,143,303
C/I	28,276,456	15,812,104	8,658,586	6,073,811	5,668,051	6,989,028	13,716,217	24,156,733	33,746,020	42,155,473	46,000,156	36,836,287
LARGE	66,181,867	60,227,654	56,036,452	71,146,609	71,090,565	71,656,758	73,017,341	75,599,253	77,470,615	78,936,401	79,312,401	77,352,473
DG	367,760	389,333	401,716	322,295	317,774	316,163	307,997	295,374	286,292	275,451	270,840	284,768
NGV	4,289	2,669	1,740	5,969	5,963	5,981	6,070	6,208	6,333	6,443	6,490	6,370
IT	0	0	0	0	0	0	0	0	0	0	0	0
Total	151,170,654	106,464,203	80,027,244	83,805,306	82,445,964	87,270,879	110,279,174	146,483,802	179,057,389	207,621,208	219,884,395	188,623,200

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Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	13 Apr-2013	14 May-2013	15 Jun-2013	16 Jul-2013	17 Aug-2013	18 Sep-2013	19 Oct-2013	20 Nov-2013	21 Dec-2013	22 Jan-2014	23 Feb-2014	24 Mar-2014
SC1 Residential Non Heat												
SC1 Residential Heat	1,288,843	797,788	513,879	350,394	331,298	393,429	703,845	1,185,879	1,624,654	2,009,392	2,166,882	1,742,063
SC1 MB Residential Non-Heat	40,724,414	21,162,258	9,911,833	3,726,343	3,059,133	5,269,399	16,506,779	33,995,326	50,047,413	64,254,110	70,384,731	55,169,668
SC1 MB Residential Heat	386,842	244,509	163,017	115,200	109,438	125,017	209,117	337,722	453,229	557,373	603,533	490,283
	14,256,376	7,418,920	3,479,595	1,293,618	1,058,877	1,814,710	5,641,273	11,514,782	16,799,438	21,487,513	23,515,682	18,391,572
Total SC1	56,656,474	29,623,474	14,068,323	5,485,555	4,558,746	7,602,556	23,061,014	47,033,710	68,924,734	88,308,389	96,670,829	75,793,586
SC2 Residential Non Heat	5,740	3,783	2,669	2,324	2,250	2,453	3,673	5,653	7,266	8,914	9,722	7,632
SC2 Residential Heat	173,936	91,590	45,010	19,474	16,322	26,108	75,877	155,081	230,285	296,257	326,888	258,526
SC2 Commercial Non Heat	322,161	206,255	140,774	157,162	152,755	164,546	222,378	309,829	390,059	459,348	492,352	413,858
SC2 Commercial Heat	9,684,013	4,965,800	2,257,601	834,568	669,559	1,193,313	3,865,731	8,027,806	11,944,140	15,409,480	16,939,265	13,280,033
SC2 Industrial	147,424	73,131	28,414	8,952	6,143	14,880	59,174	128,863	196,842	262,667	290,140	219,570
SC2 MB Residential Non Heat	3,356	2,556	2,035	1,568	1,531	1,701	2,334	3,313	4,318	4,977	5,459	4,457
SC2 MB Residential Heat	92,304	51,560	28,006	14,669	13,153	17,942	42,590	80,597	114,996	145,710	158,079	123,770
SC2 MB Commercial Non Heat	333,468	235,991	180,460	148,027	145,047	154,213	208,191	293,430	369,448	442,184	471,778	398,511
SC2 MB Commercial Heat	10,589,212	5,794,788	3,034,383	1,567,396	1,403,060	1,957,606	4,753,115	9,100,214	13,039,942	16,506,823	17,950,677	14,131,064
SC2 MB Industrial	606,162	937,313	1,119,770	3,476	1,720	7,724	38,163	85,219	129,936	167,980	181,144	140,233
Total SC2	21,957,776	12,362,768	6,839,121	2,757,616	2,411,541	3,540,488	9,271,227	18,190,005	26,427,230	33,704,339	36,825,505	28,977,654
SC3 Commercial Non Heat	8,035	4,431	2,362	994	951	1,093	1,810	2,918	3,921	4,802	0	0
SC3 Commercial Heat	759,254	562,125	430,651	342,482	334,550	368,463	504,304	684,535	885,510	1,071,348	1,118,585	839,833
SC3 Industrial	25,893	28,931	24,730	18,445	18,223	18,958	22,682	20,313	33,648	43,687	45,913	30,145
Total SC3	793,182	595,487	457,744	361,921	353,724	388,513	528,795	707,766	923,079	1,119,838	1,164,498	869,977
SC5 Firm Gas Transportation	6,536,465	5,333,211	4,616,690	4,411,421	4,369,585	4,507,967	5,233,955	6,397,351	7,354,505	8,140,972	8,553,340	7,694,579
SC6 Interruptible	7,924,811	7,144,216	6,696,171	5,565,849	5,525,592	5,658,750	6,333,831	7,377,419	8,321,912	9,151,828	9,504,851	8,597,518
SC7 Small Volume Firm Transportation	6,491,128	3,853,586	2,331,994	1,405,410	1,311,875	1,614,583	3,176,752	5,591,436	7,787,135	9,722,755	10,541,734	8,425,677
SC8 Transportation Service with Standby Sales Service	15,892,868	14,228,508	13,273,199	11,964,942	11,740,236	12,006,669	13,194,528	15,257,155	17,123,924	18,995,890	19,702,247	17,886,785
SC9 Negotiated Transportation Service	44,255,387	45,203,759	47,979,340	40,193,748	38,974,120	39,563,150	42,549,396	47,165,749	51,343,754	55,014,919	56,576,534	52,562,910
SC9 NYSEG Transportation	298,205	155,116	72,985	26,075	20,994	37,801	123,010	254,733	373,948	478,701	523,260	408,735
SC10 Natural Gas Vehicles	6,268	6,107	6,015	6,950	6,941	6,970	7,120	7,351	7,560	7,744	7,823	7,622
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	295,587	312,617	322,393	345,826	346,359	343,929	334,939	321,040	308,461	297,408	292,707	304,791
SC13 Residential Distributed Generation	708	395	215	40	28	68	268	578	859	885	969	753
Total SC5 - SC13	81,701,426	76,237,515	75,299,001	63,920,261	62,295,731	63,739,888	70,953,799	82,372,812	92,622,059	101,811,102	105,703,464	95,889,369
SC14 Dual Fuel Electric Generators	725,847	1,237,360	1,530,957	1,530,788	1,540,116	1,509,262	1,352,840	1,111,032	892,185	699,886	618,087	828,324
TOTAL	161,834,706	120,056,604	98,195,147	74,056,142	71,159,859	76,780,707	105,167,675	149,415,325	189,789,287	225,643,553	240,982,382	202,358,912
RES	56,932,519	29,773,359	14,146,257	5,523,630	4,592,031	7,650,829	23,185,756	47,278,933	69,282,458	88,765,131	97,171,945	76,188,724
C/I	28,966,749	16,662,351	9,551,140	4,486,913	4,043,884	5,495,379	12,852,301	24,244,563	34,780,580	44,091,075	48,031,588	37,878,924
LARGE	75,633,583	73,302,169	74,169,342	63,692,824	62,170,644	63,283,600	68,787,560	77,563,438	85,410,227	92,482,195	95,478,320	87,978,851
DG	295,587	312,617	322,393	345,826	346,359	343,929	334,939	321,040	308,461	297,408	292,707	304,791
NGV	6,268	6,107	6,015	6,950	6,941	6,970	7,120	7,351	7,560	7,744	7,823	7,622
IT	0	0	0	0	0	0	0	0	0	0	0	0
Total	161,834,706	120,056,604	98,195,147	74,056,142	71,159,859	76,780,707	105,167,675	149,415,325	189,789,287	225,643,553	240,982,382	202,358,912

