

BEFORE THE  
STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

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In the Matter of

Niagara Mohawk Power Corporation d/b/a National Grid

Cases 17-E-0238 & 17-G-0239

August 2017

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Prepared Exhibits of:

Staff Gas Programs and Supply Panel

Davide Maioriello  
Utility Engineer 3

Michael C. Tushaj  
Assistant Engineer (Mechanical)

Office of Electric, Gas, and Water

State of New York  
Department of Public Service  
Three Empire State Plaza  
Albany, New York 12223-1350

<u>Exhibit</u>	<u>Description</u>	<u>PDF Page</u>
Exhibit___(SGPSP-1)	IR Responses	3
Exhibit___(SGPSP-2)	Excerpt from Rochester Gas and Electric's "Gas Transmission Operating Procedures"	50

Company Response to Interrogatory	Exhibit__(SGRP-1) Page No.
IR DPS-639	2
IR MI-2 ADT-31	4
IR DPS-PF116	5
IR MI-8 ADT-142	10
IR GEE-1 RF-11	11
IR DPS-145	12
IR DPS-288	14
IR DPS-133	18

Date of Request: July 20, 2017  
Due Date: July 31, 2017

Request No. DPS-639 DxM-23  
NMPC Req. No. NM-1259

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Michael Tushaj & Davide Maioriello  
TO: National Grid, Revenue Requirement Panel  
SUBJECT: ***OIL-TO-GAS CUSTOMER CONVERSION PROGRAM  
DEFERRAL BALANCE***

Request:

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

Provide supporting workpapers that back-up the Company's claimed Oil-to-Gas Customer Conversion Program deferral balance of \$0.905 million, as shown on page 114 of the Revenue Requirements Panel's Pre-Filed Direct Testimony.

Response:

Please see Attachment 1 for the support to the \$0.905 million Oil-to-Gas-Customer Conversion Program deferral.

Name of Respondent:  
John O'Shaughnessy

Date of Reply:  
July 30, 2017

<b>Source:</b>	The below schedule represents the deferral mechanism for the Oil to Gas Conversion Program Costs. The source of information for the calculation of this deferral is customer conversion rebates paid from the SAP General Ledger.
<b>Purpose:</b>	To display evidence of the calculation of the monthly Oil to Gas Conversion Program Costs deferral.

**Niagara Mohawk Power Corporation**  
**Deferral of Oil to Gas Conversion Program Costs**  
**U1823755**  
**CASE 12-G-0202**  
**5210NY0943**

Month	Beginning Balance	Customer Conversion Rebates Paid (50% Due From Customer)	Adjustments	Monthly Deferral	Balance	Pre-Tax WACC Rate	Monthly Carrying Charge	Ending Balance	Cumulative Interest on Deferral
FORMULA ---->	(a) = prior month (f)	(b)	(c)	(d) = (b) + (c)	(e) = (d) + previous month (f)	(f)	(h) = ((a) + ((d)/2)) * (f) * (g)	(i) = (e) + (h)	(j) = (h) + previous month (j)
Aug-13	-	6,733.00		6,733.00	6,733.00	0.755%	15.34	6,748.34	15.34
Sep-13	6,748.34	19,100.00		19,100.00	25,848.34	0.755%	74.26	25,922.60	89.60
Oct-13	25,922.60	13,474.00		13,474.00	39,396.60	0.755%	148.81	39,545.41	238.41
Nov-13	39,545.41	25,799.80		25,799.80	65,345.21	0.755%	238.96	65,584.17	477.37
Dec-13	65,584.17	29,149.12		29,149.12	94,733.29	0.755%	365.23	95,098.52	842.60
Jan-14	95,098.52	29,320.00		29,320.00	124,418.52	0.755%	500.10	124,918.62	1,342.70
Feb-14	124,918.62	19,750.20		19,750.20	144,668.82	0.755%	614.17	145,282.99	1,956.87
Mar-14	145,282.99	21,942.00		21,942.00	167,224.99	0.755%	711.95	167,936.94	2,668.82
Apr-14	167,936.94	7,625.50		7,625.50	175,562.44	0.766%	794.48	176,356.92	3,463.30
May-14	176,356.92	11,468.80		11,468.80	187,825.72	0.766%	842.32	188,668.03	4,305.61
Jun-14	188,668.03	2,175.00		2,175.00	190,843.03	0.766%	877.77	191,720.81	5,183.39
Jul-14	191,720.81	5,762.50		5,762.50	197,483.31	0.766%	900.19	198,383.50	6,083.58
Aug-14	198,383.50	1,545.00		1,545.00	199,928.50	0.766%	921.26	200,849.76	7,004.84
Sep-14	200,849.76	-		-	200,849.76	0.766%	929.09	201,778.84	7,933.92
Oct-14	201,778.84	6,490.00		6,490.00	208,268.84	0.766%	948.40	209,217.25	8,882.33
Nov-14	209,217.25	16,217.50		16,217.50	225,434.75	0.766%	1,005.31	226,440.05	9,887.63
Dec-14	226,440.05	17,950.00		17,950.00	244,390.05	0.766%	1,088.98	245,479.04	10,976.62
Jan-15	245,479.04	23,340.00		23,340.00	268,819.04	0.766%	1,189.52	270,008.56	12,166.14
Feb-15	270,008.56	27,517.50		27,517.50	297,526.06	0.766%	1,312.66	298,838.72	13,478.80
Mar-15	298,838.72	9,675.00		9,675.00	308,513.72	0.766%	1,404.75	309,918.46	14,883.54
Apr-15	309,918.46	6,625.00		6,625.00	316,543.46	0.781%	1,477.90	318,021.37	16,361.45
May-15	318,021.37	9,627.50		9,627.50	327,648.87	0.781%	1,523.22	329,172.09	17,884.67
Jun-15	329,172.09	20,608.00		20,608.00	349,780.09	0.781%	1,601.74	351,381.83	19,486.41
Jul-15	351,381.83	2,137.50		2,137.50	353,519.33	0.781%	1,662.95	355,182.28	21,149.36
Aug-15	355,182.28	11,271.00		11,271.00	366,453.28	0.781%	1,702.43	368,155.72	22,851.80
Sep-15	368,155.72	28,499.47		28,499.47	396,655.19	0.781%	1,804.29	398,459.48	24,656.09
Oct-15	398,459.48	36,524.07		36,524.07	434,983.54	0.781%	1,966.20	436,949.75	26,622.29
Nov-15	436,949.75	56,297.38		56,297.38	493,247.12	0.781%	2,194.46	495,441.58	28,816.75
Dec-15	495,441.58	56,963.07		56,963.07	552,404.64	0.781%	2,472.01	554,876.65	31,288.76
Jan-16	554,876.65	59,200.65		59,200.65	614,077.30	0.781%	2,757.72	616,835.02	34,046.48
Feb-16	616,835.02	19,921.01		19,921.01	636,756.03	0.781%	2,957.39	639,713.42	37,003.86
Mar-16	639,713.42	26,538.05		26,538.05	666,251.47	0.781%	3,080.95	669,332.41	40,084.81
Apr-16	669,332.41	28,788.79		28,788.79	698,121.20	0.781%	3,226.01	701,347.21	43,310.82
May-16	701,347.21	26,596.53		26,596.53	727,943.73	0.781%	3,371.89	731,315.62	46,682.70
Jun-16	731,315.62	22,259.42		22,259.42	753,575.03	0.781%	3,503.05	757,078.09	50,185.76
Jul-16	757,078.09	11,298.50		11,298.50	768,376.59	0.781%	3,598.75	771,975.34	53,784.51
Aug-16	771,975.34	85,960.41		85,960.41	857,935.75	0.781%	3,845.18	861,780.93	57,629.69
Sep-16	861,780.93	11,296.15		11,296.15	873,077.08	0.781%	4,092.76	877,169.84	61,722.45
Oct-16	877,169.84	12,566.88		12,566.88	889,736.71	0.781%	4,168.37	893,905.08	65,890.82
Nov-16	893,905.08	56,796.46		56,796.46	950,701.54	0.781%	4,351.68	955,053.21	70,242.49
Dec-16	955,053.21	20,155.97		20,155.97	975,209.18	0.781%	4,553.75	979,762.93	74,796.24
					<b>904,966.69</b>				<b>74,796.24</b>
					Oil to Gas Conversion Deferral Balance				Carrying Charges

Carrying Charges Information:				
Year	Annualized Rate	Monthly Rate	Annualized Effective Rate Net of Deferred Taxes	Monthly Effective Rate Net of Deferred Taxes
RY 14 - Pre Tax WACC	9.44%	0.755%	5.7003%	0.463%
RY 15 - Pre Tax WACC	9.59%	0.766%	5.7909%	0.470%
RY 16 - Pre Tax WACC	9.79%	0.781%	5.9117%	0.480%
RY 17 - Pre Tax WACC	9.79%	0.781%	5.9117%	0.480%

Annual Def Tax Rate	60.39%
	39.62%
	100.00%

Date of Request: June 21, 2017  
Due Date: July 3, 2017

MI Request No. MI-2 ADT-31  
NMPC Req. No. NM-908

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: Multiple Intervenors, Amanda De Vito Trinsey

TO: National Grid, Elizabeth Arangio

SUBJECT: ***MULTIPLE INTERVENORS' SECOND SET OF INFORMATION REQUESTS***

Request:

31. By what amount is “the Company forecasting it will exceed hourly limits in the East Gate region in the 2020/21 peak season,” as asserted on pages 20-21 of the testimony. Confirm that the Company is not forecasting that such hourly limits will be exceeded prior to the 2020/21 peak season.

Response:

Based on the current forecast and gas supply portfolio, the Company is forecasting it will exceed hourly limits in the East Gate region by 159 Dth/hr beginning in 2020/21. However, this forecast is subject to change, and could be accelerated, based on the results of the Company’s updated load forecast.

Name of Respondent:  
Elizabeth Arangio

Date of Reply:  
June 30, 2017

Date of Request: September 1, 2016  
Due Date: April 28, 2017

Request No. DPS-PF116  
NMPC Req. No. NM Gas-PF116

NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid

Response to Staff's Pre-Filing Information Requests  
Gas Utilities

Request for Information

**SUBJECT: Gas Supply and Policy**

Request: Capacity Reserved for Customers

116. Reservation of Capacity – Generally

- a. Provide details of how total reserved capacity is utilized to meet the demand of all firm customers on a design day and design winter basis.
- b. Provide details of any plans to make significant changes to pipeline and storage capacity assets in the first rate year and subsequent two rate years. Include the associated design day or design winter demand requiring this additional capacity.
- c. Provide a description of any new pipeline or storage assets that will be acquired in the next five calendar years, including any projects filed at FERC or for which a precedent agreement has been submitted. Include the associated design day or design winter demand requiring this additional capacity
- d. Include a description of any construction needed to accept deliveries from the new pipeline or storage assets, and whether such construction will be done solely by the company or with partners.

Response:

- a. Attachment 1 shows the Company's forecast firm design day requirements over a ten year horizon and the portfolio of assets the Company will use to serve these requirements. The Company's design day portfolio is adequate to serve forecast design day requirements through 2019/20.

Attachment 2 is a design year load duration curve, which plots 2016/17 forecast design requirements against the Company's portfolio of assets to serve these requirements.

- b. As discussed in the Direct Testimony of Elizabeth D. Arangio, the Company is exploring opportunities with third parties, including interstate pipelines, liquefied natural gas and compressed natural gas service providers to alleviate peak hour flow restrictions in the East Gate region. The Company is also proposing to eliminate SC-8 Standby Sales Service, which will allow it to allocate its interstate pipeline capacity to

meeting incremental requirements. Finally, as discussed in the Company's Gas Infrastructure and Operations Panel Direct Testimony, the Company is proposing to close its "Albany Loop," which will allow the Company to increase the take-away from the existing South Albany city gate with Tennessee Gas Pipeline ("TGP") by an additional 40,000 Dth/day. This on-system project, in conjunction with contracting for upstream pipeline capacity and/or city gate delivered supplies, will allow the Company to meet forecast design day and design hour requirements through 2025/26.

Attachment 3 shows forecast East Gate design hour requirements and the Company's contractual capability to meet forecast requirements. The graph demonstrates the continued need for additional supplies from TGP. Further, the graph also shows how the Company's proposal to eliminate SC-8 Standby Sales Service affects the Company's ability to meet design hour requirements. The analysis assumes the Standby Sales Service is eliminated before the start of the 2018/19 heating season. The amount of incremental supply that the Company would need to purchase to adhere to pipeline flow restrictions would be reduced by approximately 1,000 Dth/hr or 20,000 Dth/day assuming the Company's SC-8 Standby Sales Service proposal is adopted.

