

December 16, 2011

**Sent by E-mail and Courier**

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
2300 Yonge Street, Suite 2700  
Toronto, ON M4P 1E4

Your reference

Our reference  
01012724-0011



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Dear Ms. Walli:

**Natural Resource Gas Limited ("NRG")  
2010 Distribution Rates Application (Phase 2)(EB-2010-0018)  
Responses to Undertakings**

Enclosed please find NRG's responses to undertakings given at the hearing on November 30, 2011.

Yours very truly,

*"Richard King"*

Richard King

RK/mnm

cc: All intervenors and interested parties

DOCSTOR: 2320558\1

**UNDERTAKING NO. J1.1:** To provide the amount of gas that NRG Limited would require to maintain system integrity on the test run done for minus-28-degree day with the grain dryers on and off.

**ADDITIONAL REQUESTS FROM PANEL AT END OF HEARING:**

- (1) Examine other alternatives to solve the system integrity problem that do not involve supply from NRG Corp. wells (e.g., ability to use demand response with a few customers).**
- (2) Run the model with simulated supply points (not in existence that are closer to the problem area south of Aylmer) to determine the types of supply and nature of supply that could remedy the system integrity problem.**
- (3) Run the model with maximized output at the Union supply points to understand what that does to the system.**

**RESPONSE:**

See Appendix A, prepared by Aecon Utility Engineering.

**UNDERTAKING NO. J1.2: To identify, if possible on the NRG system map, which five wells were active for the purposes of the simulation.**

**RESPONSE:**

See Appendix A, prepared by Aecon Utility Engineering.

**UNDERTAKING NO. J1.3: To make best-efforts attempt to advise how many customers would lose pressure both with interruptible customers on an interruptible customers off, and to comment on the practical ramifications of customers dropping off.**

**RESPONSE:**

See Appendix A, prepared by Aecon Utility Engineering.

**UNDERTAKING NO. J1.4: To provide an executed copy of the agreement for the year previous to Exhibit No. K1.3.**

**RESPONSE:**

See Appendix B.

# APPENDIX A



# **Natural Resource Gas Limited**

## **Undertakings**

**Prepared For: Natural Resource Gas Limited**

**Attention: Mr. Jack Howley  
General Manager**

39 Beech Street East  
Aylmer, Ontario N5H 1A1

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Prepared by: Anthony Y.B. Chan, P.Eng.

***Aecon Utility Engineering  
A Division of Aecon Construction Group Inc.***

Date: December 16, 2011

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## 1 PURPOSE

The purpose of this document is to review and assess the NRG Limited Distribution System, and provide comments on the various undertakings from the OEB hearing dated November 30, 2011.

## 2 DESCRIPTION OF UNDERTAKINGS

The following listed undertakings were captured during the hearing:

- Undertaking No. J1.1 – To provide the amount of gas that NRG Limited would require to maintain system integrity on the test run done for minus-28-degree day with the grain dryers on and off.

Additional requests from Panel are as follows:

- Examine other alternatives to solve the system integrity problem that do not involve supply from NRG Corp wells.
  - Run the model with simulated supply points (not in existence that is closer to the problem area south of Aylmer) to determine the types of supply and nature of supply that could remedy the system integrity problem.
  - Run the model with maximized output at the Union supply points to understand what that does to the system.
- Undertaking No. J1.2 – To identify, if possible on the NRG system map, which five wells were active for the purposes of the simulation.
  - Undertaking No. J1.3 – To make best-efforts attempt to advise how many customers would lose pressure both with interruptible customers on, and interruptible customers off, and to comment on the practical ramifications of customers dropping off.