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Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	25 Apr-2014	26 May-2014	27 Jun-2014	28 Jul-2014	29 Aug-2014	30 Sep-2014	31 Oct-2014	32 Nov-2014	33 Dec-2014	34 Jan-2015	35 Feb-2015	36 Mar-2015
SC1 Residential Non Heat	1,388,078	829,125	506,927	347,553	327,373	391,395	716,080	1,218,005	1,680,330	2,090,510	2,267,144	1,830,896
SC1 Residential Heat	42,111,113	21,545,589	9,722,815	4,067,418	3,399,679	5,633,894	16,972,053	34,568,828	50,816,180	65,268,166	71,527,121	56,322,259
SC1 MB Residential Non-Heat	394,874	242,953	156,957	111,915	106,205	121,780	204,975	333,165	448,030	549,309	595,144	476,546
SC1 MB Residential Heat	14,071,993	7,182,429	3,242,919	1,337,707	1,107,698	1,819,716	5,451,030	11,039,420	16,023,188	20,366,907	22,199,678	17,195,694
Total SC1	57,966,058	29,800,096	13,629,619	5,864,592	4,940,954	7,966,785	23,344,139	47,159,418	68,967,729	88,274,893	96,589,086	75,825,395
SC2 Residential Non Heat	6,586	4,177	2,967	2,644	2,518	2,744	4,174	6,417	8,247	10,113	10,493	9,105
SC2 Residential Heat	198,679	103,222	47,314	21,453	18,473	28,457	78,788	156,751	228,126	296,051	322,473	255,009
SC2 Commercial Non Heat	347,044	243,861	184,921	178,292	176,040	186,062	235,129	306,374	376,068	438,764	463,712	398,768
SC2 Commercial Heat	10,139,204	5,157,065	2,278,789	1,018,752	856,482	1,376,101	4,027,046	8,188,480	12,078,582	15,608,638	17,119,474	13,524,912
SC2 Industrial	167,583	82,625	34,163	24,730	22,351	29,944	70,109	134,170	199,521	262,436	283,231	224,256
SC2 MB Residential Non Heat	3,734	2,596	1,942	1,359	1,325	1,437	1,949	2,805	3,579	4,134	4,548	3,693
SC2 MB Residential Heat	96,951	52,562	27,364	14,289	12,664	17,540	43,654	84,687	122,098	153,963	168,804	131,090
SC2 MB Commercial Non Heat	330,798	230,860	173,341	142,985	139,781	149,642	204,113	288,937	364,131	428,412	457,630	384,292
SC2 MB Commercial Heat	10,949,934	5,867,678	2,998,172	1,596,490	1,425,112	1,992,530	4,873,724	9,302,732	13,332,399	16,801,227	18,328,035	14,401,032
SC2 MB Industrial	105,465	50,730	19,635	8,752	6,817	13,438	46,428	97,426	138,874	181,120	201,390	157,050
Total SC2	22,345,977	11,795,375	5,768,609	3,009,746	2,661,563	3,797,895	9,585,115	18,568,779	26,851,624	34,184,858	37,359,790	29,489,207
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	754,360	525,361	385,167	445,389	438,585	461,092	562,413	718,181	890,975	981,398	864,241	766,246
SC3 Industrial	26,499	20,759	17,465	34,455	33,722	42,171	56,515	78,688	98,756	99,763	123,891	104,612
Total SC3	780,859	546,120	402,632	479,844	472,307	503,263	618,928	796,869	989,731	1,081,161	988,132	870,859
SC5 Firm Gas Transportation	6,843,069	5,567,925	4,793,490	4,432,053	4,385,155	4,658,065	5,468,939	6,634,944	7,776,074	8,853,781	9,277,817	8,187,972
SC6 Interruptible	7,826,440	6,612,534	5,915,777	4,828,752	4,783,285	4,709,417	5,437,204	6,562,269	7,580,503	8,071,632	8,434,095	7,502,502
SC7 Small Volume Firm Transportation	6,612,794	3,790,568	2,194,419	1,489,275	1,390,606	1,704,151	3,245,447	5,623,462	7,773,820	9,611,255	10,469,132	8,361,280
SC8 Transportation Service with Standby Sales Service	16,343,952	14,593,858	13,131,725	12,884,318	12,799,101	13,080,973	14,509,997	16,719,085	18,718,407	20,695,353	21,222,477	19,301,816
SC9 Negotiated Transportation Service	49,152,014	43,782,250	40,700,115	45,537,209	45,414,812	45,819,666	47,872,182	51,045,108	53,916,747	56,440,023	57,513,357	54,754,701
SC9 NYSEG Transportation	311,409	158,189	70,243	27,115	22,034	38,840	124,041	255,751	374,954	479,697	524,251	409,738
SC10 Natural Gas Vehicles	7,451	7,182	7,027	10,381	10,318	10,527	17,380	13,228	14,711	16,015	16,570	15,144
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	315,060	331,227	340,506	308,359	308,894	307,126	298,164	284,311	271,773	260,756	256,070	268,114
SC13 Residential Distributed Generation	570	281	115	65	57	84	218	426	614	779	849	669
Total SC5 - SC13	87,412,757	74,844,013	67,153,418	69,517,527	69,114,261	70,328,848	76,973,572	87,138,583	96,427,604	104,429,291	107,714,618	98,801,936
SC14 Dual Fuel Electric Generators	1,006,990	1,288,263	1,449,707	2,633,480	2,651,235	2,592,507	2,294,770	1,834,506	1,417,946	1,051,921	896,223	1,296,393
TOTAL	169,512,640	118,273,867	88,403,985	81,505,189	79,840,321	85,189,298	112,816,522	155,498,154	194,654,634	229,022,123	243,547,849	206,283,789
RES	58,272,577	29,962,933	13,709,322	5,904,402	4,975,991	8,017,047	23,472,922	47,410,504	69,330,392	88,739,932	97,096,253	76,224,961
C/I	29,433,680	15,969,507	8,286,072	4,939,120	4,489,496	5,955,131	13,320,923	24,738,450	35,253,126	44,413,013	48,310,736	38,322,448
LARGE	81,483,873	72,003,018	66,061,058	70,342,927	70,055,621	70,899,467	75,707,132	83,051,662	89,784,632	95,592,407	97,868,220	91,453,122
DG	315,060	331,227	340,506	308,359	308,894	307,126	298,164	284,311	271,773	260,756	256,070	268,114
NGV	7,451	7,182	7,027	10,381	10,318	10,527	17,380	13,228	14,711	16,015	16,570	15,144
IT	0	0	0	0	0	0	0	0	0	0	0	0
Total	169,512,640	118,273,867	88,403,985	81,505,189	79,840,321	85,189,298	112,816,522	155,498,154	194,654,634	229,022,123	243,547,849	206,283,789

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Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	37 Apr-2015	38 May-2015	39 Jun-2015	40 Jul-2015	41 Aug-2015	42 Sep-2015	43 Oct-2015	44 Nov-2015	45 Dec-2015	46 Jan-2016	47 Feb-2016	48 Mar-2016
SC1 Residential Non Heat												
SC1 Residential Heat	1,461,067	866,086	524,746	349,692	344,112	362,521	381,074	407,718	496,197	573,249	605,207	532,151
SC1 MB Residential Non-Heat	43,300,803	22,377,434	10,312,778	4,769,043	4,103,627	6,333,866	17,855,912	36,168,389	52,820,968	67,545,577	73,995,399	59,825,511
SC1 MB Residential Heat	378,791	230,517	143,725	96,788	95,401	96,322	87,032	75,047	83,724	92,041	95,128	87,522
	12,956,077	6,596,954	2,987,822	1,344,104	1,135,399	1,742,507	4,898,061	9,805,359	14,128,909	17,927,512	19,532,613	15,669,901
Total SC1	58,096,739	30,070,991	13,969,071	6,559,627	5,678,540	8,535,216	23,222,079	46,456,512	67,529,798	86,138,379	94,228,347	76,115,086
SC2 Residential Non Heat	6,991	5,061	3,318	1,972	1,998	1,989	1,547	1,224	1,273	1,306	1,426	1,348
SC2 Residential Heat	197,457	102,287	47,897	26,624	23,842	32,491	76,956	148,766	215,055	273,119	302,164	241,218
SC2 Commercial Non Heat	343,720	255,307	204,250	150,591	149,528	158,648	211,483	289,106	359,974	422,637	451,024	388,525
SC2 Commercial Heat	10,387,520	5,385,330	2,489,711	1,286,766	1,132,339	1,628,761	4,191,267	8,204,892	11,940,447	15,297,447	16,827,680	13,658,742
SC2 Industrial	177,015	91,300	47,883	18,476	15,904	23,213	59,339	112,852	165,122	201,937	230,065	192,488
SC2 MB Residential Non Heat	2,986	2,050	1,512	901	931	921	667	422	386	355	341	373
SC2 MB Residential Heat	100,727	53,761	28,137	21,454	20,132	24,819	51,284	91,814	128,302	155,470	170,280	139,442
SC2 MB Commercial Non Heat	316,982	221,859	167,697	139,752	133,126	142,642	193,681	269,315	344,527	402,810	427,811	363,566
SC2 MB Commercial Heat	11,066,893	5,942,875	3,013,224	1,772,744	1,607,027	2,143,327	4,868,909	9,096,159	12,939,386	16,187,674	17,576,498	14,232,478
SC2 MB Industrial	121,326	63,001	26,851	21,011	18,434	25,668	59,506	115,105	168,522	212,568	224,880	185,143
Total SC2	22,721,617	12,122,831	6,030,480	3,440,290	3,103,261	4,182,479	9,714,639	18,329,655	26,262,995	33,155,323	36,212,169	29,403,325
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	661,983	484,013	414,840	320,957	313,147	311,496	457,253	672,422	925,043	1,071,634	1,143,826	1,001,036
SC3 Industrial	88,229	62,436	47,632	114,105	114,027	114,284	115,588	134,405	136,491	138,323	121,715	137,291
Total SC3	750,212	546,449	462,472	435,062	427,174	425,780	572,841	806,828	1,061,534	1,209,957	1,265,541	1,138,326
SC5 Firm Gas Transportation	7,175,425	5,698,129	4,874,978	4,478,627	4,461,632	4,563,412	5,251,377	6,476,555	7,533,102	8,504,391	8,847,442	7,889,544
SC6 Interruptible	6,710,807	5,464,444	4,749,057	6,476,822	6,488,027	6,450,964	6,263,067	5,972,601	5,709,717	5,478,723	5,380,465	5,608,872
SC7 Small Volume Firm Transportation	6,572,180	3,829,082	2,254,599	1,341,558	1,251,760	1,559,330	3,109,379	5,506,355	7,671,869	9,613,689	10,496,868	8,583,439
SC8 Transportation Service with Standby Sales Service	17,669,582	15,099,961	13,771,557	13,292,721	13,199,043	13,508,901	15,079,806	17,323,927	19,498,618	21,181,734	21,985,922	20,116,537
SC9 Negotiated Transportation Service	52,410,313	49,823,861	47,647,630	49,580,299	48,955,302	46,412,558	42,305,713	35,957,056	30,211,240	25,162,457	23,014,841	28,007,107
SC9 NYSEG Transportation	312,421	159,216	71,279	35,478	30,878	46,095	123,241	242,499	350,433	445,273	485,616	391,837
SC10 Natural Gas Vehicles	13,933	12,026	10,931	16,937	8,418	17,173	18,887	21,536	23,933	26,040	26,936	24,853
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	278,350	294,464	303,714	313,015	313,703	311,428	299,896	282,070	379,706	251,858	244,808	257,445
SC13 Residential Distributed Generation	515	274	135	49	40	68	210	429	627	801	875	703
Total SC5 - SC13	91,143,527	80,381,456	73,683,880	75,535,505	74,708,802	72,869,929	72,451,575	71,783,028	71,379,245	70,664,966	70,483,772	70,880,337
SC14 Dual Fuel Electric Generators	1,636,469	2,171,850	2,479,148	2,767,114	5,568,714	10,909,296	9,752,721	7,964,804	6,346,660	4,924,815	4,320,001	5,725,929
TOTAL	174,348,564	125,293,577	96,625,051	88,737,598	89,486,490	96,922,700	115,713,856	145,340,827	172,580,232	196,093,440	206,509,831	183,263,003
RES	58,405,415	30,234,422	14,050,070	6,610,626	5,725,482	8,595,505	23,352,743	46,699,168	67,875,442	86,569,429	94,703,435	76,498,170
C/I	29,735,848	16,335,203	8,666,688	5,165,958	4,735,292	6,107,368	13,266,405	24,400,611	34,651,382	43,548,719	47,500,366	38,742,708
LARGE	85,915,018	78,417,461	73,593,649	76,631,061	78,703,595	81,891,225	78,775,924	73,937,443	69,649,770	65,697,394	64,034,286	67,739,827
DG	278,350	294,464	303,714	313,015	313,703	311,428	299,896	282,070	379,706	251,858	244,808	257,445
NGV	13,933	12,026	10,931	16,937	8,418	17,173	18,887	21,536	23,933	26,040	26,936	24,853
IT	0	0	0	0	0	0	0	0	0	0	0	0
Total	174,348,564	125,293,577	96,625,051	88,737,598	89,486,490	96,922,700	115,713,856	145,340,827	172,580,232	196,093,440	206,509,831	183,263,003