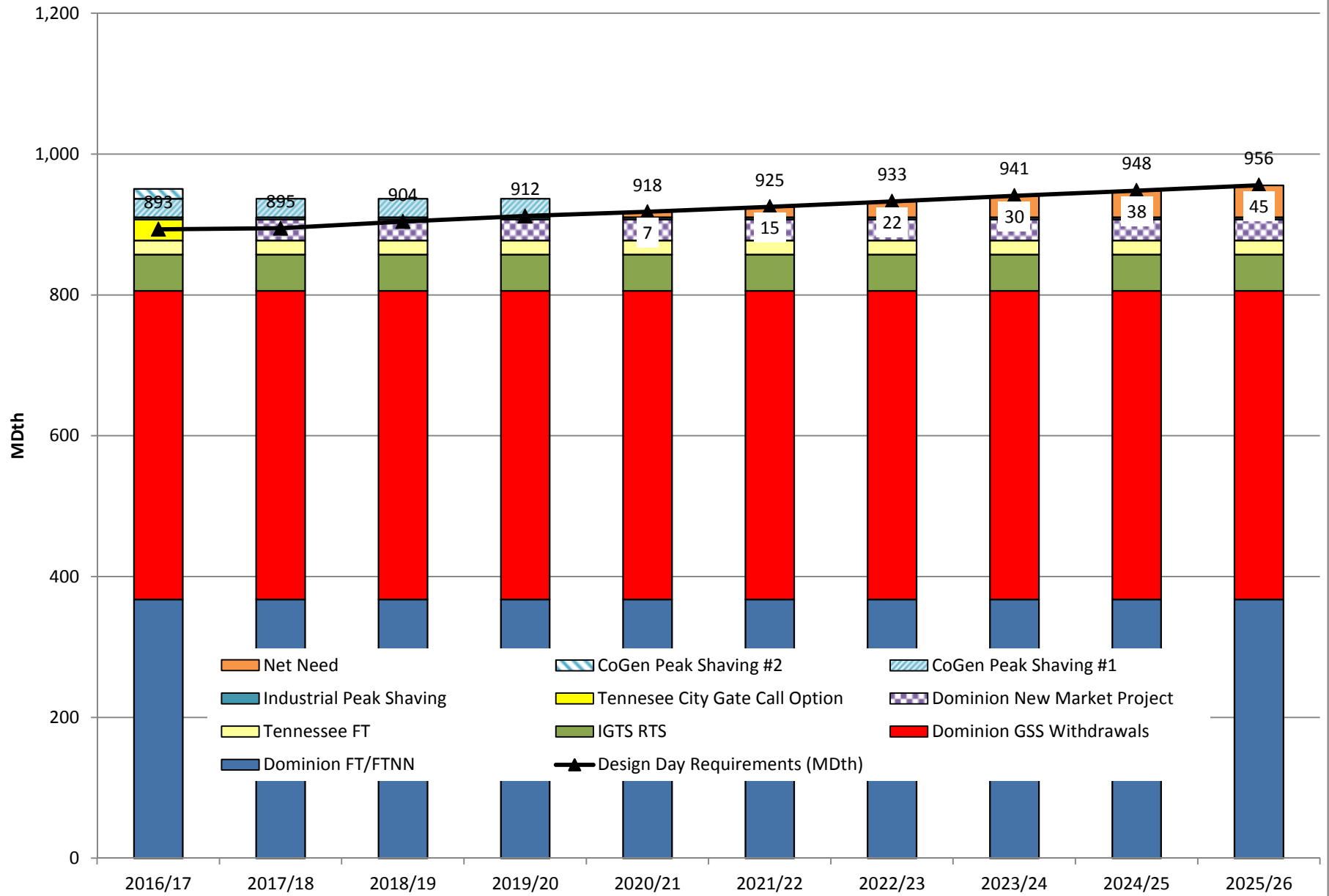
- c. Please see Direct Testimony of Elizabeth D. Arangio.
- d. Please see Direct Testimony of Elizabeth D. Arangio.

Name of Respondent:  
Elizabeth Arangio

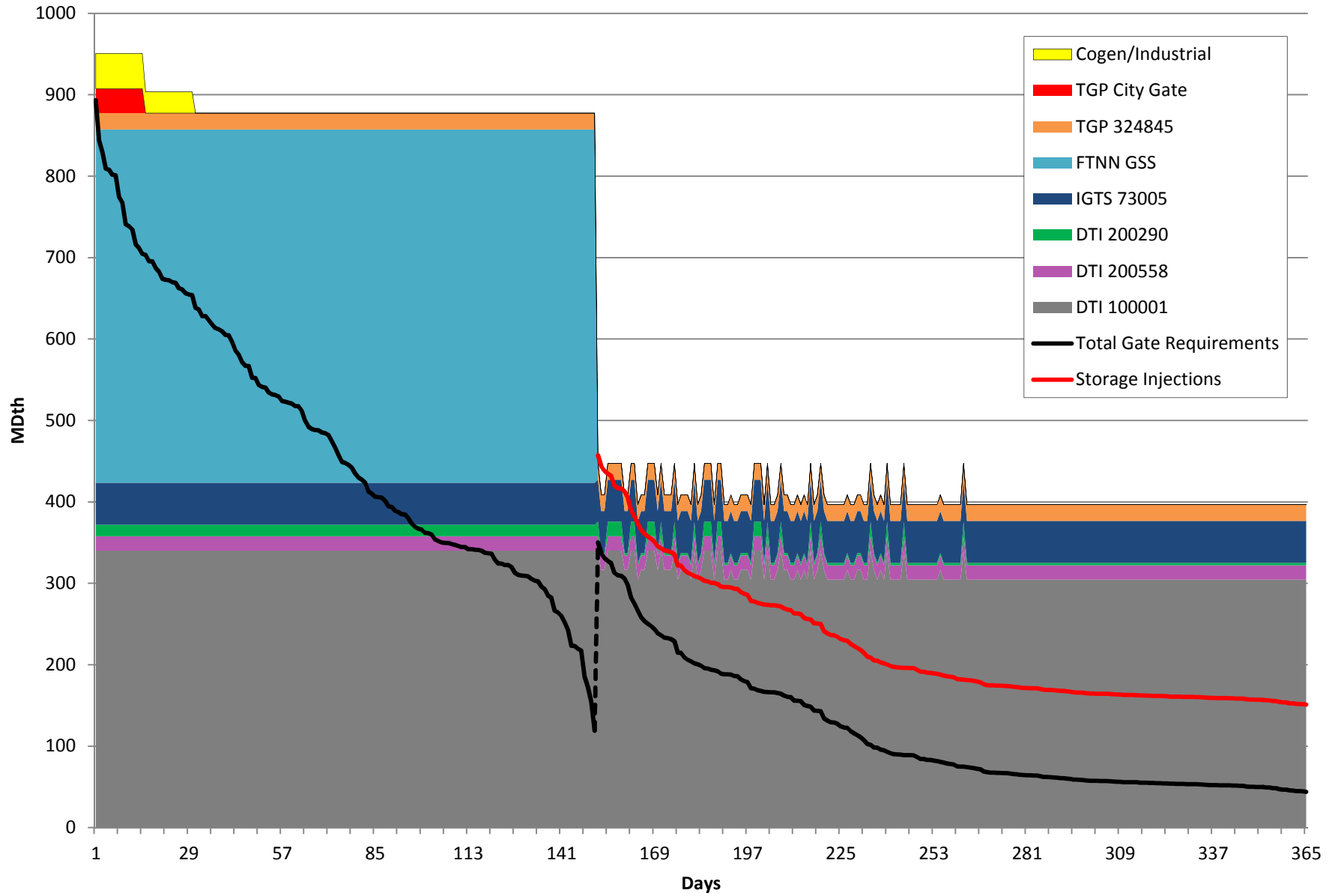
Date of Reply:  
April 28, 2017



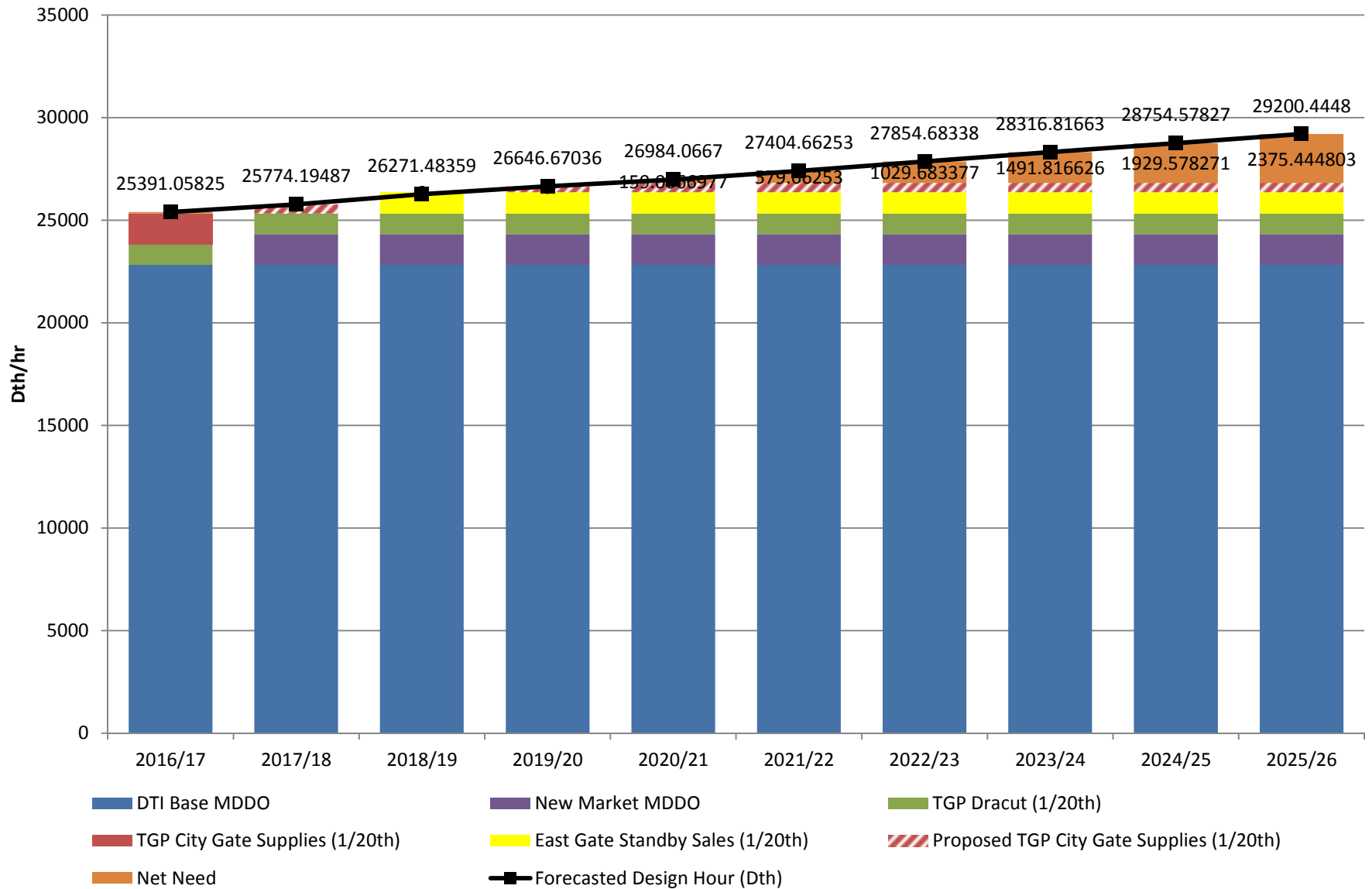
### NMPC Design Day Supply/Demand Balance



### NMPC 2016/17 Design Load Duration Curve



## NIMO East Gate Design Hour Supply/Demand with Elimination of Standby Sales Service



Date of Request: August 14, 2017  
Due Date: August 24, 2017

MI Request No. MI-8 ADT-142  
NMPC Req. No. NM-1617

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: Multiple Intervenors, Amanda De Vito Trinsey  
TO: National Grid, Rate Design Panel  
SUBJECT: **MULTIPLE INTERVENORS' EIGHTH SET OF  
INFORMATION REQUESTS**

Request:

142. Provide an update on the Company's proposal to eliminate standby sales service (i.e., the D-1 election) from its S.C. 8 tariff.

Response:

Upon further consideration and discussion with the affected parties, the Company is rescinding its proposal to eliminate standby sales service (i.e., the D-1 election) from its S.C. 8 gas tariff. Instead, the Company is exploring alternate proposals to address forecast system capacity constraints beginning in the winter of 2018/19. These options include potential modifications to the delivery requirements for all gas sales/transportation customers to alleviate constraints at the Company's East Gate and/or adding temporary on-system supply resources. The Company intends to advance these options in the course of this rate case.