### 3 ASSESSMENT OF UNDERTAKINGS

#### 3.1 Undertaking No. J1.1

Minus twenty-eight degree Celsius simulation model runs for the NRG Limited distribution system were performed for the following scenarios:

1. With well gas off, new source of gas supply (Node 684 – Summers Corner) and all customer loads running (including all grain dryers)
2. With well gas off and all customer loads running (including all grain dryers)
3. With well gas off and only interruptible grain dryer loads off

The results of the supply nodes from the above-described simulation runs are depicted in the table below:

Supply Nodes in Simulations	Flowrates (SCMH)		
	Scenario #1	Scenario #2	Scenario #3
Node 684 (new gas supply at Summers Corner)	2487.6	-	-
Walsingham	490.6	472.1	468.5
Belmont	34.7	34.7	34.7
Brownsville	3.7	3.7	3.7
Eden	837.3	731.4	723.5
Harrietsville	1970.9	1970.9	1970.9
Putnam	1283.3	1387.5	1387.5
Bayham	537.3	754.1	737.3
<b>Totals:</b>	<b>7645.4</b>	<b>5354.4</b>	<b>5326.1</b>

Based on results of the above-described simulation model runs the amount of gas required to maintain system integrity on a day with ambient temperature of minus 28 degrees Celsius is 2291 standard cubic meters per hour (SCMH).

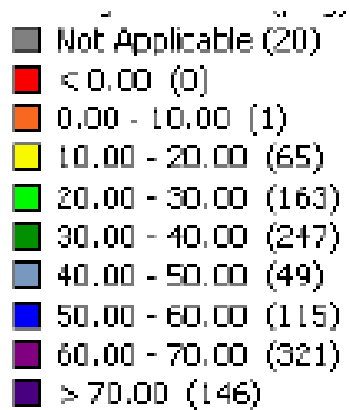
A model simulation run of the NRG Limited distribution system was performed with the NRG Corp gas wells not feeding and with gas to interruptible customers shut off. This is the simulation run for scenario #3 described above. The idea is to examine if there are ways to alleviate possible low system pressure issues on cold winter days by making adjustments to system demands. For example, shutting off gas flows to customers on contracts with interruptible rates.

Under this scenario, system pressures have improved over scenario #2 above, but the overall impact to the distribution network is such that wide-spread low system pressure would be experienced as shown in the colour-coded system pressure below:

Town of Aylmer



Gas main pressure legend:



Note: (1) Pressure values are in pounds per square inch.

(2) Any gas main line pressures less than 35 psig in the simulation model may result in outages.

As can be seen in the above depicted information, without any well gas feeding into the distribution system, relying on the Union Gas supply points alone will result in low system pressures in the Town of Aylmer, the areas to the south and southeast of the Town, which may result in wide-spread customer outages and potential property damages.

Sources of gas supply from different directions in relation to the problematic areas (i.e. Town of Aylmer, the areas to the south and also southeast of the Town) had been considered.

Bringing gas into the problem-prone areas from west of the Town of Aylmer is deemed not feasible as there is currently no existing sources of gas supply from both Union Gas and other gas producers in the area that can provide the required volume of 2300 SCMH to maintain system integrity.

Other alternatives were examined in the original report. The end point of the proposed high pressure pipeline and pressure regulating station is located at Summers Corner which was deemed to be the “Ideal” location due to availability of space and proximity to an existing feeder gas main.