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Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	49 Apr-2016	50 May-2016	51 Jun-2016	52 Jul-2016	53 Aug-2016	54 Sep-2016	55 Oct-2016	56 Nov-2016	57 Dec-2016	58 Jan-2017	59 Feb-2017	60 Mar-2017
SC1 Residential Non Heat	455,080	344,257	281,505	130,484	123,233	141,705	234,750	378,895	510,836	626,990	675,328	549,094
SC1 Residential Heat	44,817,033	23,519,258	11,252,217	4,530,093	3,801,653	6,255,635	18,689,305	38,032,817	55,781,205	71,494,598	78,253,006	61,476,701
SC1 MB Residential Non-Heat	78,762	66,001	58,320	30,345	28,611	30,442	41,755	59,135	75,132	89,208	96,608	79,717
SC1 MB Residential Heat	11,671,042	6,022,383	2,821,863	1,102,239	908,398	1,497,844	4,502,553	9,131,159	13,291,421	16,957,461	18,554,133	14,465,346
Total SC1	57,021,917	29,951,899	14,413,905	5,793,162	4,861,896	7,925,625	23,468,362	47,602,006	69,658,594	89,168,258	97,579,074	76,570,858
SC2 Residential Non Heat	1,267	1,151	1,153	335	339	384	659	1,084	1,468	1,807	1,950	1,581
SC2 Residential Heat	185,139	101,719	52,264	23,231	20,426	29,961	78,358	154,722	226,386	290,426	318,336	252,434
SC2 Commercial Non Heat	326,543	233,401	182,562	162,512	159,175	170,704	223,924	302,930	378,267	443,968	471,878	400,195
SC2 Commercial Heat	10,298,114	5,531,124	2,744,519	1,596,404	1,430,567	1,967,983	4,712,927	9,010,212	13,020,034	16,591,144	18,159,163	14,398,690
SC2 Industrial	138,759	75,469	37,095	23,875	22,683	28,334	63,801	120,397	177,377	229,603	252,338	199,148
SC2 MB Residential Non Heat	383	426	451	164	161	173	235	332	419	464	495	416
SC2 MB Residential Heat	107,910	59,772	34,826	22,940	21,106	25,840	51,249	91,145	126,841	158,267	171,635	136,256
SC2 MB Commercial Non Heat	300,172	205,751	152,637	134,719	131,356	138,945	188,805	265,831	335,241	397,900	422,602	355,709
SC2 MB Commercial Heat	10,789,548	5,843,487	3,073,512	1,893,743	1,726,082	2,249,155	4,934,499	9,097,821	12,877,914	16,197,194	17,603,255	13,931,518
SC2 MB Industrial	144,200	77,798	41,386	27,350	25,194	30,980	65,633	119,202	164,922	210,396	224,704	178,884
Total SC2	22,292,036	12,130,100	6,320,404	3,885,273	3,537,091	4,642,459	10,320,089	19,163,675	27,308,871	34,521,169	37,626,355	29,854,831
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	800,594	594,840	388,847	275,556	281,780	320,036	476,392	694,659	931,416	1,092,022	1,169,334	966,388
SC3 Industrial	135,397	132,716	147,575	155,043	154,832	155,530	159,070	141,268	165,231	169,473	171,278	160,980
Total SC3	935,991	727,557	536,422	430,599	436,611	475,566	635,462	835,927	1,096,646	1,261,496	1,340,612	1,127,368
SC5 Firm Gas Transportation	6,935,574	5,559,483	4,789,220	4,439,000	4,384,528	4,535,342	5,443,214	6,846,666	8,116,854	9,232,952	9,707,711	8,487,498
SC6 Interruptible	5,847,623	6,185,494	6,379,425	6,721,292	6,727,187	6,707,687	6,608,830	6,456,010	6,317,700	6,196,170	6,144,474	6,277,341
SC7 Small Volume Firm Transportation	6,589,208	3,783,174	2,175,835	1,516,571	1,419,922	1,732,515	3,317,363	5,752,049	7,974,607	9,885,641	10,726,898	8,601,115
SC8 Transportation Service with Standby Sales Service	18,162,501	15,397,222	13,810,008	13,930,489	13,826,721	14,169,955	15,910,074	18,600,074	21,034,644	23,173,873	24,083,843	21,745,059
SC9 Negotiated Transportation Service	33,225,439	40,610,226	44,848,943	47,046,201	47,211,189	46,665,459	43,898,735	39,621,735	35,750,860	32,349,566	30,902,747	34,621,326
SC9 NYSEG Transportation	293,812	155,090	75,467	42,970	38,421	53,468	129,753	247,679	354,407	448,188	488,080	385,550
SC10 Natural Gas Vehicles	11,341	9,799	8,916	10,901	10,800	11,134	12,828	15,445	17,814	19,896	20,781	18,506
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	270,655	289,348	431,103	376,045	375,763	376,694	381,423	388,740	395,362	401,180	403,655	397,294
SC13 Residential Distributed Generation	523	201	61	19	12	35	153	334	498	643	704	546
Total SC5 - SC13	71,336,676	71,990,037	72,518,978	74,083,489	73,994,544	74,252,292	75,702,372	77,928,732	79,962,746	81,708,108	82,478,893	80,534,236
SC14 Dual Fuel Electric Generators	7,195,523	9,275,236	10,468,949	8,186,290	8,203,007	8,147,711	7,867,375	7,434,011	7,041,798	6,697,164	6,550,567	6,927,349
TOTAL	158,782,142	124,074,829	104,258,657	92,378,812	91,033,149	95,443,653	117,993,660	152,964,351	185,068,655	213,356,194	225,575,500	195,014,642
RES	57,317,139	30,115,170	14,502,660	5,839,851	4,903,941	7,982,019	23,599,015	47,849,622	70,014,207	89,619,864	98,072,194	76,962,090
C/I	29,522,535	16,477,762	8,943,967	5,785,773	5,351,592	6,794,182	14,142,413	25,504,368	36,025,009	45,217,342	49,201,449	39,192,628
LARGE	71,660,471	77,182,750	80,372,011	80,366,242	80,391,053	80,279,624	79,857,981	79,206,176	78,616,263	78,097,913	77,877,421	78,444,124
DG	270,655	289,348	431,103	376,045	375,763	376,694	381,423	388,740	395,362	401,180	403,655	397,294
NGV	11,341	9,799	8,916	10,901	10,800	11,134	12,828	15,445	17,814	19,896	20,781	18,506
IT	0	0	0	0	0	0	0	0	0	0	0	0
Total	158,782,142	124,074,829	104,258,657	92,378,812	91,033,149	95,443,653	117,993,660	152,964,351	185,068,655	213,356,194	225,575,500	195,014,642