Name of Respondent:  
Philip A. Decicco  
Elizabeth Arangio

Date of Reply:  
August 15, 2017

Date of Request: June 27, 2017  
Due Date: July 7, 2017

GEE Request No. GEE-1 RF-11  
NMPC Req. No. NM-981

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: Great Eastern Energy, Robyn Frank  
TO: National Grid, Elizabeth D. Arangio  
SUBJECT: **ASSET MANAGEMENT AGREEMENTS**

Request:

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

Regarding the Pre-Filed Testimony of Elizabeth D. Arangio:

On page 15 of Ms. Arangio's testimony she discusses the margins received over the last five years from off-system sales transactions and Asset Management Arrangements ("AMAs").

11. If not, why?

Response:

Under the Company's Customer Choice Program, ESCOs are released specific assets (not a "slice-of-the-system") and, therefore, do not pay the demand charges of a pro-rata share of all of the assets. Therefore, it would not be appropriate to share margins received from off-system sales transactions and AMAs using assets fully paid for by firm sales customers with ESCOs or their customers. ESCOs are released capacity on behalf of their customers, and do not share any margins derived by the ESCOs from off-system sales transactions and AMAs with the Company and its remaining sales customers.

Name of Respondent:  
Elizabeth Arangio

Date of Reply:  
July 3, 2017

Date of Request: May 25, 2017  
Due Date: June 5, 2017

Request No. DPS-145 DxM-7  
NMPC Req. No. NM-581

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Michael Tushaj & Davide Maioriello

TO: National Grid, Theodore Poe, Jr.

SUBJECT: ***EAST GATE AND WEST GATE PEAK DAY DEMAND***

Request:

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

1. Pages 7 and 11 of your Pre-Filed Direct testimony state that you used the arithmetic average heating degree day (HDD) data for Albany and Syracuse weather stations for weather data used in the models calculating use-per-customer for the separate East Gate and West Gate regions. Has the company analyzed how the alternative use of a separate use-per-customer metric for each region based on regional weather data would impact those calculations? If so, what are the impacts associated with use-per-customer and winter peak day capacity requirements?
2. Provide the date and HDDs of the fifteen coldest days during the past ten winter heating seasons using the current averaging methodology of the Albany and Syracuse weather stations provided by your weather services vendor.
3. Provide the date and HDDs of the fifteen coldest days during the past ten winter heating seasons based on data provided by your weather services vendor from the Albany and Syracuse weather stations.
4. Page 11 of your testimony identifies the normal HDD as 6,498 HDD, based on a thirty-year average of the period July 1986 to June 2016. Provide the same calculation on an individual basis for the Albany and Syracuse weather stations provided by your weather services vendor.

Response:

1. The Company has not performed a complete analysis of how the use of a separate use-per-customer metric for the East Gas and West Gate region would affect its use-per-customer calculation. The Company does not believe that the separate calculations would have a significant impact because using monthly totals averages out the impact of day-to-day variations in weather between the two areas. Nonetheless, now that the Company has begun the separation of its gas load forecast into these two geographic areas, it sees potential value in pursuing two separate weather stations. As the Company evaluates using two separate weather stations, it will also evaluate the specification of two distinct suites of daily (and monthly) normal degree days, as well as design degree days to ensure consistency between the two. Upon completion of its evaluation, the Company will be able to quantify the improvement it gains for its use-per-customer values and its winter peak day capacity requirements, and determine whether the use of separate weather station data improves its forecast.

2. Please refer to the table below for the 15 coldest days at the Albany and Syracuse weather stations for the ten years July 2007 – June 2008 through July 2016 – April 2017.

KALB, KSYR, and average(KALB,KSYR) Average Daily Temperature - 15 Coldest Days (oF)					
Date	KALB Avg Temp (oF)	Date	KSYR Avg Temp (oF)	Date	KALB+KSYR Avg Temp (oF)
24-Jan-2011	-4	14-Feb-2016	-9	14-Feb-2016	-6
03-Jan-2014	-3	16-Feb-2015	-5	24-Jan-2011	-3
14-Feb-2016	-2	20-Feb-2015	-4	03-Jan-2014	-2
22-Jan-2014	2	22-Jan-2014	-3	16-Feb-2015	-2
16-Feb-2015	2	13-Feb-2015	-2	22-Jan-2014	-1
03-Jan-2008	3	24-Jan-2011	-1	13-Feb-2015	1
16-Jan-2009	3	30-Jan-2010	0	20-Feb-2015	1
03-Feb-2015	3	03-Jan-2014	0	30-Jan-2010	3
13-Feb-2015	3	21-Jan-2014	0	24-Feb-2015	3
17-Dec-2013	4	15-Feb-2015	1	03-Jan-2008	4
17-Jan-2009	5	24-Feb-2015	1	23-Jan-2013	4
23-Jan-2011	5	23-Jan-2013	2	15-Feb-2015	4
23-Jan-2013	5	21-Feb-2015	2	23-Jan-2011	5
04-Jan-2014	5	24-Jan-2013	3	24-Jan-2013	5
14-Jan-2015	5	13-Jan-2015	3	21-Jan-2014	5

3. Please refer to the table above for the 15 coldest days of the average daily temperatures of the Albany and Syracuse weather stations for the ten years July 2007 – June 2008 through July 2016 – April 2017.

4. In its filing, the Company identified the normal HDD for the average of the Albany and Syracuse weather stations as 6,498 HDD, based on a thirty-year average of the period July 1986 to June 2016. Using the same methodology, the 30-year normal for the Albany weather station is 6,500 HDD and the 30-year normal for the Syracuse weather station is 6,513 HDD.

Name of Respondent:  
 Theodore Poe, Jr.

Date of Reply:  
 June 5, 2017

Date of Request: June 8, 2017  
Due Date: June 19, 2017

Request No. DPS-288 DxM-14  
NMPC Req. No. NM-767

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Michael Tushaj & Davide Maioriello

TO: National Grid, Gas Customer Panel

SUBJECT: **NATURAL GAS VEHICLE (NGV) AND COMPRESSED NATURAL GAS (CNG) FUELING STATION PROGRAMS**

Request:

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

1. Provide a description of the process and time associated with refilling large commercial class natural gas vehicles.
2. With regard to the response to DPS-155, question 2, provide the following:
  - a. Indicate which of those stations are public fueling stations.
  - b. Indicate which of those stations are equipped with quick fill refueling equipment.
  - c. Provide any existing Company data indicating fleets of commercial class vehicles that can be targets for conversion to NGV. If no Company data is available, explain why the Company has not identified these potential customers.
  - d. Based on the process and timing associated with refueling large commercial class NGVs, does the Company believe that additional **public** fueling stations are needed to promote the use of CNG as a transportation fuel alternative for large commercial diesel vehicles? If so, how many additional stations does the Company recommend are needed. If not, explain why not.
3. In consideration of NGV equipment costs, vehicle costs, fuel savings and the process and timing associated with refueling commercial class NGVs:
  - a. What does the Company see as the current roadblocks to converting additional commercial class vehicles to NGV service?



- b. What does the Company believe is needed to promote and incentivize the use of CNG as a commercial class transportation fuel to current and potential NGV fleet customers such as waste collection fleets, bus transportation fleets or package delivery fleets etc.?
4. Since 2000, has the Company ever had a program incentivizing the installation of CNG fueling stations? If so, describe the programs in detail. If it is no longer an existing program, explain why it is no longer a program.
5. Does the Company believe that increased use of existing services for NGV customers benefit the overall system efficiency of the gas distribution network during off-peak hours?

Response:

1. There are two operational choices for filling large commercial CNG vehicles - slow fill and fast fill. Slow fill systems are usually designed for filling over a time period on the order of four hours. This is a good option for some fleets and results in savings in capital costs for filling as smaller compressors are required and no onsite storage. While there is no standard definition for fast filling, it usually means filling in a matter of minutes. For example, the NYC MTA CNG facility in Brooklyn was upgraded by its owner to fill transit buses with as much as 58 gallons equivalent of diesel in 3.5 minutes each in succession. There are two design strategies for fast filling - banked filling and buffer filling. In banked filling, the compressor size is minimized through the filling of three sets of storage vessels before a vehicle fills. During the fill process, each of the three banks is automatically opened to the vehicle in sequence to maximize the pressure differential between storage and the vehicle to reduce fill time. This is an effective strategy for public stations where vehicle arrival is random. It is not an effective strategy for sequential filing of large numbers or large vehicles. For those situations, “buffer” filling is used with large compressors directly filling the vehicles through large “buffer” storage tanks for pressure stability. This technique has the highest capital cost and will vary significantly by desired fill time and capacity required.
- 2a. To the best of the Company’s knowledge, CNG stations owned by NY agencies and managed by Clean Energy are usually publically accessible. In that regard, the following is a list of active publically accessible CNG fueling stations provided with gas service by the Company:

<u>Station</u>	<u>Owner</u>	<u>Operator</u>	<u>Address</u>
Albany/Site #7041	National Grid	Clean Energy	1125 Broadway, Albany, NY
Syracuse/Site #7061	National Grid	Clean Energy	7496 Round Pond Rd, No Syracuse, NY
NYS-OGS	NYS-OGS	Clean Energy	Albany, NY Thruway Exit 23, Route 9W McCarty Avenue Parking Lot
NYS-DOT	NYS-OGS	Clean Energy	North Syracuse, NY Colonel Eileen Collins Boulevard

NYS-DOT	NYS-DOT	Clean Energy	3008 Chrisler Avenue, Rotterdam, NY
NYS-DOT	NYS-DOT	Clean Energy	Harbor Lock Road, Utica, NY
American Natural Gas	American NG	American NG	34 Cady Hill Blvd., Saratoga Springs, NY

Public access is also reported by the USDOE's Alternative Fuel Data Center (<https://www.afdc.energy.gov/locator/stations/>).

- 2b. The Company believes that each of these stations are "banked" fast filling stations.
- 2c. In NY, the top prospects for conversion to NGV are public transit operators and operators of fleet or garbage trucks, whether directly owned or leased or franchised. More recently, the Company's Syracuse station has seen additional usage from large over the road delivery trucks, including tractor trailers because of the fuel price advantage, most based locally. This activity is impacted by the persistent reduction in diesel fuel prices. The potential for these fleets can be estimated from the RL Polk data described in the response to DPS-155.
- 2d. The fleets that benefit most from the use of CNG almost exclusively use on-site large fueling stations and would have little use for new public fueling. In some territories the Company encouraged sharing of large fueling stations because buffer fill stations are idle when not actually filling; however, a variety of business concerns appear to prevent this from happening. Truly public CNG stations, if suitably designed, would benefit the over the road trucking industry and could be promoted if the CNG fuel price advantage recovers. In addition, there is significant CNG use at airports nationally because airports are served continuously with lighter duty trucks, buses, and vans bringing people or deliveries to hotels, rental car agencies, or local destinations. All three NYC area airports have public CNG stations.
- 3a. The Company sees the price differential between gas and petroleum prices as the current roadblock to converting additional commercial class vehicles to NGV service. The NGV market has grown since the 90s but not consistently. The first period of sustained growth was driven by combinations of proactive policy such as the Commission's Order in case 92-M-0451 plus available federal funding from the American Recovery and Reinvestment Act. The next growth period was driven by the escalation of petroleum prices and reduction in gas commodity prices that followed this period, which largely ended in 2015 when delivered petroleum prices, that year alone, fell roughly 30 percent while some federal and state grant and incentives were discontinued. One of the most comprehensive views of the market for NGV without subsidies was produced by America's Natural Gas Alliance. Please see <https://www.aga.org/tiax-natural-gas-vehicle-market-analysis>
- 3b. To promote and incentivize the use of CNG, there is a need to improve the basic economics of adoption. This means a stable and predictable fuel cost savings over the life of a proposed fueling station. One complicating factor is the application of the federal

Volumetric Excise Tax Credit. This credit provides \$0.50 per gasoline gallon equivalent. However, it expired before only to be retroactively renewed. Most recently, the credit expired again on 12/31/2016 and has yet to be renewed. Such programs support adoption so that economies of scale can be reached and subsidies should eventually not be necessary. Other programs that offer the same potential benefits are The Volkswagen Diesel Emissions settlement and Renewable Fuel Standard (RFS-2). The Volkswagen settlement may offer incentives for the replacement of diesel fuel with CNG in Class 7 or large trucks. The RFS-2 standard offers a sellable credit that can be sold to mandated liquid fuel providers where a physical path between a CNG vehicle and a renewable gas supply such as a landfill anywhere in the US can be validated. In addition, NGV use can be increased if its benefits are fully monetized to the benefit of the new adopters of NGVs. Those benefits have most recently been described in the following:

[http://www.ngvamerica.org/wordpress/wp-content/uploads/2016/09/NGVAmerica-White-Paper-Fleets-Run-Cleaner-on-Natural-Gas\\_V2.pdf](http://www.ngvamerica.org/wordpress/wp-content/uploads/2016/09/NGVAmerica-White-Paper-Fleets-Run-Cleaner-on-Natural-Gas_V2.pdf)

4. The Company has not had an incentive program for NGVs in the NMPC service area.
5. Yes, the Company believes that increased use of existing gas services for NGV customers benefit the overall system efficiency of the gas distribution network during off-peak hours and generates new revenue to the benefit of all existing customers. However, the Company is concerned about developers that propose to add buffer-fill stations for morning use. The Company's representatives work with prospective customers to ensure that all design options are considered, especially when a customer contribution for gas facilities may be needed for one fueling process but to a lesser degree or not at all for others. In addition, CNG station developers tend to request the highest available service pressure because this can lower the cost of their compressors even to the point of eliminating a full stage of compression. However, this could also necessitate customer contributions to gas main and services that should be compared to potential fueling station capital cost savings. These options are also reviewed with each developer proposal when inquiries regarding gas capacity are made.