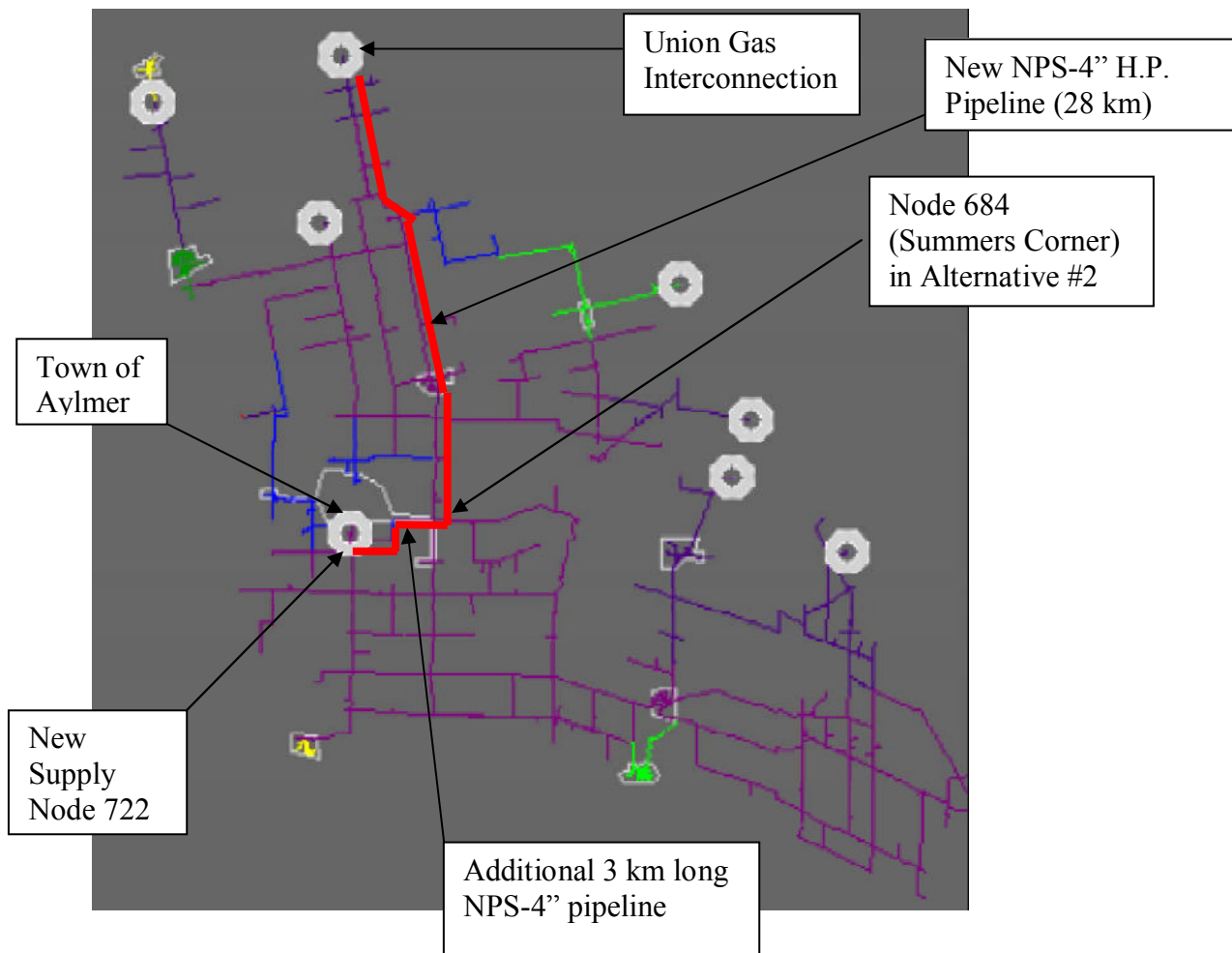
A new model simulation run was performed by moving the above-described end point of the proposed high pressure pipeline and associated pressure regulating station to a location immediately south of the Town of Aylmer.

The resultant improved system pressures were not unlike that for alternative #2 in the original report. However, there are three issues to contend with:

1. The high pressure pipeline required to feed the end point pressure regulating station will be approximately 3 kilometres longer than that for the pipeline in alternative #2 in the original report. As such, the cost of the pipeline will be correspondingly higher.
2. By virtue of moving the end point of the high pressure from Summers Corner to its new location just south of the Town of Aylmer, this new segment of the pipeline may not meet the Canadian Standard Association code (CAN/CSA Z662) class location requirements. A more detailed study would have to be carried out to ascertain which location class the pipeline falls under.
3. The table below shows a comparison of required gas volumes between the original alternative #2 and the relocated pressure regulating station south of the Town of Aylmer:

Supply Nodes in Simulations	Flowrates (SCMH)	
	Alternative #2 in original report	Alternative with relocated pressure regulating station
New gas supply node	Node 684 = 2487.6	Node 722 = 2276.0
Walsingham	490.6	484.5
Belmont	34.7	34.7
Brownsville	3.7	3.7
Eden	837.3	824.6
Harrietsville	1970.9	1970.9
Putnam	1283.3	1387.5
Bayham	537.3	663.5
<b>Totals:</b>	<b>7645.4</b>	<b>7645.4</b>

As can be seen in the above- tabulated supply flowrates, some supply points could experience higher through puts while others could experience lower values with the overall system volumes remaining the same.