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Niagara Mohawk Historical Weather Normalized Billed Sales Data by Month and by Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	FY13	FY14	FY15	FY16	FY17	FY17-FY21 Change	FY17-FY21 PA Change	FY17-FY21 PPA Change
SC1 Residential Non Heat								
SC1 Residential Heat	12,372,376	13,108,348	13,593,416	6,903,820	4,452,156	-7,920,219	-1,980,055	-22.5%
SC1 MB Residential Non-Heat	366,621,205	374,211,407	381,955,114	399,409,307	417,903,521	51,282,316	12,820,579	3.3%
SC1 MB Residential Heat	3,725,282	3,795,280	3,741,855	1,562,038	734,036	-2,991,246	-747,812	-33.4%
	127,894,489	126,672,356	121,038,379	108,725,219	100,925,843	-26,968,647	-6,742,162	-5.7%
Total SC1	510,613,352	517,787,391	520,328,764	516,600,384	524,015,556	13,402,204	3,350,551	0.6%
SC2 Residential Non Heat	56,525	62,078	70,186	29,452	13,178	-43,347	-10,837	-30.5%
SC2 Residential Heat	1,534,502	1,715,353	1,754,795	1,687,877	1,733,401	198,899	49,725	3.1%
SC2 Commercial Non Heat	3,151,667	3,431,477	3,535,035	3,384,793	3,456,058	304,391	76,098	2.3%
SC2 Commercial Heat	86,480,087	89,071,308	91,373,525	92,430,902	99,460,881	12,980,794	3,245,199	3.6%
SC2 Industrial	1,277,582	1,436,200	1,535,119	1,335,594	1,368,880	91,297	22,824	1.7%
SC2 MB Residential Non Heat	35,450	37,607	33,099	11,846	4,119	-31,330	-7,833	-41.6%
SC2 MB Residential Heat	869,454	883,377	925,666	985,621	1,007,787	138,333	34,583	3.8%
SC2 MB Commercial Non Heat	3,455,542	3,380,751	3,294,922	3,123,768	3,029,669	-425,874	-106,468	-3.2%
SC2 MB Commercial Heat	96,735,175	99,828,279	101,869,064	100,447,194	100,217,729	3,482,554	870,639	0.9%
SC2 MB Industrial	7,228,497	3,418,840	1,027,126	1,242,016	1,310,649	-5,917,848	-1,479,462	-34.7%
Total SC2	200,824,481	203,265,271	205,418,537	204,679,063	211,602,351	10,777,870	2,694,468	1.3%
SC3 Commercial Non Heat	112,362	31,316	0	0	0	-112,362	-28,090	-100.0%
SC3 Commercial Heat	7,967,599	7,901,640	7,793,408	7,777,650	7,991,863	24,264	6,066	0.1%
SC3 Industrial	356,372	331,569	737,295	1,324,527	1,848,393	1,492,020	373,005	50.9%
Total SC3	8,436,334	8,264,524	8,530,704	9,102,177	9,840,256	1,403,923	350,981	3.9%
SC5 Firm Gas Transportation	72,587,153	73,150,040	76,879,284	75,754,613	78,478,042	5,890,889	1,472,722	2.0%
SC6 Interruptible	87,149,963	87,802,749	78,264,410	70,753,566	76,569,234	-10,580,729	-2,645,182	-3.2%
SC7 Small Volume Firm Transportation	61,324,039	62,254,067	62,266,208	61,790,106	63,474,897	2,150,859	537,715	0.9%
SC8 Transportation Service with Standby Sales Service	180,702,571	181,266,950	194,001,061	201,728,309	213,844,463	33,141,892	8,285,473	4.3%
SC9 Negotiated Transportation Service	506,232,645	561,382,764	591,948,183	479,488,378	476,752,428	-29,480,218	-7,370,054	-1.5%
SC9 NYSEG Transportation	2,699,834	2,773,564	2,796,261	2,694,264	2,712,885	13,051	3,263	0.1%
SC10 Natural Gas Vehicles	64,525	84,471	145,936	221,604	168,162	103,637	25,909	27.1%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	#DIV/0!
SC12 Distributed Generation	3,835,765	3,826,056	3,550,360	3,530,457	4,487,261	651,497	162,874	4.0%
SC13 Residential Distributed Generation	6,531	5,765	4,726	4,727	3,731	-2,800	-700	-13.1%
Total SC5 - SC13	914,603,026	972,546,426	1,009,856,428	895,966,023	916,491,103	1,888,078	472,019	0.1%
SC14 Dual Fuel Electric Generators	8,656,224	13,576,687	20,413,940	64,567,523	93,994,978	85,338,754	21,334,689	81.5%
TOTAL	1,643,133,417	1,715,440,300	1,764,548,373	1,690,915,170	1,755,944,245	112,810,828	28,202,707	1.7%
RES	513,115,814	520,491,573	523,117,236	519,319,907	526,777,773	13,661,959	3,415,490	0.7%
C/I	268,088,923	271,085,446	273,431,703	272,856,550	282,159,020	14,070,097	3,517,524	1.3%
LARGE	858,028,390	919,952,754	964,303,139	894,986,652	942,352,029	84,323,639	21,080,910	2.4%
DG	3,835,765	3,826,056	3,550,360	3,530,457	4,487,261	651,497	162,874	4.0%
NGV	64,525	84,471	145,936	221,604	168,162	103,637	25,909	27.1%
IT	0	0	0	0	0	0	0	0.0%
Total	1,643,133,417	1,715,440,300	1,764,548,373	1,690,915,170	1,755,944,245	112,810,828	28,202,707	1.7%
RES	31.228%	30.342%	29.646%	30.712%	30.000%			
C/I	16.316%	15.803%	15.496%	16.137%	16.069%			
LARGE	52.219%	53.628%	54.649%	52.929%	53.666%			
DG	0.233%	0.223%	0.201%	0.209%	0.256%			
NGV	0.004%	0.005%	0.008%	0.013%	0.010%			
IT	0.000%	0.000%	0.000%	0.000%	0.000%			

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Exhibit__ (TEP-9)

Exhibit __ (TEP-9)

Historical Actual Customer Count by Service and
Revenue Class for the Period April 2012 – March 2017 (monthly)