Name of Respondent:  
Christopher A. Cavanagh

Date of Reply:  
June 19, 2017

Date of Request: May 24, 2017  
Due Date: June 5, 2017

Request No. DPS-133 DxM-5  
NMPC Req. No. NM-569

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
Case No. 17-E-0238 and 17-G-0239 –  
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Michael Tushaj & Davide Maioriello

TO: National Grid, Gas Customer Panel

SUBJECT: ***NON-PIPELINE ALTERNATIVES***

Request:

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

1. Did the Company consider whether to include Air Source Heat Pumps in its proposal for Non-Pipeline Alternatives? If so, explain in detail why this technology was not included in the proposals described on pages 5-7 of your Pre-Filed Direct Testimony.
2. Is the Company aware of Matter Number 16-00681, In the Matter of the Clean Energy Fund Investment Plan, which currently is pending before the Commission? If so, explain how the geothermal project described on pages 5-7 of the Panel's Pre-Filed Direct Testimony supports and conforms to this proceeding.
3. The Panel states on page 6 of its Pre-Filed Direct Testimony that the proposed geothermal "project will target a single public building or a collection of up to 30 residences or small buildings with a combined design cooling load of approximately 100 tons." For every ton of cooling or heating, provide the estimated reductions in greenhouse gas emissions as compared to the alternative of using heating equipment fueled with natural gas or #2 heating oil.
4. Provide a list and description of all land fill gas and biomass gas interconnections with the NMPC gas distribution network. Identify the interconnections that actively inject gas into the distribution system, and provide the volumes injected over the last three years.

5. Does NMPC have a standardized interconnection agreement for renewable gas such as biomass and landfill gas? If so, provide a copy of the interconnection agreement and interconnection standards used for these supply contracts.

Response:

1. The Company did not consider Air Source Heat Pumps in its proposal for Non-Pipeline Alternatives. The Company's proposed non-pipeline alternative project is limited to Geothermal Heat Pumps because this technology is the most efficient heat pump available with the least resultant carbon emissions, and the energy costs for heating with geothermal systems are comparable to gas heated buildings with modern equipment. Geothermal is a mature technology and available from major manufacturers. It has the potential to both avoid the cost of gas system expansion and also reduce peak electric demand for cooling. Further, Geothermal Heat Pumps are being used for KEDNY and KEDLI's geothermal project and will allow Niagara Mohawk to incorporate lessons learned.
2. Yes, the Company is aware of Matter Number 16-00681. The proposed non-pipeline alternative project supports the goals of that proceeding by developing geothermal as a clean energy solution to communities unserved by a gas distribution utility. The Company's pilot proposal is consistent with the policy objectives outlined in the "Clean Energy Fund Investment Plan: Renewable Heating & Cooling Chapter" (dated May 8, 2017) filed by NYSERDA in that proceeding, which specifically targets "residential, multi-family, commercial, and institutional buildings owners/managers/developers that have a stronger value proposition, such as sites that currently use oil and propane, or have limited access to natural gas as these represent high value use cases across market segments based on project economics." This project aims to better serve these communities while at the same time establishing the value of this technology through energy efficiency, energy affordability, economic development, and greenhouse gas emissions reductions.

The learning from the project will inform various market strategies that could accelerate the adoption of geothermal heating and cooling.

3. Please see Attachment 1 for an estimate of greenhouse gas emissions reductions from Geothermal or Ground Source Heat Pumps (GSHP). This chart is based on a 980 square foot residence. Heat pumps are usually sold by their cooling size in tons. The hypothetical residence in this example would utilize a geothermal heat pump with a cooling capacity of 2.5 tons (30,000 Btuh) and a heating capacity of 40,000 Btuh input of combustion fuel assuming a modern, well maintained heating system in a well-insulated building. Based on this estimate, the annual carbon produced across Upstate New York (ISO Zones A-I), assuming marginal emissions rates, per ton of A/C capacity installed with a GSHP is summarized as follows:

Geothermal Heating and Cooling  
 Typical Annual Carbon Emissions  
 for a Ground Source Heat Pump Unit per  
 Ton of Air Conditioning Capacity Installed, (Zone A-I)

lbs CO <sub>2</sub> per Ton A/C	Heating		Cooling
	No. 2 Oil	Natural Gas	
Conventional	5,479	4,016	1,419
GSHP	1,521	1,521	532
Savings	3,958	2,494	887

4. At this time, there are no interconnections between landfill gas or biomass gas facilities and the Company’s gas network, either at the distribution or transmission level. As such, no volumes have been injected into the system over the last three years.
5. The Company does not currently have a standardized interconnection agreement. However, National Grid’s Downstate New York gas distribution companies recently filed a standard agreement to be used by owners/operators/developers of renewable resources for interconnection (see Attachment 2).

The Company has an internal process to assess and integrate renewable natural gas (RNG) resources, and the Company has developed standard agreements for engineering services and gas purchases to facilitate such projects. National Grid is also part of a collaborative of New York local distribution companies led by the Northeast Gas Association to develop standard interconnection guidelines for RNG projects. The standard interconnection guideline for RNG projects is expected to be completed by the end of this year or early 2018.

Name of Respondent:  
 Christopher A. Cavanagh

Date of Reply:  
 June 5, 2017

Niagara Mohawk Power Corporation  
 d/b/a National Grid  
 Case 17-G-0239  
 Attachment 1 to DPS-133 DM-5  
 Page 1 of 1

**Typical Carbon Savings for Geothermal Heat Pump**

980 sq. ft  
 30 Btuh/ft<sup>2</sup> Heating  
 400 sq ft /ton Cooling

Heating			Cooling		
<b>Conventional</b>	<b>No.2 Heating Oil</b>	<b>Natural Gas</b>	<b>Electricity</b>		
	39,200 Btuh Input	39,200 Btuh Input	2.5 Ton A/C		
	75% Efficiency	75% Efficiency	12 SEER		
	29,400 Btuh Output	29,400 Btuh Output	2.5 kW electric demand	13.1 FL Amps at 208V	
	2,150 Full Load Hours	2,150 Full Load Hours	1,500 Full Load Hours		
	84,280,000 Btu/yr Input	84,280,000 Btu/yr Input	3,675 kWh/yr		
	602 gal. Oil	84.3 DTH			
CO2 AP-42 Factor	22,300 lbs/1,000 Gas	120,000 lbs/MMcf	MJ Bradley	946 lbs/MWh	
	13,425 CO2 produced	9,838 CO2 produced	MarginalEmissions Rate	Zone A-1	
			TOTAL	3,477 lbs CO2/yr	
	<b>5,479</b> per Ton A/C	<b>4,016</b> per Ton A/C		<b>1,419</b> per Ton A/C Capacity	
<b>Geothermal</b>	<b>Electricity</b>		<b>Electricity</b>		
	1.8 kW		2.5 Ton A/C		
	4.7 SCOP	Carrier (closed loop)	32 SEER	Carrier (closed loop)	
	29,400 Btuh Output		0.9 kW electric demand		
	2,150 Full Load Hours		1,500 Full Load Hours		
	3,939 kWh/yr		1,378 kWh/yr		
CO2	MJ Bradley	946 lbs/MWh	MJ Bradley	946 lbs/MWh	
	MarginalEmissions Rate	Zone A-1	MarginalEmissions Rate	Zone A-1	
	TOTAL	3,727 lbs CO2/yr	TOTAL	1,304 lbs CO2/yr	
		<b>1,521</b> per Ton A/C		<b>532</b> per Ton A/C Capacity	
	<b>Savings</b>	9,698 lbs	<b>Savings</b>	2,173 lbs	
	<b>per Ton A/C</b>	<b>3,958</b> per Ton A/C	<b>per Ton A/C</b>	<b>887</b> per Ton A/C	
	<b>Capacity</b>	<b>2,494</b> per Ton A/C	<b>Capacity</b>		

Geothermal Heating and Cooling  
 Typical Annual Carbon Emissions  
 for a Ground Source Heat Pump Unit  
 per Ton of Air Conditioning Capacity Zone A-1)

lbs CO2 per Ton A/C	Heating		Cooling
	No. 2 Oil	Natural Gas	
Conventional	5,479	4,016	1,419
GSHP	1,521	1,521	532
Savings	3,958	2,494	887

Katherine E Smith  
Senior Counsel I  
Legal Department



April 10, 2017

**VIA ELECTRONIC FILING**

Honorable Kathleen H. Burgess, Secretary  
New York State Department of Public Service  
3 Empire State Plaza, 19th Floor  
Albany, NY 12223-1350

**Re: Case 16-G-0058 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation d/b/a National Grid for Gas Service**

**Case 16-G-0059 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of The Brooklyn Union Gas Company d/b/a National Grid NY for Gas Service;**

**Interconnection Agreements Compliance Filing**

Dear Secretary Burgess,

Pursuant to Section VI (12) of the Joint Proposal adopted by the Commission’s Order dated December 16, 2016 in the above-captioned matters, attached please find the standard agreements to be used by owners/operators/developers of renewable resources for interconnection with KeySpan Gas East Corporation d/b/a National Grid (“KEDLI”) and The Brooklyn Union Gas Company d/b/a National Grid NY (“KEDNY”). Specifically, the standard interconnection terms are included in the attached gas services agreement and engineering services reimbursement agreement, both of which are required for a renewable resources project.

Please contact me if you have any questions regarding this filing, and thank you for your attention to this matter.

Respectfully submitted,

*/s/ Katherine E. Smith*  
Katherine E. Smith

cc: John Sano, DPS



## DIGESTER GAS SALES AGREEMENT

This Digester Gas Sales Agreement ("Agreement"), dated as of the \_\_\_ day of \_\_\_\_\_, 201\_ by and between \_\_\_\_\_ [LDC] (hereinafter referred to as "Buyer" or "Company"), a \_\_\_\_\_ [state] corporation with offices at \_\_\_\_\_ [address] and \_\_\_\_\_ [Seller] (hereinafter referred to as "Seller"), a \_\_\_\_\_ [state] [entity type] with offices at \_\_\_\_\_ [address] and each hereinafter referred to as a "Party" or collectively as the "Parties".

**WHEREAS**, Seller owns an anaerobic digester situated within a landfill located in \_\_\_\_\_ that recovers digester methane gas from \_\_\_\_\_; and

**WHEREAS**, Buyer is a regulated natural gas distribution company which owns and operates a natural gas distribution system in \_\_\_\_\_; and

**WHEREAS**, Seller desires to sell and deliver Pipeline Quality Processed Digester Gas to Buyer, and Buyer desires to purchase and accept such Processed Digester Gas from Seller; and

**WHEREAS**, Buyer has agreed to operate and maintain certain of the facilities required in connection with the delivery of Processed Digester Gas, and Seller has agreed to reimburse Buyer for performing such operation and maintenance services; and

**NOW THEREFORE**, in consideration of the foregoing premises and of the mutual covenants and agreements contained herein, the Parties hereby agree as follows:

### ARTICLE 1 DEFINITIONS

1.1 The term "Btu" means British Thermal unit, and shall be the quantity of heat required to raise the temperature of one (1) pound of water one degree Fahrenheit at sixty (60) degrees Fahrenheit at a pressure of 14.73 psia.

1.2 The term "Day" means a period of twenty-four (24) consecutive hours beginning and ending at 9:00 AM Central Standard Time.

1.3 The term "Delivery Point" shall mean the point of interconnection between the facilities of Seller and Buyer at or near the Landfill where Processed Digester Gas will be sold and delivered by Seller to Buyer under this Agreement, as shown on Exhibit "A" hereto. [Schematic drawing]

1.4 "Facilities" means those facilities that will be maintained by the Company pursuant to this Agreement and other facilities utilized in connection with the delivery of Processed Digester Gas.

1.5 "Landfill" means the \_\_\_\_\_.

1.6 The term "Maximum Daily Quantity" (or "MDQ") is the maximum amount of Processed Digester Gas that Buyer is obligated to purchase on any Day during the term of this Agreement.

1.7 The term "MMbtu" means one million Btu.

1.8 The term "Month" means a period beginning at 9:00 AM Central Standard Time on the first Day of any calendar month and ending at 9:00 AM Central Time on the first Day of the next succeeding calendar month.

1.9 The term "Plant" means the digester and processing facilities operated by Seller located at the Landfill.

1.10 The term "Processed Digester Gas" means natural gas produced by Seller at the Plant.

1.11 "Services" has the meaning set forth in Article 8 of this Agreement.