Niagara Mohawk Historical Actual Customer Count by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	1 Apr-2012	2 May-2012	3 Jun-2012	4 Jul-2012	5 Aug-2012	6 Sep-2012	7 Oct-2012	8 Nov-2012	9 Dec-2012	10 Jan-2013	11 Feb-2013	12 Mar-2013
SC1 Residential Non Heat	35,584	35,295	35,127	35,023	35,111	35,148	35,183	35,190	35,183	35,100	35,121	35,129
SC1 Residential Heat	379,231	377,505	376,066	375,833	376,029	376,601	377,574	379,024	379,955	380,491	381,079	381,432
SC1 MB Residential Non-Heat	8,399	8,463	8,517	8,500	8,478	8,464	8,501	8,543	8,560	8,598	8,577	8,545
SC1 MB Residential Heat	120,326	120,645	121,529	121,629	121,668	121,895	122,308	122,521	122,842	123,279	123,245	123,315
Total SC1	543,540	541,908	541,239	540,985	541,286	542,108	543,566	545,278	546,540	547,468	548,022	548,421
SC2 Residential Non Heat	63	120	119	119	119	117	117	117	119	119	120	119
SC2 Residential Heat	545	1,166	1,157	1,145	1,149	1,151	1,175	1,182	1,178	1,179	1,193	1,202
SC2 Commercial Non Heat	1,384	1,378	1,370	1,370	1,374	1,356	1,347	1,353	1,362	1,360	1,362	1,361
SC2 Commercial Heat	25,575	24,665	24,444	24,326	24,266	24,219	24,435	24,661	24,804	24,891	24,955	24,977
SC2 Industrial	104	75	71	71	70	69	70	70	71	70	70	69
SC2 MB Residential Non Heat	30	30	30	30	31	31	31	30	30	32	31	31
SC2 MB Residential Heat	292	293	294	298	295	293	293	292	297	320	295	293
SC2 MB Commercial Non Heat	821	832	835	839	840	839	835	840	836	836	830	828
SC2 MB Commercial Heat	16,335	16,361	16,417	16,446	16,478	16,512	16,538	16,575	16,617	16,663	16,646	16,636
SC2 MB Industrial	64	65	66	66	66	67	65	64	64	64	65	63
Total SC2	45,213	44,986	44,804	44,711	44,688	44,654	44,906	45,184	45,378	45,534	45,568	45,580
SC3 Commercial Non Heat	2	2	1	1	1	1	1	1	1	1	1	1
SC3 Commercial Heat	42	42	38	38	38	38	38	39	41	45	42	44
SC3 Industrial	5	5	5	5	5	5	5	5	5	5	5	5
Total SC3	49	49	44	44	44	44	44	45	47	51	48	50
SC5 Firm Gas Transportation	156	156	156	156	157	158	158	158	156	157	159	161
SC6 Interruptible	20	19	19	18	19	19	20	20	20	20	20	20
SC7 Small Volume Firm Transportation	695	699	701	701	698	701	699	698	697	697	697	701
SC8 Transportation Service with Standby Sales Service	61	61	61	61	62	62	62	63	63	61	60	60
SC9 Negotiated Transportation Service	5	5	5	5	5	5	5	5	5	5	5	5
SC9 NYSEG Transportation	1	1	1	1	1	1	1	1	1	1	1	1
SC10 Natural Gas Vehicles	3	3	3	3	3	3	3	3	3	3	3	3
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	11	11	10	10	10	10	10	10	13	15	13	17
SC13 Residential Distributed Generation	5	5	5	5	5	5	5	5	5	5	5	5
Total SC5 - SC13	957	960	961	960	960	964	963	963	963	964	963	973
SC14 Dual Fuel Electric Generators	0	0	1	1	1	1	1	1	1	1	1	1
TOTAL	589,759	587,903	587,049	586,701	586,979	587,771	589,480	591,471	592,929	594,018	594,602	595,025

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Niagara Mohawk Historical Actual Customer Count by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	13 Apr-2013	14 May-2013	15 Jun-2013	16 Jul-2013	17 Aug-2013	18 Sep-2013	19 Oct-2013	20 Nov-2013	21 Dec-2013	22 Jan-2014	23 Feb-2014	24 Mar-2014
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	35,116	34,852	34,823	34,736	34,829	34,856	34,979	35,056	35,039	34,935	34,803	34,684
SC1 MB Residential Heat	381,306	380,169	380,187	380,408	381,466	383,005	385,029	387,125	388,330	388,995	389,179	389,440
	8,523	8,498	8,439	8,355	8,294	8,245	8,174	8,144	8,171	8,223	8,258	8,236
	123,384	123,041	122,584	121,886	121,145	120,422	119,796	119,463	119,553	119,673	119,953	120,097
Total SC1	548,329	546,560	546,033	545,385	545,734	546,528	547,978	549,788	551,093	551,826	552,193	552,457
SC2 Residential Non Heat	117	115	115	115	114	113	113	111	113	112	112	113
SC2 Residential Heat	1,185	1,169	1,167	1,158	1,156	1,156	1,164	1,182	1,189	1,207	1,203	1,210
SC2 Commercial Non Heat	1,348	1,333	1,330	1,320	1,322	1,311	1,313	1,313	1,307	1,306	1,313	1,314
SC2 Commercial Heat	24,812	24,475	24,333	24,232	24,162	24,233	24,386	24,714	24,865	25,001	25,081	25,212
SC2 Industrial	67	68	66	66	66	64	64	65	66	66	68	67
SC2 MB Residential Non Heat	32	33	34	34	35	35	35	36	35	36	35	35
SC2 MB Residential Heat	297	301	298	297	296	296	297	297	295	295	294	294
SC2 MB Commercial Non Heat	828	836	839	842	840	825	818	820	834	833	829	826
SC2 MB Commercial Heat	16,673	16,746	16,781	16,783	16,805	16,763	16,795	16,795	16,816	16,773	16,758	16,646
SC2 MB Industrial	62	60	62	61	60	60	60	62	61	61	60	60
Total SC2	45,422	45,137	45,026	44,909	44,857	44,857	45,046	45,396	45,582	45,691	45,754	45,778
SC3 Commercial Non Heat	1	1	1	1	1	1	1	1	1	1	0	0
SC3 Commercial Heat	49	47	48	46	46	47	43	44	45	45	45	45
SC3 Industrial	4	4	4	5	5	6	6	7	7	6	6	6
Total SC3	54	52	53	52	52	54	50	52	53	52	51	51
SC5 Firm Gas Transportation	159	159	161	160	161	161	161	161	160	161	161	161
SC6 Interruptible	20	20	20	20	20	20	20	20	20	20	20	20
SC7 Small Volume Firm Transportation	703	703	703	703	709	708	704	705	706	707	706	706
SC8 Transportation Service with Standby Sales Service	60	60	60	59	59	59	59	60	60	60	60	60
SC9 Negotiated Transportation Service	5	5	5	5	5	5	5	5	5	5	5	5
SC9 NYSEG Transportation	1	1	1	1	1	1	1	1	1	1	1	1
SC10 Natural Gas Vehicles	3	3	3	3	3	3	3	3	3	3	3	3
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	17	17	14	13	13	12	12	12	12	12	12	12
SC13 Residential Distributed Generation	5	5	5	5	5	5	5	5	5	4	4	4
Total SC5 - SC13	973	973	972	969	976	974	970	972	972	973	972	972
SC14 Dual Fuel Electric Generators	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	594,779	592,723	592,085	591,316	591,620	592,414	594,045	596,209	597,701	598,543	598,971	599,259

Exhibit ____ (TEP-9)
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Niagara Mohawk Historical Actual Customer Count by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	25 Apr-2014	26 May-2014	27 Jun-2014	28 Jul-2014	29 Aug-2014	30 Sep-2014	31 Oct-2014	32 Nov-2014	33 Dec-2014	34 Jan-2015	35 Feb-2015	36 Mar-2015
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	34,666	34,385	34,282	34,167	34,274	34,366	34,459	34,705	34,804	34,882	35,027	35,087
SC1 MB Residential Heat	389,084	388,317	388,124	388,399	389,708	391,453	392,927	395,882	397,877	399,462	401,550	403,355
	8,237	8,274	8,213	8,169	8,046	7,950	7,861	7,808	7,803	7,786	7,688	7,634
	120,031	119,672	119,134	118,189	116,912	116,255	115,416	114,717	114,179	113,799	112,513	110,991
Total SC1	552,018	550,648	549,753	548,924	548,940	550,024	550,663	553,112	554,663	555,929	556,778	557,067
SC2 Residential Non Heat	113	113	113	114	112	113	114	113	115	114	116	117
SC2 Residential Heat	1,202	1,191	1,189	1,182	1,178	1,175	1,174	1,197	1,210	1,207	1,217	1,225
SC2 Commercial Non Heat	1,307	1,301	1,299	1,312	1,314	1,295	1,288	1,298	1,298	1,302	1,301	1,301
SC2 Commercial Heat	25,085	24,845	24,595	24,505	24,483	24,540	24,732	25,125	25,373	25,505	25,666	25,779
SC2 Industrial	67	66	67	66	66	66	66	69	70	69	68	68
SC2 MB Residential Non Heat	35	35	35	35	35	34	34	34	33	34	33	32
SC2 MB Residential Heat	293	294	293	290	290	296	303	302	301	302	299	296
SC2 MB Commercial Non Heat	826	825	821	813	813	816	818	817	818	818	817	809
SC2 MB Commercial Heat	16,630	16,636	16,709	16,684	16,663	16,613	16,600	16,565	16,510	16,530	16,432	16,338
SC2 MB Industrial	60	60	60	60	61	61	61	61	60	61	61	63
Total SC2	45,619	45,367	45,182	45,062	45,016	45,010	45,191	45,582	45,788	45,942	46,010	46,028
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	43	43	44	44	44	45	46	42	43	44	39	38
SC3 Industrial	6	6	5	5	6	6	6	5	5	6	6	6
Total SC3	49	49	49	49	50	51	52	47	48	50	45	44
SC5 Firm Gas Transportation	162	161	161	161	162	161	162	163	164	163	163	162
SC6 Interruptible	20	20	20	19	18	18	18	17	17	17	17	17
SC7 Small Volume Firm Transportation	705	706	702	700	699	697	698	700	697	693	692	692
SC8 Transportation Service with Standby Sales Service	61	61	61	62	62	62	62	63	62	61	61	61
SC9 Negotiated Transportation Service	5	5	5	5	5	5	5	5	5	5	5	5
SC9 NYSEG Transportation	1	1	1	1	1	1	1	1	1	1	1	1
SC10 Natural Gas Vehicles	3	3	3	3	3	3	4	3	3	3	3	3
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	12	12	12	12	12	13	12	13	13	8	8	8
SC13 Residential Distributed Generation	4	4	4	4	4	4	4	4	4	4	4	4
Total SC5 - SC13	973	973	969	967	966	964	966	969	966	955	954	953
SC14 Dual Fuel Electric Generators	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	598,660	597,038	595,954	595,003	594,973	596,050	596,873	599,711	601,466	602,877	603,788	604,093

Exhibit ____ (TEP-9)
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Niagara Mohawk Historical Actual Customer Count by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	37 Apr-2015	38 May-2015	39 Jun-2015	40 Jul-2015	41 Aug-2015	42 Sep-2015	43 Oct-2015	44 Nov-2015	45 Dec-2015	46 Jan-2016	47 Feb-2016	48 Mar-2016
SC1 Residential Non Heat												
SC1 Residential Heat												
SC1 MB Residential Non-Heat	35,121	35,091	35,014	35,031	35,199	35,298	24,811	24,899	24,943	24,995	25,037	25,065
SC1 MB Residential Heat	404,344	404,828	405,306	406,108	407,548	408,931	422,492	425,020	426,658	428,197	429,176	429,990
	7,584	7,473	7,368	7,278	7,169	7,087	4,325	4,278	4,274	4,308	4,290	4,274
	109,813	108,294	106,936	105,478	104,188	103,140	104,724	104,003	103,665	103,557	103,148	102,428
Total SC1	556,862	555,686	554,624	553,895	554,104	554,456	556,352	558,200	559,540	561,057	561,651	561,757
SC2 Residential Non Heat	116	119	118	118	119	120	91	90	90	89	90	91
SC2 Residential Heat	1,216	1,201	1,190	1,188	1,187	1,189	1,230	1,238	1,257	1,263	1,267	1,265
SC2 Commercial Non Heat	1,305	1,302	1,303	1,306	1,316	1,308	1,307	1,309	1,319	1,320	1,328	1,331
SC2 Commercial Heat	25,708	25,457	25,269	25,199	25,214	25,214	25,544	25,781	26,073	26,230	26,414	26,528
SC2 Industrial	69	69	71	71	69	69	70	70	71	71	71	71
SC2 MB Residential Non Heat	32	32	33	34	34	33	19	18	18	18	18	17
SC2 MB Residential Heat	294	294	294	294	291	296	310	309	303	304	303	304
SC2 MB Commercial Non Heat	806	801	800	790	783	772	766	769	763	756	753	752
SC2 MB Commercial Heat	16,298	16,330	16,372	16,365	16,345	16,348	16,303	16,327	16,236	16,226	16,151	16,038
SC2 MB Industrial	63	66	65	69	68	68	70	73	71	71	72	71
Total SC2	45,907	45,671	45,515	45,434	45,426	45,417	45,710	45,984	46,201	46,348	46,467	46,468
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	38	38	40	43	39	39	38	40	40	38	41	41
SC3 Industrial	6	6	6	6	6	6	6	7	7	7	7	7
Total SC3	44	44	46	49	45	45	44	47	47	45	48	48
SC5 Firm Gas Transportation	162	161	161	161	161	160	159	159	161	161	160	160
SC6 Interruptible	17	17	17	17	17	17	17	17	17	17	17	17
SC7 Small Volume Firm Transportation	693	690	692	691	694	693	693	696	698	699	705	702
SC8 Transportation Service with Standby Sales Service	61	61	61	60	61	61	60	60	59	59	59	59
SC9 Negotiated Transportation Service	5	5	5	5	5	5	5	5	5	5	5	5
SC9 NYSEG Transportation	1	1	1	1	1	1	1	1	1	1	1	1
SC10 Natural Gas Vehicles	3	3	3	3	2	3	3	3	3	3	3	3
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	8	8	8	8	8	9	8	9	11	15	15	13
SC13 Residential Distributed Generation	4	4	4	4	4	4	4	4	4	4	4	4
Total SC5 - SC13	954	950	952	950	953	953	950	954	959	964	969	964
SC14 Dual Fuel Electric Generators	1	1	1	1	2	4	4	4	4	4	4	4
TOTAL	603,768	602,352	601,138	600,329	600,530	600,875	603,060	605,189	606,751	608,418	609,139	609,241

Exhibit ____ (TEP-9)
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Niagara Mohawk Historical Actual Customer Count by Service and Revenue Class
For the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms)

Class Name	49 Apr-2016	50 May-2016	51 Jun-2016	52 Jul-2016	53 Aug-2016	54 Sep-2016	55 Oct-2016	56 Nov-2016	57 Dec-2016	58 Jan-2017	59 Feb-2017	60 Mar-2017
SC1 Residential Non Heat	25,029	24,994	25,072	24,421	24,500	24,526	24,584	24,637	24,732	24,791	24,771	24,740
SC1 Residential Heat	431,032	431,582	432,424	433,727	434,820	435,897	436,882	438,548	440,968	442,842	443,836	445,152
SC1 MB Residential Non-Heat	4,239	4,161	4,074	3,888	3,811	3,802	3,750	3,703	3,693	3,688	3,741	3,687
SC1 MB Residential Heat	101,352	99,895	98,489	97,570	96,826	96,278	95,840	95,559	95,267	95,188	95,356	94,951
Total SC1	561,652	560,632	560,059	559,606	559,957	560,503	561,056	562,448	564,660	566,509	567,703	568,529
SC2 Residential Non Heat	90	90	89	90	90	89	89	89	89	89	89	89
SC2 Residential Heat	1,266	1,253	1,252	1,248	1,256	1,257	1,258	1,271	1,290	1,303	1,310	1,320
SC2 Commercial Non Heat	1,330	1,335	1,344	1,349	1,353	1,352	1,346	1,327	1,330	1,331	1,331	1,331
SC2 Commercial Heat	26,625	26,559	26,420	26,411	26,429	26,499	26,563	26,745	27,056	27,287	27,432	27,514
SC2 Industrial	70	70	72	72	72	72	72	73	76	78	79	78
SC2 MB Residential Non Heat	17	17	18	18	18	19	19	19	19	18	18	18
SC2 MB Residential Heat	299	302	301	303	301	300	300	302	302	302	302	300
SC2 MB Commercial Non Heat	746	736	732	727	723	717	719	720	720	723	721	720
SC2 MB Commercial Heat	15,851	15,791	15,748	15,674	15,609	15,556	15,526	15,536	15,554	15,560	15,557	15,502
SC2 MB Industrial	72	74	72	71	71	71	71	71	70	71	70	70
Total SC2	46,366	46,227	46,048	45,963	45,922	45,932	45,963	46,153	46,505	46,761	46,908	46,941
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0	0	0	0	0
SC3 Commercial Heat	42	39	38	39	38	37	37	36	37	36	36	36
SC3 Industrial	7	7	7	7	7	7	7	6	7	7	7	7
Total SC3	49	46	45	46	45	44	44	42	44	43	43	42
SC5 Firm Gas Transportation	160	159	159	158	158	158	158	158	158	158	158	158
SC6 Interruptible	17	17	17	17	17	17	17	17	17	17	17	17
SC7 Small Volume Firm Transportation	701	703	703	705	704	703	703	701	703	700	701	701
SC8 Transportation Service with Standby Sales Service	59	59	59	59	59	59	59	59	59	59	59	59
SC9 Negotiated Transportation Service	5	5	5	5	5	5	5	5	5	5	5	5
SC9 NYSEG Transportation	1	1	1	1	1	1	1	1	1	1	1	1
SC10 Natural Gas Vehicles	2	2	3	2	2	2	2	2	2	2	2	2
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0	0	0	0	0
SC12 Distributed Generation	13	13	14	14	14	14	14	14	14	14	14	14
SC13 Residential Distributed Generation	3	3	3	3	3	3	3	3	3	3	3	3
Total SC5 - SC13	961	962	964	964	963	962	962	960	962	959	960	960
SC14 Dual Fuel Electric Generators	4	4	4	4	4	4	4	4	4	4	4	4
TOTAL	609,032	607,871	607,120	606,583	606,891	607,445	608,029	609,607	612,175	614,276	615,618	616,477

Exhibit ____ (TEP-9)
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Exhibit__ (TEP-10)

Exhibit __ (TEP-10)

Delivery Forecast Model Specifications

Delivery Forecast Model Specifications - Niagara Mohawk - Meter Count

EAST GATE

RESIDENTIAL

EG_RES.trend = f (POP, MFG)

	MFG	POP	
Coefficients	926.541	1,343.010	-1,306,534.93
Std Errors	55.304	17.618	20,170.883
r2, SEy	0.980	1,160.548	#N/A
F, df	3,016.146	123.000	#N/A
SSreg, SSresid	8124725915	165665267	#N/A

COMMERCIAL / INDUSTRIAL

EG_CI_MC.trend = f (INCOME, EMPL)