1.12 "Pipeline Quality" has the meaning defined in latest version of AGA Report 4a.

## **ARTICLE 2 EFFECTIVE DATE AND TERM**

2.1 The term of the Agreement shall commence as of the date first written above and shall remain in effect through \_\_\_\_\_, 20\_\_, and from month to month thereafter unless terminated by either Party on no less than thirty (30) days prior written notice to the other.

2.2 Upon the termination of this Agreement for any reason, any monies due and owing Seller or Buyer shall be paid pursuant to the terms hereof, and any corrections or adjustments to payments previously made shall be determined and made at the earliest possible time. The provisions of this Agreement shall remain in effect until the obligations under this paragraph have been fulfilled.

## **ARTICLE 3 SALE AND PURCHASE OBLIGATIONS**

3.1 Subject to the terms and conditions of this Agreement, Seller agrees to sell and deliver, and Buyer agrees to purchase and receive, each Day during the term of this Agreement, at the Delivery Point, a quantity of Pipeline Quality Processed Digester Gas equal to the lesser of (a) the quantity of Processed Digester Gas produced by the Plant on such Day or (b) the MDQ for such Day.

3.2 As of the effective date of this Agreement, the MDQ shall be \_\_\_\_\_MMBtu.

3.3 Seller shall tender Pipeline Quality Processed Digester Gas for delivery at a substantially uniform rate of flow throughout each Day, at a minimum of 0 mdth/day and a maximum of \_\_\_\_ mdth/day, except that if Seller becomes aware that the rate of delivery or the total quantity of Pipeline Quality Processed Digester Gas, Seller will deliver for any Day will differ by more than

\_\_\_\_\_ (%) (positive or negative) from that achieved the previous Day, Seller shall so notify Buyer's Gas Control Center at the contact set forth in Section 13.10 below. Seller also shall notify Buyer's Gas Control Center at least \_\_\_\_\_ (\_\_) hours in advance of any suspension of Processed Digester Gas deliveries under this Agreement necessitated by Seller's maintenance of its Plant.

#### **ARTICLE 4 PRICE OF GAS**

4.1 The price paid for each MMBtu of Processed Digester Gas sold and purchased under this Agreement in any Month shall be equal to \_\_\_\_\_.

#### **ARTICLE 5 TITLE TO GAS**

5.1 Seller hereby warrants good and merchantable title to all Pipeline Quality Processed Digester Gas delivered hereunder, free and clear of all liens, encumbrances and claims whatsoever. Seller will indemnify Buyer and hold it harmless from any and all suits, actions, debts, accounts, damages, costs, losses, and expenses arising from or out of adverse title claims of any and all persons to said Pipeline Quality Processed Digester Gas.

5.2 Title to all Pipeline Quality Processed Digester Gas received by Buyer shall pass to Buyer at the Delivery Point. As between the Parties hereto, Seller shall be deemed to be in exclusive control and possession of the Processed Digester Gas deliverable hereunder and responsible for any damage or injury caused thereby until the same shall have been delivered to Buyer at the Delivery Point; thereafter Buyer shall be deemed to be in exclusive control and possession of such gas and responsible for any damage or injury caused thereby.

#### **ARTICLE 6 GAS PRESSURE, TEMPERATURE AND QUALITY**

6.1 Seller shall tender Pipeline Quality Processed Digester Gas for delivery to Buyer under this Agreement at the Delivery Point at pressures sufficient for such Pipeline Quality Processed Digester Gas to enter Buyer's facilities at such point, but in no event in excess of the maximum allowable operating pressure on Buyer's system which, at the time of execution of this Agreement, is \_\_\_ psig. Buyer shall promptly notify Seller of any changes in the maximum operating pressure of the Buyer's system.

6.2 Seller shall tender Pipeline Quality Processed Digester Gas for delivery to Buyer under this Agreement at the Delivery Point at a temperature no less than \_\_\_ degrees Fahrenheit and no greater than \_\_\_ degrees Fahrenheit. Should Seller tender Processed Digester Gas to Buyer at the Delivery Point at a temperature colder or warmer than such range and Buyer's meter is damaged as a result, then in addition to and without limitation of any other remedy Buyer may have, Buyer shall be entitled to receive from Seller an amount equal to Buyer's cost to repair or replace such meter and any other related equipment affected.

6.3 Seller agrees that it will exercise reasonable care and diligence in tendering Pipeline Quality Processed Digester Gas for delivery to Buyer under this Agreement, and warrants that all Pipeline Quality Processed Digester Gas when tendered for delivery to Buyer hereunder at the Delivery Point shall:

- a. be compatible and interchangeable with pipeline gas as defined in \_\_\_\_\_;
- b. be within the limits set forth below:

Table 1: Gas Quality Specifications

<b>Gas Quality Specification</b>	<b>Low</b>	<b>High</b>
<b>BTU Content (Heat Content)</b> [BTU/scf]	980	1100
<b>Wobbe Number</b> (capped @ 1400 w/ BTU of 1100)	1290	1390
<b>Relative Density</b>	0.56	0.60
<b>Water Vapor Content</b> [lb/MMscf]	-	6.5
<b>Mercaptans (as Odorant)</b> [lb/MMscf]	0.35	0.75
<b>Hydrocarbon Dew Point, [°F]</b> <b>CHDP</b>	-	12°F
<b>Hydrogen Sulfide (H<sub>2</sub>S)</b>	-	2 ppmv
<b>Total Sulfur</b>		1.0 ppmv
<b>Diluent Gases</b>	-	
<b>Carbon Dioxide (CO<sub>2</sub>)</b>		2.0%
<b>Nitrogen (N<sub>2</sub>)</b>		2.5%
<b>Oxygen (O<sub>2</sub>)</b>		0.15%
<b>Total Diluents</b>		<b>Not to exceed 4.0%</b>
<b>Hydrogen</b>	-	0.1 vol%
<b>Total Bacteria</b>	-	Not Detectable
<b>Mercury</b>	-	Not Detectable
<b>Other Volatile Metals</b> (including arsenic)	-	Not Detectable
<b>Siloxanes (D4)</b>	-	Not Detectable
<b>Ammonia</b>	-	Not Detectable
<b>Non-Halogenated Semi-Volatile and Volatile Compounds</b>	-	Not Detectable
<b>Halocarbons</b>	-	Not Detectable
<b>Aldehyde/Ketones</b>	-	Not Detectable
<b>Radon</b>	-	<1 pci/L
<b>PCBs</b>	-	Not Detectable
<b>Pesticides</b>	-	Not Detectable

**NOTES:**

1. *Not-detectable for purposes of this specification is defined as a value less than the lowest detectable level for a mutually agreeable standard industry analytical test method*
2. *BTU = commonly referred to as Higher Heating Value (HHV)*
3. *Wobbe = Interchangeability parameter; ratio of BTU content to specific gravity*
4. *In addition to the specified limits above, gas received into Buyer's pipeline system shall be pipeline quality and as such remain commercially free of objectionable materials and merchantable as defined in latest edition of AGA Report 4A "Natural Gas Contract Measurement and Quality Clauses"*

c. be monitored as to conformity with all of the foregoing criteria by manual test or by mutually acceptable continuous monitoring equipment; and Buyer will require quarterly random grab sampling to ensure gas is free of objectionable materials with analytical costs to be reimbursed by the Seller.

6.4 Seller shall maintain in good working order its facilities at the Plant that enable it to ensure that the pressure, temperature and quality of the Pipeline Quality Processed Digester Gas it tenders for delivery under this Agreement fully conform with the criteria set forth in this Agreement.

6.5 In addition to any and all other remedies that it may have, Buyer shall have the right to reject as non-conforming any Processed Digester Gas Seller tenders for delivery under this Agreement that fails to comply with the pressure, temperature or quality specifications set forth in this Agreement, and will maintain suitable equipment at Seller's premise in order to remotely monitor and shut off Seller's supply should it not meet such specifications.

6.6 The Parties shall develop a facility start-up gas quality sampling and testing plan (the "Plan") to ensure all equipment is functioning as and intended in order to provide Pipeline Quality Processed Digester Gas conforming to the quality specifications set forth in Table 1 above. The Plan shall include provisions regarding frequency of initial testing.

**ARTICLE 7  
GAS MEASUREMENT**

7.1 The quantity of Processed Digester Gas delivered hereunder shall be measured according, to Boyle's and Charles' Laws for the measurement of gas under varying temperatures and pressures and shall be determined as follows:

- a. the sales unit of the Processed Digester Gas delivered shall be one (1) MMBtu of gas measured as HHV on a real, dry, basis at standard temperature and pressure;
- b. the unit of weight for the purpose of measurement shall be one (1) pound mass of gas;

c. the average absolute atmospheric pressure shall be assumed to be 14.73 pounds per square inch; and

d. the temperature of gas passing through the meter shall be determined by the continuous use of a temperature measuring device; the arithmetic averages of the temperature recorded each twenty-four (24) hour Day shall be used in computing gas volumes or continuous instantaneous temperature measurements may be applied to metering instruments to provide the volume computation.

7.2 The metering equipment shall be sealed and the seals shall be broken only upon occasions when the meters are to be inspected, tested or adjusted, and representatives of Seller shall be afforded at least twenty-four (24) hour notice and reasonable opportunity to be present upon such occasions. Buyer shall use reasonable efforts to give Seller more than twenty-four (24) hour notice of such inspections, tests or adjustments.

7.3 Periodic tests of such metering equipment, at intervals not to exceed two times per year, will be made at any reasonable time upon request there for by Seller. If, as a result of any such additional test, the metering equipment is found to be defective or inaccurate, it will be restored to a condition of accuracy or replaced. If an additional test of the metering equipment is made at the request of Seller with the result that said metering equipment is found to be registering correctly or within two percent (2%) plus or minus of one hundred percent (100%) accuracy, Seller shall bear the expense of such additional test. If such additional test shows an error greater than two percent (2%) plus or minus of one hundred percent (100%) accuracy, then Buyer shall bear the expense of such additional test and any necessary repair or replacement.

7.4 All meters shall be adjusted as close as practical to one hundred percent (100%) accuracy at time of installation and testing. If any of the metering equipment tests provided for herein disclose that the error for such equipment exceeds two percent (2%) plus or minus of one hundred percent (100%) accuracy, and the period of inaccuracy cannot be reasonably ascertained, then the period of inaccuracy will be assumed to have begun at the midpoint in time between the discovery of the inaccuracy and the previous meter test.

7.5 Any correction in billing resulting from such correction in meter records shall be made in the next monthly invoice rendered by Buyer after the inaccuracy is discovered. Should any metering equipment fail to register the gas delivered or received during any period of time, the amount of Processed Digester Gas delivered or received during such period will be estimated by the Parties according to the amounts previously delivered or received during similar periods under substantially similar conditions, and upon mutual agreement of the Parties shall be used as the basis for billing for that period.

## **ARTICLE 8 OPERATION and MAINTENANCE SERVICES, EQUIPMENT REPLACEMENT COSTS**

8.1 SCOPE - During the term of this Agreement the Company will perform, or cause to be performed, in a prudent and workman like manner the Services set forth in Section 8.2 below. Upon the mutual agreement of the Parties, the Company may perform additional Services (the "Unscheduled Services") in connection with the Facilities. In the case of emergencies that render the Facilities unsafe, the Company may perform emergency services that it deems necessary to make the Facilities safe (the "Emergency Services"), including shutting off gas supply and the gas delivery. The Company shall attempt to notify Seller prior to commencing any such Emergency Services, however if prior notification is impractical, the Company shall have the right to commence the Emergency Services immediately and to notify Seller within 24 hours thereafter.

8.2 SERVICES - During the term of this Agreement, the Company shall provide the labor and materials necessary to operate and maintain the gas meters, gas regulators, odorant system, gas chromatographs, telephone lines and other ancillary equipment required by the Company in connection with the delivery of Processed Digester Gas pursuant to this Agreement (the "Services"). The Services do not include repairs for damages, malfunctions or failures caused by or occurring as the result of: (a) repairs, adjustments or any other actions performed by persons other than the Company's authorized representatives; (b) failure of components not serviced by the Company's authorized representatives; (c) abuse, misuse or negligent acts of Seller or others; or (d) an event of force majeure as defined in Article 11 hereof. Installation of the equipment described above is the Seller's responsibility.

8.3 COST OF SERVICES - Seller shall reimburse the Company for the fully loaded cost incurred by the Company in performing the Services, Unscheduled Services and/or Emergency Services.

8.4 EQUIPMENT REPLACEMENT AT END OF LIFE – Seller shall reimburse the Company for the fully loaded cost to replace gas meters, gas regulators, odorant system, gas chromatographs, telephone lines and other ancillary equipment when such equipment reaches the end of its service life.