	EMPL	INCOME	
Coefficients	1.371	0.157	12,921.68
Std Errors	0.702	0.003	345.199
r2, SEy	0.975	58.091	#N/A
F, df	2,395.358	123.000	#N/A
SSreg, SSresid	16166430	415068	#N/A

LARGE VOLUME ACCOUNTS

EG_LARGE_MC.trend = f (GDP)

	GDP	
Coefficients	0.004	-116.984
Std Errors	0.000	7.357
r2, SEy	0.897	2.249
F, df	1,079.822	124.000
SSreg, SSresid	5464	627

DISTRIBUTED GENERATION

EG_DG_MC.trend = f (GDP)

	GDP	
Coefficients	-2.629	4.139
Std Errors	0.330	0.186
r2, SEy	0.339	0.668
F, df	63.576	124.000
SSreg, SSresid	28	55

NATURAL GAS VEHICLES

CONSTANT

INTERRUPTIBLE

CONSTANT

WEST GATE

RESIDENTIAL

SC01_RES.trend = f (TIME)

	TIME	
Coefficients	97.006	282,488.409
Std Errors	1.334	96.442
r2, SEy	0.977	544.506
F, df	5,290.479	124.000
SSreg, SSresid	1568555575	36764324

COMMERCIAL / INDUSTRIAL

WG_CI_MC.trend = f (EMPL, GDP)

	GDP	EMPL	
Coefficients	0.039	17.932	10,384.102
Std Errors	0.013	1.683	1,661.709
r2, SEy	0.490	108.158	#N/A
F, df	58.971	123.000	#N/A
SSreg, SSresid	1379711	1438874	#N/A

LARGE VOLUME ACCOUNTS

WG_LARGE_MC.trend = f (GDP)

	GDP	
Coefficients	0.579	138.363
Std Errors	0.044	2.271
r2, SEy	0.585	2.439
F, df	174.791	124.000
SSreg, SSresid	1039	737

DISTRIBUTED GENERATION

WG_DG_MC.trend = f (TIME)

	TIME	
Coefficients	0.045	-0.583
Std Errors	0.002	0.116
r2, SEy	0.863	0.652
F, df	783.939	124.000
SSreg, SSresid	334	53

NATURAL GAS VEHICLES

CONSTANT

INTERRUPTIBLE

CONSTANT

Delivery Forecast Model Specifications - Niagara Mohawk - Use Per Customer

EAST GATE

RESIDENTIAL (*)

EG-RES-UPC = f (BDD)

	BDD	
Coefficients	0.123	9.081
Std Errors	0.002	1.202
r2, SEy	0.976	8.956
F, df	4,973.816	124.000
SSreg, SSresid	398915	9945

COMMERCIAL / INDUSTRIAL

EG_CI_UPC = f (BDD, GDP)

	GDP	BDD	
Coefficients	0.009	0.677	-476.75
Std Errors	0.003	0.011	190.036
r2, SEy	0.967	58.003	#N/A
F, df	1,789.593	123.000	#N/A
SSreg, SSresid	12041716	413818	#N/A

LARGE VOLUME ACCOUNTS

EG_LARGE_UPC = f (TIME, BDD)

	BDD	TIME	
Coefficients	0.529	116.061	157,627.06
Std Errors	2.124	26.649	2,217.593
r2, SEy	0.134	10,879.849	#N/A
F, df	9.512	123.000	#N/A
SSreg, SSresid	2251908280	14559647831	#N/A

DISTRIBUTED GENERATION

EG_DG_UPC = f (GDP)

	GDP	
Coefficients	11.063	-663,547.080
Std Errors	1.085	69,110.490
r2, SEy	0.456	21,130.199
F, df	104.038	124.000
SSreg, SSresid	46451441524	55364179920

NATURAL GAS VEHICLES

EG_NGV_UPC.trend = f (TIME)

	TIME	
Coefficients	28.366	1,030.173
Std Errors	1.977	200.693
r2, SEy	0.811	201.703
F, df	205.931	48.000
SSreg, SSresid	8378080	1952830

INTERRUPTIBLE

CONSTANT

WEST GATE

RESIDENTIAL (*)

WG-RES-UPC = f (BDD)

	BDD	
Coefficients	0.130	10.745
Std Errors	0.002	1.228
r2, SEy	0.977	9.150
F, df	5,317.181	124.000
SSreg, SSresid	445199	10382

COMMERCIAL / INDUSTRIAL

WG_CI_UPC.trend = f (BDD)

	BDD	
Coefficients	0.818	51.155
Std Errors	0.016	8.642
r2, SEy	0.953	7.196
F, df	2,534.271	124.000
SSreg, SSresid	131236	6421

LARGE VOLUME ACCOUNTS

WG_LARGE_UPC = f (TIME, BDD)

	BDD	TIME	
Coefficients	2,065.925	62.425	86,170.199
Std Errors	177.821	14.171	14,797.594
r2, SEy	0.556	72,599.260	#N/A
F, df	77.049	123.000	#N/A
SSreg, SSresid	812201367244	648290263324	#N/A

DISTRIBUTED GENERATION

CONSTANT

NATURAL GAS VEHICLES

CONSTANT

INTERRUPTIBLE

CONSTANT

(*) Monthly temperature-sensitive use-per-degree-day values are individually modeled.

Exhibit __ (TEP-11)

Thirty-Year Mean Heating Degree Days (July 1986 – June 2016)

Niagara Mohawk Thirty-Year Mean Heating Degree Days
July 1986 - June 2016

Jan	1260
Feb	1108
Mar	932
Apr	531
May	225
Jun	48
Jul	2
Aug	13
Sep	124
Oct	440
Nov	732
Dec	1083
Total	6498

Exhibit __ (TEP-12)

Fiscal Year Actual Use Per Customer by Service and
Revenue Class for the Period FY13 – FY17

Niagara Mohawk Fiscal Year Actual Use Per Customer by Service and Revenue Class for the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms/meter count)

Class Name	1 FY2013	2 FY2014	3 FY2015	4 FY2016	5 FY2017
SC1 Residential Non Heat	330	400	412	277	170
SC1 Residential Heat	882	1,029	1,023	834	930
SC1 MB Residential Non-Heat	410	485	521	377	185
SC1 MB Residential Heat	952	1,129	1,178	955	1,054
Average SC1	855	1,004	1,009	828	913
SC2 Residential Non Heat	449	574	639	335	131
SC2 Residential Heat	1,163	1,527	1,542	1,220	1,296
SC2 Commercial Non Heat	2,234	2,738	2,806	2,434	2,540
SC2 Commercial Heat	3,168	3,799	3,822	3,146	3,599
SC2 Industrial	17,718	22,182	24,844	16,529	17,472
SC2 MB Residential Non Heat	1,120	1,113	1,068	741	191
SC2 MB Residential Heat	2,718	3,211	3,348	2,905	3,360
SC2 MB Commercial Non Heat	3,995	4,247	4,248	3,914	4,171
SC2 MB Commercial Heat	5,382	6,374	6,707	5,673	6,445
SC2 MB Industrial	161,056	16,618	17,415	16,207	18,715
Total SC2	4,139	4,683	4,801	3,990	4,489
SC3 Commercial Non Heat	67,876	0	0	0	0
SC3 Commercial Heat	175,496	177,934	212,357	181,229	216,345
SC3 Industrial	64,437	54,213	93,013	224,138	270,312
Total SC3	162,238	164,359	196,083	187,486	224,750
SC5 Firm Gas Transportation	449,972	468,118	489,657	450,645	489,101
SC6 Interruptible	4,382,163	4,373,872	4,507,076	4,668,683	4,400,283
SC7 Small Volume Firm Transportation	83,423	93,571	95,931	78,268	88,525
SC8 Transportation Service with Standby Sales Service	2,960,622	3,086,548	3,209,274	3,318,728	3,704,296
SC9 Negotiated Transportation Service	108,859,917	108,789,533	118,568,006	106,572,725	89,935,440
SC9 NYSEG Transportation	2,462,168	2,917,698	3,042,511	2,464,938	2,773,570
SC10 Natural Gas Vehicles	22,646	28,144	48,377	61,411	97,019
SC11 Load Aggregation Service	0	0	0	0	0
SC12 Distributed Generation	223,238	740,792	1,242,445	984,169	939,219
SC13 Residential Distributed Generation	1,211	1,636	1,176	1,045	1,252
Total SC5 - SC13	973,110	997,885	1,074,572	986,028	935,872
SC14 Dual Fuel Electric Generators	12,705,899	11,910,409	19,207,806	18,077,313	21,781,617
TOTAL	2,731	2,935	3,037	2,761	2,798

Exhibit__ (TEP-13)

Exhibit __ (TEP-13)

Fiscal Year Normalized Use Per Customer by Service and
Revenue Class for the Period FY13 – FY17

Niagara Mohawk Fiscal Year Normalized Use Per Customer by Service and Revenue Class for the Period April 2012 - March 2017 (FY2013 - FY2017)
(Therms/meter count)