## **ARTICLE 9 BILLING AND PAYMENT**

9.1 On or before the fifth (5th) day of each Month, Buyer shall notify Seller of the quantity of Processed Digester Gas delivered by Seller to Buyer during the preceding Month. Seller shall render a written statement to Buyer on or before the fifteenth (15th) day of such succeeding Month which, upon verification by Buyer, shall be paid by Buyer by the twenty-fifth (25th) day of such Month. If the twenty-fifth (25th) day of any Month falls on a weekend or bank holiday, payment by Buyer shall be due on the next succeeding business day.

9.2 The fully loaded costs incurred by the Company in performing any Services,

Unscheduled Services and/or Emergency Services will be applied as an offset to the amount invoiced by Seller pursuant to Section 9.1 above.

9.3 AUDITS. Each Party shall have the right at its own expense to examine and audit at a reasonable time and upon reasonable prior notice the books, records and charts of the other Party relevant to this Agreement. Each Party shall use reasonable efforts to make available such records as may be necessary to verify the accuracy of any statements or charges made under or pursuant to any of the provisions of this Agreement. A formal audit of accounts shall not be made more than once each calendar year.

## **ARTICLE 10 ACCESS TO PREMISES**

10.1 Seller agrees during the term of this Agreement that it will provide access as may be required by the Company's authorized representatives for the performance of its obligations hereunder. Upon 24 hours' notice, Seller shall grant access to, or obtain access for, the Company's authorized representatives for performance of the Services and the Unscheduled Services. Furthermore, Seller shall grant or obtain immediate access for the Company's authorized representatives for the performance of Emergency Services.

## **ARTICLE 11 FORCE MAJEURE**

11.1 The term force majeure as employed herein shall mean acts of God, strikes, lockouts or other industrial disturbances, acts of the public enemy, wars, blockades, insurrections, riots, epidemics, landslides, lightning earthquakes, fires, storms, floods, washouts, arrests, the order of any court of governmental authority having jurisdiction while the same is in force and effect, civil disturbances, explosions, breakage, accidents to machinery or lines or pipe, freezing of or damage to facilities, inability to obtain or unavoidable delay in obtaining material, equipment, and any other cause whether of the kind herein enumerated or otherwise, not reasonably within the control of the Party claiming suspension and which by the exercise of due diligence such Party is unable to prevent or overcome.

11.2 In the event of either Party being rendered unable, wholly or in part, by force majeure to carry out its obligations (other than the continuing obligation set forth herein below), it is agreed that on such Party's giving notice and full particulars of such force majeure in writing or by telegraph or teletype to the other Party within a reasonable time (not to exceed five (5) days) after occurrence of the cause relied on, the obligations of both Parties, so far as they are affected by such force majeure, shall be suspended during such period of force majeure, but for no longer period, and such cause shall so far as possible be remedied with all reasonable dispatch.

11.3 Neither Party shall be liable in damages to the other for any act, omission or circumstance occasioned by, or in consequence of, force majeure, as herein defined. Such causes or contingencies affecting the performance by either Party, however, shall not relieve it of liability unless such Party shall give notice and full particulars of such cause or contingency in writing, to the other Party at the address set forth in Section 13.10 within a reasonable time after the



occurrence relied upon, nor shall such causes or contingencies affecting the performance by either Party relieve it of liability in the event of its failure to use due diligence to remedy the situation and remove the cause with all reasonable dispatch, nor shall such causes or contingencies affecting the performance relieve Buyer from its obligation to make payments of amounts in respect of Pipeline Quality Processed Digester Gas delivered.

11.4 To the extent that, in Buyer's sole judgment. Buyer's ability to receive, measure monitor and/or odorize pipeline quality Processed Digester Gas is impaired by conditions on its system including, but not limited to, the performance of routine maintenance or repairs, then Buyer's obligation to purchase and receive such Processed Digester Gas shall be suspended for the duration of such condition.

## **ARTICLE 12 EVENTS OF DEFAULT**

12.1 EVENTS OF DEFAULT - The occurrence of anyone or more of the following shall be an "Event of Default" under this Agreement:

- (a) Failure by a party to pay/reimburse any amount when due and payable that is required to be paid by the terms of this Agreement.
- (b) Failure by a party to perform any covenant, condition or agreement required to be performed by it by the terms of this Agreement that continues for a period of ten (10) days after the required date of performance.

12.2 REMEDIES ON DEFAULT.

- (a) The non-defaulting party shall have the right, upon written notice to the defaulting party, to terminate this Agreement upon any Event of Default.
- (b) Upon any Event of Default by the Company, Seller, or a designee of Seller, may cure any breach or default of the Company under this Agreement that resulted in an Event of Default (including the failure to perform Services), in which case the full cost thereof shall be reimbursed to Seller by the Company.

## **ARTICLE 13 MISCELLANEOUS**

13.1 Except as provided hereinafter, neither this Agreement nor any rights or obligations hereunder may be assigned or transferred, by operation of law or otherwise by either Party without the prior written consent of the other Party, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, Buyer may assign this Agreement and all of its rights and obligations to an affiliate of Buyer at any time upon 30 days prior written notice to Seller.

13.2 Seller shall provide, at no cost to Buyer, all of the electricity and compressed air required for Buyer to operate the facilities that will measure, regulate and odorize the Processed Digester

gas delivered by Buyer to Seller under this Agreement at Buyer's facilities for such purposes located at or near the Delivery Point.

13.3 The sale and delivery of Processed Digester Gas by Seller and the purchase and receipt thereof by Buyer are subject to all valid legislation with respect to the subject matter hereof and to all valid present and future orders, rules and regulations of duly constituted authorities having jurisdiction. Neither Buyer nor Seller shall be liable to the other for failure to perform any obligation hereunder where such failure is due to compliance with such valid laws, orders, rules or regulations. If any statute, order, rule, or regulation of a duly constituted authority having jurisdiction over a Party or the performance of this Agreement prevents Seller from charging or collecting the price or prices payable hereunder or prevents Buyer from recovering costs representing the price or prices payable hereunder, the following shall apply notwithstanding any other provision of this Agreement:

a. If Buyer is prevented from recovering any costs representing all or a portion of the price or prices payable hereunder, or Buyer's recovery of such costs is made subject to refund, Buyer may, at its option, terminate this Agreement by written notice to Seller, effective not less than sixty (60) days after delivery thereof;

b. If Seller is prevented from charging or collecting all or any part of the price or prices payable hereunder, or Seller's collection of such prices is made subject to refund, Seller may, at its option, terminate this Agreement by written notice to Buyer, effective not less than sixty (60) days after delivery thereof.

13.4 This Agreement sets forth all understandings between the Parties respecting the terms and conditions of this transaction. All other agreements, understandings and representations by and between the Parties hereto prior to this Agreement, whether consistent or inconsistent, oral or written, concerning this transaction are merged into and superseded by this written Agreement.

13.5 All headings appearing herein are for convenience only and shall not be considered a part of this Agreement for any purpose.

13.6 The Parties may, by mutual agreement, waive any provision herein; however, a waiver shall not be construed to constitute a continuing waiver hereunder and furthermore, a waiver by either Party of any one or more defaults by the other Party in performance of any provision of this Agreement shall not operate or be construed as a waiver of future default or defaults, whether of a like or different character.

13.7 Seller hereby agrees to indemnify and hold harmless Buyer from damage to Buyer's or third parties' property or injury to persons (including death) to the extent resulting from the negligence of Seller, its servants, agents or employees, while engaged in activities under this Agreement. Buyer shall indemnify and hold harmless Seller from damage to Seller's or third parties' property or injury to persons (including death) to the extent resulting from the negligence of Buyer, its servants, agents or employees while engaged in activities under this Agreement except to the extent Buyer's Schedule for Gas Service (as filed with and approved by the Public Service

Commission of the State of \_\_\_\_\_), limits Buyer's liability. The obligations under this Section shall survive termination of this Agreement.

13.8 THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF \_\_\_\_\_, WITHOUT REGARD TO ANY RULES GOVERNING CONFLICTS OF LAWS THAT WOULD REQUIRE APPLICATION OF THE LAWS OF ANOTHER JURISDICTION.

13.9 This Agreement may be executed in several counterparts, each of which is an original and all of which constitute one and the same instrument.

13.10 Unless otherwise specified, any notice, request, demand, statement, bill or other payment provided for in this Agreement, or any notice which a Party may desire to give to the other, shall be considered duly delivered as of the earlier of the date of the receipt by the addressee or three (3) business days after the postmark date when mailed by ordinary mail or given to the addressee at the addresses listed below:

**BUYER:**

**Notices:**

**Billings:**

**SELLER:**

**NOTICES and BILLINGS**  
(Original)

(Copy Submitted to)

IN WITNESS WHEREOF, The Parties have duly executed this Agreement as of the day and year first above written.

**[Buyer]**

By: \_\_\_\_\_

**[Seller]**

By: \_\_\_\_\_

## **ENGINEERING SERVICES REIMBURSEMENT AGREEMENT**

**THIS ENGINEERING SERVICES REIMBURSEMENT AGREEMENT** ("Agreement"), effective as of this [\_\_\_\_] day of [\_\_\_\_\_] ("Effective Date"), is by and between \_\_\_\_\_ ("Customer"), a [\_\_\_\_\_] organized and existing under the laws of [\_\_\_\_\_] with offices at [\_\_\_\_], and \_\_\_\_\_ ("Company"), a corporation organized and existing under the laws of the State of \_\_\_\_\_ with offices at \_\_\_\_\_.

**WHEREAS**, Customer is proposing to build an anaerobic digester within a landfill located in \_\_\_\_\_ that will recover methane gas from \_\_\_\_\_ to be burned on site to generate electricity, with excess gas to be treated to meet pipeline gas specifications and sent to Company's natural gas distribution system (the "Project"); and

**WHEREAS**, Customer desires to have Company perform certain engineering services (as specified below) in connection with the Project, and Company has agreed to perform such services upon the terms and conditions set forth below;

**NOW, THEREFORE**, in consideration of the mutual promises and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties entering into this Agreement (each a "Party", and collectively, the "Parties"), with the intent to be bound, agree as follows:

### **ARTICLE I – SERVICES**

**1.1 Scope of Services.** Company will perform those services specified in Exhibit A attached hereto and hereby incorporated herein ("Services"). No goods, equipment, or materials will be provided under this Agreement. This Agreement does not provide for generation interconnection service, procurement of equipment, installation or construction, or transmission service.

#### **1.2 Customer's Responsibilities.**

Customer shall provide/perform:

1. Complete and accurate information regarding requirements for Services, including, without limitation, constraints, space requirements and relationships, special equipment, systems, site requirements, underground or hidden facilities and structures, all applicable drawings and specifications, Process Hazards Assessment (PHA) and Facility Siting Study;
2. If and to the extent applicable, Company access to the site where Services will be performed;
3. A project manager who will be given the authority to coordinate all aspects of the Project between Customer and Company;

4. If and to the extent applicable, adequate parking and security for the vehicles of Company personnel performing the Services; and
5. Other responsibilities and access deemed necessary by, and in the sole discretion of, Company to facilitate performance of the Services.

Customer shall reasonably cooperate with Company as required to facilitate Company's performance of the Services. Other express Customer responsibilities, if any, shall be as specified in Exhibit A attached hereto.

Anything in this Agreement to the contrary notwithstanding, Company shall have no responsibility or liability under this Agreement for any defective performance or nonperformance to the extent such defective performance or nonperformance is caused by the inability or failure of (i) Customer to cooperate or to perform any of the tasks or responsibilities contemplated to be performed or undertaken by Customer in Exhibit A or elsewhere in this Agreement, or (ii) Customer and Company to reach agreement on any matter requiring their mutual agreement as contemplated in Exhibit A or elsewhere in this Agreement.

**1.3 Unknown Conditions.** Customer represents, warrants and covenants that all information provided by Customer is accurate and complete and acknowledges and agrees that Company may and will rely on this representation, warranty and covenant in performing under this Agreement. If, as a result of additional, different, or previously unknown information, any changes in Services are required that will result in an increase or decrease in the cost or time of performance under the Agreement, the Price, schedule and other affected provisions of this Agreement shall be equitably adjusted and this Agreement shall be amended in writing to memorialize such changes.

**1.4 Changes and Extras.** Customer may request changes in Services in writing. If any such changes will result in an increase or decrease in the cost or time of performance under this Agreement, the Price, schedule and other affected provisions of the Agreement shall be equitably adjusted and this Agreement shall be amended in writing to memorialize such changes. Company may make changes in Services with the prior written approval of Customer (which approval shall not be unreasonably withheld, conditioned, or delayed).

**1.5 Governmental Requirements.** Changes in Services may be necessary in order to meet the requirements of governmental authorities, laws, regulations, ordinances, Good Utility Practice (as such term is defined in Article V, Section 1, below) and/or codes. After Customer's approval (which shall not be unreasonably withheld, conditioned, or delayed), Company will make changes in Services as it deems necessary, in its sole discretion, to conform to such requirements. If any such changes will result in an increase or decrease in the cost or time of performance under this Agreement, the Price, schedule and other affected provisions of this Agreement shall be equitably adjusted and this Agreement shall be amended in writing to memorialize such changes. If Customer withholds its approval, and in Company's sole and exclusive judgment the withholding of approval by Customer is not reasonable, then, at

Company's election, this Agreement may be immediately terminated upon written notice to Customer.

## **ARTICLE II – PRICE, TAXES, AND PAYMENT**

**2.1 Price.** The price for the Services to be paid by Customer shall be the actual costs and expenses incurred by the Company and its affiliates in connection with performance of the Services or otherwise incurred by Company in connection with this Agreement, and shall include, without limitation, any such costs that may have been incurred by Company prior to the Effective Date (the "Price").

The Price shall include, without limitation, the actual costs and expenses for the following to the extent incurred in connection with performance of the Services: labor (including, without limitation, internal labor); materials; subcontracts; equipment; travel, lodging, and per diem paid in accordance with Company policy; copying and reproduction of materials, overnight delivery charges, certified mailing charges, first class mailing charges and similar types of incidental charges; transportation; carrying charges and surcharges; all applicable overheads including an Administrative and General (A&G) expense charge at Company's current rate at the time of invoicing; all federal, state and local taxes incurred; all costs and fees of outside experts, consultants, counsel and contractors; all other third-party fees and costs; and all costs of obtaining any required consents, releases, approvals, or authorizations. All invoiced sums will include applicable expenses, surcharges, and federal, state and local taxes.

Exhibit B sets forth illustrative examples of hourly internal labor rates for certain engineer and project manager titles. Actual hourly rates may vary from these examples, based upon the salaries and titles of specific employees providing Services. For the avoidance of doubt, Customer shall be responsible for the actual costs and expenses incurred by the Company and its affiliates in connection with performance of the Services.

If Customer claims exemption from sales tax, Customer agrees to provide Company with an appropriate, current and valid tax exemption certificate, in form and substance satisfactory to Company, relieving Company from any obligation to collect sales taxes from Customer ("Sales Tax Exemption Certificate"). During the term of this Agreement, Customer shall promptly provide Company with any modifications, revisions or updates to the Sales Tax Exemption Certificate or to Customer's exemption status. If Customer fails to provide an acceptable Sales Tax Exemption Certificate for a particular transaction, Company shall add the sales tax to the applicable invoice to be paid by Customer.

**2.2 Payment.** Customer shall provide Company with an initial prepayment in the amount of \_\_\_\_\_ US dollars (\$\_\_\_\_\_) ("Initial Prepayment"). Company shall not be obligated to commence performance of Services until it has received the Initial Prepayment. If, during the performance of the Services, Company determines that one or more additional prepayments are required before completing the Services, Company may, but is not required to, request additional prepayment from Customer; any such requests will be in writing. If an additional prepayment is requested and is not received from Customer on or before the date specified in each such request,

or if no date is specified, within 30 days of receipt of the written request, Company may cease work upon the depletion of the Initial Prepayment and any other prepayments made by Customer to date, as applicable. Upon Company's receipt of the additional requested prepayment from Customer (such prepayment to be additional to the Initial Prepayment and any other prepayments made by Customer to date), Company will continue to perform the Services. The Initial Prepayment and the additional prepayments (if any) represent estimates only.

Company is not required to request additional prepayments from Customer and may elect, in its sole discretion, to continue performing Services hereunder after the depletion of the Initial Prepayment, or any other prepayments made by Customer to date, as applicable, without additional prepayments and invoice Customer for such Services at a later date. Customer shall be responsible to pay Company the total Price for completing the Services actually performed by Company whether or not any additional prepayments were made at Company's request. Any election by Company to seek or defer additional prepayments in one instance shall not obligate the Company to seek or defer additional prepayments in any other instance.

Company will invoice Customer for all sums owed under this Agreement. With the exception of additional prepayments required under the first paragraph of this Section 2 of Article II, in which case the due date provided in such paragraph shall apply, payment shall be due in full within thirty (30) days of Company's submittal of an invoice, without regard to claims or off-sets. Payment shall be made in immediately available funds transmitted by the method specified in the invoice. A continuing late payment charge of 1.5% per month will be applied on any late payments.

If Company's Price for completing the Services is less than the Initial Prepayment plus any such additional prepayments paid by Customer under this Article ("Total Prepayment"), Company will refund the remaining unused portion of the Total Prepayment to Customer.

### **ARTICLE III - SCHEDULE, DELAYS, AND FORCE MAJEURE**

Company will use reasonable efforts to commence the Services promptly following its receipt of all of the following: a fully executed Agreement, the Initial Prepayment, and all information required by this Agreement to be supplied by Customer prior to commencement of the Services.

If Company's performance of the Agreement is delayed by Customer, an equitable adjustment shall be made for any increase in the cost and/or time of performance caused by the delay.

Any delays in, or failure of, performance by Customer or Company, other than payment of monies, shall not constitute default and shall be excused hereunder, if and to the extent such delays or failures of performance are caused by occurrences beyond the reasonable control of Customer or Company, as applicable, including, but not limited to, acts of God, Federal and/or state law or regulation, sabotage, explosions, acts of terrorism, unavailability of personnel, equipment, supplies, or other resources for utility-related duties, delays by governmental authorities in granting licenses, permits or other approvals necessary in connection with Services,



compliance with any order or request of any governmental or judicial authority, compliance with Company's public service obligations, storms, fires, inclement or adverse weather, floods, riots or strikes or other concerted acts of workers, and accidents.

#### **ARTICLE IV – INTELLECTUAL PROPERTY**

Any drawings, specifications or other documents (i) prepared or used by Company, or (ii) prepared by Customer for Company in connection with this Agreement, shall be the proprietary, confidential information and sole property of Company at no cost to Company (collectively "Materials").

Excluding third-party owned documents and software, Customer is granted an irrevocable, nontransferable, and non-assignable license to use such Materials solely in connection with the Project. No commercialization of such Materials by Customer is authorized. Customer shall not disclose any of the Materials to any third party, in whole or in part, without the prior written consent of Company.

The obligations imposed by this Article IV shall survive the completion, cancellation, or termination of this Agreement.

#### **ARTICLE V – PERFORMANCE**

Company shall perform the Services in a manner consistent with "Good Utility Practice" (as such term is defined below); provided, however, that Company shall have no responsibility or liability in connection with (i) any items or services provided by Customer or its third party contractors or representatives whether or not such items or services are incorporated in the Services, (ii) any items or services provided, manufactured or licensed by third parties whether or not such items or services are incorporated in the Services, or (iii) any defects in Services that result from the acts or omissions of persons other than Company or accidents not caused by Company.

"Good Utility Practice" shall mean the practices, methods and acts engaged in or approved by a significant portion of the natural gas utility industry during the relevant time period, or any practices, methods and acts which, in the exercise of good judgment in light of the facts known at the time the decision was made, would have been reasonably expected to accomplish the desired result consistent with good business practices, safety, and law. Good Utility Practice is not intended to require or contemplate the optimum practice, method or act, to the exclusion of all others, but rather to be reasonably acceptable practices, methods, or acts generally accepted in the region in which the Services are to be performed.

#### **ARTICLE VI – INSURANCE**

From the commencement of the Agreement through its expiration, each Party shall provide and maintain, at its own expense, insurance policies issued by reputable insurance companies with an A. M. Best rating of at least B+ (collectively, the "Required Insurance").

*Policies*”). The Required Insurance Policies shall, at a minimum, include the following coverages and limitations:

**Workers' Compensation and Employers Liability Insurance**, as required by the State in which the work activities under this Agreement will be performed. If applicable, coverage will include the U.S. Longshoremen's & Harbor Workers' Compensation Act, and the Jones Act. If a Party is a qualified self-insurer by the State, Excess Workers' Compensation coverage shall be maintained in lieu of the Workers' Compensation coverage.

**Public Liability**, including Contractual Liability and Products/Completed Operations coverage, covering all operations to be performed under this Agreement, with minimum limits of:

Bodily Injury	- \$1,000,000 per occurrence
Property Damage	- \$1,000,000 per occurrence

**Automobile Liability**, covering all owned, non-owned and hired vehicles used under or in connection with this Agreement, with minimum limits of:

Bodily Injury	- \$500,000 per occurrence
Property Damage	- \$500,000 per occurrence
OR	
Combined Single Limit	- \$1,000,000 per occurrence

If requested, each Party will provide evidence to the other Party that it maintains the Required Insurance Policies required under this Article.

Either Party may elect to self-insure to the extent authorized or licensed to do so under the applicable laws of the State of \_\_\_\_\_, provided, that, the electing Party provides written notice of any such election to the other Party. Company hereby notifies Customer that it is a qualified self-insurer under the applicable laws of the State of \_\_\_\_\_ and that it elects to self-insure to satisfy its obligations under this Article.

## **ARTICLE VII – INDEMNIFICATION AND LIMITATION OF LIABILITY**

7.1 Except as specifically provided herein, each Party shall indemnify and save harmless the other Party or the other Party's directors, agents, officers, and employees against all claims, demands, losses, damages, judgments, and associated costs and expenses for property damage, personal injuries, bodily injuries, or death suffered by third parties (including but not limited to government agencies) arising out of such Party's performance under this Agreement.

7.2 Neither Party, nor their directors, agents, officers or employees shall be liable to the other Party, its directors, agents, officers or employees for incidental, special, indirect or consequential damages of any nature connected with or resulting from their performance of this Agreement.

7.3 Company, its officers, directors, employees and agents shall not be liable to Customer, or its contractors or subcontractors, for any claims, costs, expenses, losses, damages, or judgments arising out of Company's document review. Customer shall indemnify and hold Company, its officers, directors, employees and agents, harmless from any such claims, costs, expenses, losses, damages or judgments of any of Customer's contractors or subcontractors. This indemnification and hold harmless obligation shall be separate from and independent of any other obligations of Customer to indemnify and hold harmless Company, its officers, directors, employees and agents.

7.4 Customer hereby undertakes to comply with all applicable federal, state and local laws, rules, ordinances and/or regulations in effect on the date hereof which regulate or control the design, engineering, construction and installation of the Project. Customer shall indemnify and hold Company, its officers, directors, employees, agents and servants, harmless from any loss, damage, penalty or injury, including Company's reasonable attorney's fees and expenses, resulting from Customer's violation of the above described laws, rules, ordinances and/or regulations. This indemnification and hold harmless obligation shall be separate from and independent of any other obligations of Customer to indemnify and hold harmless Company, its officers, directors, employees and agents.

#### **ARTICLE VIII – TERM AND TERMINATION**

8.1 The term of this Agreement shall expire thirty (30) months from the Effective Date. As of the expiration of this Agreement or, if earlier, its termination, the Parties shall no longer be bound by the terms and provisions hereof, except (a) to the extent necessary to enforce the rights and obligations of the Parties arising under this Agreement before such expiration or termination (including, without limitation, with respect to payment of all amounts due and payable hereunder), and (b) such terms and provisions that expressly or by their operation survive the termination or expiration of this Agreement.

8.2 Either Party may terminate this Agreement for convenience by delivery of written notice to the other Party, such termination to be effective on the tenth (10th) day following delivery of such written notice, or upon payment in full of all amounts due and payable hereunder, whichever is later. On or before the effective termination date of this Agreement, Customer shall pay Company all amounts due and payable as the Price for that portion of the Services performed to the effective date of termination ("*Amount Outstanding*"), including, without limitation, all costs and expenses incurred, less the Total Prepayment. In the event that the Total Prepayment exceeds the Amount Outstanding, Company shall remit the balance to Customer.

#### **ARTICLE IX – MISCELLANEOUS PROVISIONS**

**9.1 Assignment and Subcontracting.** Customer agrees that Company has the right, but not the obligation, to (i) use the services of its affiliated companies in connection with the performance of Services, and (ii) issue contracts to third parties for, or in connection with, the performance of Services hereunder, without the prior consent of Customer, and that the costs and expenses of such affiliated companies or third parties charged or chargeable to Company shall be paid by Customer as part of the Price.

**9.2 No Third-Party Beneficiary.** Nothing in this Agreement is intended to confer on any person, other than the Parties, any rights or remedies under or by reason of this Agreement.

**9.3 Amendment; Equitable Adjustments.** This Agreement shall not be amended, superseded or modified, except in a writing signed by both Parties. In any circumstance in which this Agreement contemplates an equitable adjustment to Price, schedule or any other term of this Agreement, Company shall have no obligation to continue performance hereunder until and unless such equitable adjustment has been mutually agreed to by both Parties in writing.