Class Name	1 FY2013	2 FY2014	3 FY2015	4 FY2016	5 FY2017	FY13-FY27 Change	FY13-FY27 PA Change	FY13-FY27 PPA Change
SC1 Residential Non Heat	352	378	387	275	180	-172	-43	-15.5%
SC1 Residential Heat	961	961	947	929	939	-22	-6	-0.6%
SC1 MB Residential Non-Heat	436	461	490	365	199	-237	-59	-17.8%
SC1 MB Residential Heat	1,037	1,055	1,091	1,061	1,063	26	6	0.6%
Average SC1	931	937	934	920	922	-9	-2	-0.3%
SC2 Residential Non Heat	475	549	600	324	148	-327	-82	-25.3%
SC2 Residential Heat	1,277	1,418	1,432	1,334	1,313	37	9	0.7%
SC2 Commercial Non Heat	2,316	2,611	2,717	2,543	2,597	281	70	2.9%
SC2 Commercial Heat	3,462	3,533	3,544	3,484	3,615	153	38	1.1%
SC2 Industrial	18,419	21,311	22,616	18,862	17,516	-903	-226	-1.2%
SC2 MB Residential Non Heat	1,144	1,074	1,034	697	231	-912	-228	-32.9%
SC2 MB Residential Heat	2,967	3,005	3,127	3,242	3,364	397	99	3.2%
SC2 MB Commercial Non Heat	4,173	4,093	4,073	4,154	4,205	32	8	0.2%
SC2 MB Commercial Heat	5,815	5,997	6,235	6,263	6,465	650	163	2.7%
SC2 MB Industrial	114,738	56,981	16,304	17,493	18,764	-95,974	-23,993	-36.4%
Total SC2	4,406	4,440	4,463	4,405	4,508	102	25	0.6%
SC3 Commercial Non Heat	112,362	0	0	0	0	-112,362	-28,090	0.0%
SC3 Commercial Heat	181,082	175,592	205,090	189,699	223,663	42,581	10,645	5.4%
SC3 Industrial	71,274	55,261	122,883	189,218	280,394	209,120	52,280	40.8%
Total SC3	168,727	162,049	193,880	189,629	232,499	63,772	15,943	8.3%
SC5 Firm Gas Transportation	450,852	454,348	474,563	473,466	496,696	45,845	11,461	2.5%
SC6 Interruptible	4,357,498	4,390,137	4,603,789	4,161,974	4,504,073	146,574	36,644	0.8%
SC7 Small Volume Firm Transportation	87,481	88,179	89,980	88,020	90,541	3,060	765	0.9%
SC8 Transportation Service with Standby Sales Service	3,011,710	3,021,116	3,180,345	3,419,124	3,624,482	612,773	153,193	4.7%
SC9 Negotiated Transportation Service	101,246,529	112,276,553	118,389,637	95,897,676	95,350,486	-5,896,044	-1,474,011	-1.5%
SC9 NYSEG Transportation	2,699,834	2,773,564	2,796,261	2,694,264	2,712,885	13,051	3,263	0.1%
SC10 Natural Gas Vehicles	21,508	28,157	48,645	73,868	84,081	62,573	15,643	40.6%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0.0%
SC12 Distributed Generation	225,633	318,838	443,795	271,574	320,519	94,885	23,721	9.2%
SC13 Residential Distributed Generation	1,306	1,441	1,181	1,182	1,244	-63	-16	-1.2%
Total SC5 - SC13	939,983	1,000,562	1,059,660	929,425	954,616	14,634	3,658	0.4%
SC14 Dual Fuel Electric Generators	8,656,224	13,576,687	20,413,940	16,141,881	23,498,744	14,842,521	3,710,630	28.4%
TOTAL	2,761	2,863	2,921	2,775	2,848	87	22	0.8%
RES	933	939	936	922	924	-9	-2	-0.2%
C/I	5,999	6,040	6,064	5,991	6,139	140	35	0.6%
LARGE	3,459,792	3,709,487	3,904,061	3,638,157	3,862,098	402,307	100,577	2.8%
DG	225,633	318,838	443,795	271,574	320,519	94,885	23,721	9.2%
NGV	21,508	28,157	48,645	73,868	84,081	62,573	15,643	40.6%
IT	0	0	0	0	0	0	0	0.0%
Total	2,761	2,863	2,921	2,775	2,848	87	22	0.8%

Exhibit__ (TEP-14)

Exhibit __ (TEP-14)

Forecast Fiscal Year Use Per Customer by Service and
Revenue Class for the Period FY17 – FY21

Niagara Mohawk Forecast Fiscal Year Use Per Customer by Service and Revenue Class for the Period FY2017 - FY2021
(Therms)

Class Name	5 FY2017	6 FY2018	7 FY2019	8 FY2020	9 FY2021	FY17-FY21 Change	FY17-FY21 PA Change	FY17-FY21 PPA Change
SC1 Residential Non Heat	170	172	171	170	170	1	0	0.1%
SC1 Residential Heat	930	938	937	935	933	4	1	0.1%
SC1 MB Residential Non-Heat	185	191	192	191	193	8	2	1.1%
SC1 MB Residential Heat	1,054	1,059	1,058	1,054	1,056	2	1	0.1%
Total SC1	913	919	917	914	913	0	0	0.0%
SC2 Residential Non Heat	131	131	126	124	127	-4	-1	-0.8%
SC2 Residential Heat	1,296	1,304	1,302	1,304	1,310	13	3	0.3%
SC2 Commercial Non Heat	2,540	2,599	2,658	2,707	2,720	180	45	1.7%
SC2 Commercial Heat	3,599	3,636	3,686	3,730	3,738	139	35	1.0%
SC2 Industrial	17,472	17,770	18,103	18,414	18,548	1,075	269	1.5%
SC2 MB Residential Non Heat	191	203	205	204	188	-2	-1	-0.3%
SC2 MB Residential Heat	3,360	3,363	3,356	3,347	3,348	-12	-3	-0.1%
SC2 MB Commercial Non Heat	4,171	4,132	4,171	4,192	4,209	39	10	0.2%
SC2 MB Commercial Heat	6,445	6,417	6,483	6,545	6,556	111	28	0.4%
SC2 MB Industrial	18,715	18,296	18,391	18,465	18,393	-322	-81	-0.4%
Total SC2	4,489	4,492	4,534	4,577	4,585	96	24	0.5%
SC3 Commercial Non Heat	0	0	0	0	0	0	0	0.0%
SC3 Commercial Heat	216,345	229,066	241,412	253,095	265,324	48,980	12,245	5.2%
SC3 Industrial	270,312	281,100	276,556	265,983	253,849	-16,463	-4,116	-1.6%
Total SC3	224,750	237,961	248,031	255,807	262,595	37,845	9,461	4.0%
SC5 Firm Gas Transportation	489,101	499,367	507,284	512,876	518,117	29,016	7,254	1.5%
SC6 Interruptible	4,400,283	4,457,329	4,527,543	4,577,407	4,623,948	223,664	55,916	1.2%
SC7 Small Volume Firm Transportation	88,525	90,242	91,426	92,182	92,373	3,848	962	1.1%
SC8 Transportation Service with Standby Sales Service	3,704,296	3,688,621	3,756,203	3,804,118	3,849,281	144,985	36,246	1.0%
SC9 Negotiated Transportation Service	89,935,440	90,949,774	91,115,585	91,219,158	91,173,813	1,238,373	309,593	0.3%
SC9 NYSEG Transportation	2,773,570	2,792,784	2,879,234	2,941,111	3,007,767	234,197	58,549	2.0%
SC10 Natural Gas Vehicles	97,019	78,762	80,804	82,847	84,889	-12,130	-3,032	-3.3%
SC11 Load Aggregation Service	0	0	0	0	0	0	0	0.0%
SC12 Distributed Generation	939,219	1,011,776	1,020,135	1,042,598	1,048,480	109,260	27,315	2.8%
SC13 Residential Distributed Generation	1,252	1,208	1,206	1,202	1,202	-51	-13	-1.0%
Total SC5 - SC13	935,872	944,390	952,302	952,045	947,956	12,085	3,021	0.3%
SC14 Dual Fuel Electric Generators	21,781,617	23,115,268	23,845,780	24,367,686	24,883,303	3,101,686	775,422	3.4%
TOTAL	2,798	2,814	2,819	2,820	2,819	21	5	0.2%
RES	915	921	919	916	915	0	0	0.0%
C/I	6,083	6,119	6,186	6,256	6,279	196	49	0.8%
LARGE	3,730,383	3,779,942	3,822,030	3,851,643	3,876,997	146,614	36,653	1.0%
DG	939,219	1,011,776	1,020,135	1,042,598	1,048,480	109,260	27,315	2.8%
NGV	97,019	78,762	80,804	82,847	84,889	-12,130	-3,032	-3.3%
IT	0	0	0	0	0	0	0	0.0%
Total	2,798	2,814	2,819	2,820	2,819	21	5	0.2%