**9.4 Notices.**

Any notice given under this Agreement shall be in writing and shall be hand delivered, sent by registered or certified mail, delivered by a reputable overnight courier, or sent by facsimile with electronic confirmation of receipt, to the party's representatives as follows:

Customer:

[ \_\_\_\_\_ ]  
Attn: [        ]  
[ \_\_\_\_\_ ]  
[ \_\_\_\_\_ ]  
Phone: [ \_\_\_\_\_ ]  
Facsimile: [ \_\_\_\_\_ ]

Company:

With a copy to:

**9.5 Waiver.** No term of this Agreement may be waived except in a writing signed by an authorized representative of the Party against whom the amendment, modification, or waiver is sought to be enforced. Waiver of any provision herein shall not be deemed a waiver of any other provision herein, nor shall waiver of any breach of this Agreement be construed as a continuing waiver of other breaches of the same or other provisions of this Agreement.

**9.6 Approvals.** It is understood that Company may be required to obtain, regulatory, and other third-party approvals and releases in connection with the provision of the Services. If so, this Agreement shall be effective subject to the receipt of any such approvals and releases, in form and substance satisfactory to Company in its sole discretion, and to the terms thereof.

**9.7 Laws.** This Agreement shall be interpreted and enforced according to the laws of the State of \_\_\_\_\_ and not those laws determined by application of the State of \_\_\_\_\_'s conflicts

of law principles. Venue in any action with respect to this Agreement shall be in the State of \_\_\_\_\_; each Party agrees to submit to the personal jurisdiction of courts in the State of \_\_\_\_\_ with respect to any such actions.

**9.8 Severability.** To the extent that any provision of this Agreement shall be held to be invalid, illegal or unenforceable, it shall be modified so as to give as much effect to the original intent of such provision as is consistent with applicable law and without affecting the validity, legality or enforceability of the remaining provisions of the Agreement.

**9.9 Integration and Merger; Entire Agreement.** Customer and Company each agree that there are no understandings, agreements, or representations, expressed or implied, with respect to the subject matter hereof other than those expressed herein. This Agreement supersedes and merges all prior discussions and understandings with respect to the subject matter hereof, and constitutes the entire agreement between the Parties with respect to such subject matter.

**9.10 Authority.** Each Party represents to the other that the signatory identified beneath its name below has full authority to execute this Agreement on its behalf.

**9.11 Information and Coordination Contact.** \_\_\_\_\_, with contact information set forth above, or such other representative as Company may designate, will be the point of contact for Customer to submit the information required for Company to perform the Services stated in this Agreement. [\_\_\_\_\_] or such other representative as Customer may designate, will be the point of contact for Company to request additional information from Customer, if required.

**9.12 Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be considered an original, and all of which together shall constitute one and the same agreement. The exchange of copies of this Agreement and of signature pages by facsimile or other electronic transmission (including, without limitation, by e-mailed PDF) shall constitute effective execution and delivery of this Agreement as to the Parties and may be used in lieu of the original Agreement for all purposes. Signatures of the Parties transmitted by facsimile or other electronic means (including, without limitation, by e-mailed PDF) shall be deemed to be their original signatures for all purposes.

*[Signatures are on following page.]*

**IN WITNESS WHEREOF**, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

**[Company]**

By: \_\_\_\_\_  
Name:  
Title:

**[Customer]**

By: \_\_\_\_\_  
Name:  
Title:

## **EXHIBIT A**

### **Scope of Services**

Company's scope of Services shall be:

1. Assign a Project Engineer and Project Manager to provide technical support for the Project;
2. Arrange and schedule periodic Project meetings;
3. Provide standards for Customer to follow in order to design metering equipment in accordance with Company specifications;
4. Provide the specifications for the meters to be installed and determine the size and quantity of meters required;
5. Provide technical assistance as needed by Customer in reviewing the design and layout for analytical equipment to be installed by Customer in accordance with manufacturer's recommendations;
6. Provide technical assistance as needed by Customer in reviewing the design and layout for odorant equipment to be installed by Customer in accordance with applicable health and safety codes for the storage of odorant, including \_\_\_\_\_;
7. Review drawings and specifications created by Customer for the equipment set forth below. Company reserves the right to make changes to the design in order to meet Company standards;
8. Provide technical assistance as needed to ensure design is in compliance with National Grid's safety standards including performance of safety Process Hazard Analyses (HAZOP, PHA) and a Facility Siting Study if applicable;
9. Provide engineering services to assist Customer in design and development of specifications for the work to purchase and install the equipment and facilities set forth below; and
10. Discuss ownership and maintenance of the equipment and facilities set forth below in order to prepare a list of equipment ownership and identify the point of ownership transfer of the outlet piping and inlet piping on engineering drawings and piping and instrumentation drawings.

Equipment and Facilities Required for Project (to be provided by Customer):

1. Gas service and associated metering equipment for back up supply from Company;
2. Gas outlet system tie-in and associated metering equipment for gas produced on site (buy back meter);

3. Remote Terminal Unit (RTU) to transmit gas quality and flow data to Company's Gas Control Room;
4. Gas Chromatograph (10 component) to measure BTU, inerts (CO<sub>2</sub>, N<sub>2</sub>), Oxygen of digester gas including sampling probe and equipment;
5. Odorant Chromatograph to measure mercaptans, total sulfur, and H<sub>2</sub>S in the digester gas including sampling probe and equipment;
6. Moisture Meter to measure amount of H<sub>2</sub>O in the digester gas;
7. Remote control valve to enable remote shut-in of Customer's outlet in cases where gas from the plant is out of specification as listed in Table below;
8. Odorant injection system with sight glass diffusion probe, storage tank(s) with dike;
9. Gas filters with differential gages on plant outlet line, associated piping valves assemblies for sampling probes, access points and corrosion coupon insertion point;
10. Analyzer Building – prefab concrete building to house RTU and all analytical equipment with electric service and Power Conditioning, and Battery Back Up system, gas detector(s); and
11. Odorant Building – negative pressure concreted building to house odorant equipment with electric service and gas detector(s), charcoal filter, blower, fire suppression and monitoring equipment and appropriately designed spill containment (as required by \_\_\_\_\_ Fire Marshall).

*Assumptions and Conditions:*

Any dates, schedules or cost estimates resulting from the Services are preliminary projections/estimates only and shall not become or give rise to any binding commitment.

The Services contemplated by this Exhibit and this Agreement do not include any construction, relocations, alterations, modifications, or upgrades with respect to any facilities ("Construction"), nor does Company make any commitment to undertake such Construction. If the Parties elect, in their respective sole discretion, to proceed with any Construction: (i) such Construction would be performed pursuant to a separate, detailed, written, and mutually acceptable Cost Reimbursement Agreement to be entered into by the Parties prior to the commencement of any such Construction, and (ii) payment of all actual costs incurred by Company or its Affiliates in connection with or related to such Construction shall be the responsibility of Customer and Customer shall reimburse Company for all such costs.

For the avoidance of doubt: This Agreement does not provide for generation interconnection service, procurement of equipment, installation or construction. The Company shall not have any responsibility for seeking or acquiring any real property rights in connection with the Services or the Project including, without limitation, licenses, permits, consents, permissions, certificates, approvals, or authorizations, or fee, easement or right of way interests. Neither this



Agreement nor the Services include securing or arranging for Customer or any third party to have access rights in, through, over or under any real property owned or controlled by the Company.

**EXHIBIT B**

### e. RG&E Storage Transfer Percentages

Based on RG&E’s seasonal plan, the percent full for each month is:

Month	Storage Percent Full
November	95%
December	90%
January	70%
February	37%
March	17%
April	N/A*
May	14%
June	32%
July	49%
August	64%
September	76%
October	89%

\*No Transfers on April 1

## E. PRIMARY POINT CAPACITY REQUIREMENTS

### 1. Affidavits

An ESCO supplying gas to firm transportation Core Customers must sign an affidavit annually by August 1st that attests to the following:

There is in place, for the winter period, one (1) or more executed contract(s) to meet the full requirements of the RG&E’s firm transportation Core Customers on RG&E’s system. These contracts are: (1) for non-recallable, firm primary point delivery capacity at the point(s) of interconnection designated by RG&E, and/or (2) for RG&E recallable, firm primary point delivery capacity at the point(s) of interconnection designated by RG&E, and/or (3) for firm supplies delivered at the point(s) of interconnection designated by RG&E.

### 2. Upstream Capacity Requirements

To accommodate for the difference in released assets between Empire and TCPL, the ESCO must demonstrate it has non-recallable primary point capacity to the nearest liquid trading point on DTI, TCPL (Dawn) or a firm supply contract with a reliable counterparty for delivery to Empire at Chippawa or a point downstream of Chippawa. The amount of capacity that must be demonstrated is the quantity equal to the difference in released assets between Empire and TCPL.

## F. NOMINATIONS

### 1. Delivery Constraints for Nominations

Two (2) upstream pipelines feed RG&E's gas distribution system, Empire State Pipeline, and DTI. There must be a balance between the amount of gas delivered to the system on each of the pipelines to ensure reliable operation of RG&E's distribution system. The following tables show the current system delivery constraints at the various load levels for winter and summer seasons. These constraints will change over time as load on RG&E's distribution system changes and as upstream pipeline operating constraints change.

#### Winter Season – November 1 – April 30

Total Nominated Load (MDT)	Maximum Nomination on Empire Pipeline (%)	Minimum Nomination on Empire Pipeline (%)	Maximum Nomination on DTI Pipeline (%)	Minimum Nomination on DTI Pipeline (%)
< 150	69	0	100	31
> 150 - ≤ 275	73	0	100	27
> 275 - ≤ 325	71	0	100	29
> 325 - ≤ 350	68	0	100	32
> 350 - < 375	66	0	100	34
> 375 - ≤ 400	65	1	99	35
> 400 - ≤ 425	64	3	97	36
> 425 - ≤ 450	62	5	95	38
> 450 - ≤ 475	61	7	93	39
> 475 - ≤ 500	58	8	92	42
> 500	54	13	87	46

#### Summer Season – May 1 – October 31

Total Nominated Load (MDT)	Maximum Nomination on Empire Pipeline (%)	Minimum Nomination on Empire Pipeline (%)	Maximum Nomination on DTI Pipeline (%)	Minimum Nomination on DTI Pipeline (%)
< 75	69	0	100	31
> 75 - ≤ 150	73	0	100	27
> 150 - ≤ 200	79	0	100	21
> 200	80	0	100	20

All ESCOs serving Non-Daily Metered customers must meet system constraints every day. RG&E will provide the daily system load forecast to ESCOs for the current gas day plus the six (6) following days. This information will be provided to ESCOs via *GTS* each business day by 9 a.m. ET. ESCOs then look up the system constraints that apply to the season and the load level for the next Gas Day System Load Forecast. Nominations must be made in accordance with the constraints in effect for a particular day.

For purposes of this procedure, the winter season is defined as the period from November 1 through April 30, and the summer season as May 1 through October 31.

## 2. Nominations Procedures

ESCOs will be responsible for providing nominations and scheduling, on behalf of ESCO's customers, as set forth below.

RG&E will provide to the ESCO the Estimated Total Usage Forecast ( $ETU_{forecast}$ ) for each day using usage factors based on the degree day forecast for that day. The maximum HDD to be used in determining the  $ETU_{forecast}$  will be sixty-six (66). RG&E will provide this estimate for advisory purposes only and makes no warranty, expressed or implied, as to the accuracy of the  $ETU_{forecast}$ . The ESCO is solely responsible for determining the amount of gas to be delivered to RG&E's citygate.

Each day, RG&E will communicate the  $ETU_{forecast}$  to the ESCO for the current plus subsequent six (6) gas days in *GTS*, RG&E will communicate to each ESCO for each Non-Daily Metered Pool the  $ETU_{forecast}$  by 9 a.m. ET each day. On any day that RG&E does not communicate an  $ETU_{forecast}$ , the  $ETU_{forecast}$  for the most recent communication will apply.

RG&E will rerun and communicate a new  $ETU_{forecast}$  for the current plus subsequent six (6) gas days in *GTS*, on a best efforts basis, when a significant change in the weather forecast occurs. This will be performed as soon as updated information is received, but no later than 2 p.m. ET. ESCO's are responsible for checking *GTS* notices for these changes.

ESCOs will nominate on DTI in accordance with the terms and conditions set forth in the DTI FERC rate schedules.

ESCOs must enter an "information only" nomination in *GTS* using the Planned Storage Quantity contract to show the portion of their pool's usage that they expect to withdraw (positive numbers) or inject (negative numbers) using their DTI no-notice storage assets. The contract identifier is FTNNGSS. If no nominations are scheduled for that day, then the ESCO must enter a nomination of zero (0). These nominations are required for RG&E to ensure the system constraints are met. In addition, the ESCO's nominations may not meet the system constraints test unless such informational nominations are entered. RG&E will not confirm these informational nominations and they will not be included in the scheduled deliveries total. No nomination for withdrawal and/or injection from storage is necessary on DTI's E-Script since it is a no-notice service.

The quantity of gas received by RG&E for the ESCO's SC5 Pool will equal the volume delivered on the upstream pipeline (DTI or Empire).

For questions on the use of *GTS* and the electronic nominations process, contact your Supplier Relations Lead Analyst.