The Union Gas interconnections were reflected in all simulation model runs as having maximized outputs given current facility piping and equipment configuration. Additional capacities may be possible for some of these Union Gas facilities but not without substantial upsizing of facility piping and equipment.

Additionally, to get the increased available capacities or volumes, a new pipeline and pressure regulating station will be required to bring gas to the problem-prone region of the NRG Limited distribution system.

### **3.2 Undertaking No. J1.2**

The NRG Corp gas wells are set up in such a way that these gas wells will cycle in and out feeding gas into the NRG Limited distribution system depending on pressures at the wellheads. A well could only start flowing gas into the distribution network when its wellhead pressure builds up to a level higher than the operating pressure of the distribution main it is feeding into.

As such, at any given time, depending on system load demand and system operating pressures, the 40 NRG Corp gas wells will cycle in and out at different times during the course of a day. The wells with the highest wellhead pressures will likely feeding into the system in a more consistent basis.

The gas wells that were identified in the minus 28 degree simulation are listed as follows:

- Well 02-02
- Well 06-04
- Well 06-09
- Well 06-10
- Well 07-01

See the NRG Limited system map below for approximate locations of these gas wells.

## NRG System Map

### Pipe diameters and wells locations

- Service (pipe) 6" Diameter
- Service (pipe) 4" Diameter
- Service (pipe) 3" Diameter
- Service (pipe) 2" Diameter
- Service (pipe) 1.25" Diameter
- Service (pipe) 1.00" Diameter
- ..... DEDICATED 6" LINE - IGPC
- NRG CORP. WELLS.
- NRG FRANCHISE.
- NRG / UNION GAS STATIONS
- ✂ Above Ground Shut off Valves
- ✂ Below Ground Shut off Valves

Gas Well 02-02

Gas Wells 06-04, 06-09, 06-10 & 07-01



Natural Resource Gas Limited

*Lake Erie*

Jan / 2011\_Rev-3

The cold day simulation was prepared using available actual system demand data contained in the Appendix section of the original report. The simulation model reflects anticipated system operating conditions between 7:00 am and 8:00 am on January 24, 2011. Other gas wells may cycle in and out during that day, but the above-listed wells were actually producing during this period.

### **3.3 Undertaking No. J1.3**

The estimated number of customers affected by an outage is difficult to determine.

There are a number of factors at play here:

1. The speed cold temperatures hit the area and how cold.
2. The number of grain dryers operating during the cold spell. Large grain drying operations exert high “point loading” to the distribution mains in the vicinity and induce outages in the immediate area.
3. The location of system isolation valves for isolating affected areas to prevent spreading of outage.

A very high-level estimation of an outage is between 300 and 3000 services.

Take notice that any risk of an outage is not acceptable. Potential ramifications include but are not limited to the following:

1. Long duration associated with relighting a number of services due to limited available resources. (Initial estimation for relights is 100 services per day).
2. Potential significant property damage due to prolonged cold spells and/or long turn-around time for relights.
3. Temporary heating will have to be brought in for space heating and prevention of water line freeze ups.
4. Potential for physical injury or death suffered by at-risk residents.
5. Damage to company reputation due to items 1 and 2 described above.
6. Severe monetary impact to NRG Limited would be hard to estimate.

# APPENDIX B

# **GAS PURCHASE AGREEMENT**

**DATED:** October 1, 2008

**BETWEEN**

**NRG CORP.**

**AND**

**NATURAL RESOURCE GAS LIMITED**

## **GAS PURCHASE AGREEMENT**

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**THIS GAS PURCHASE AGREEMENT** effective as of October 1, 2008

**BETWEEN:**

**NRG CORP.**

(Hereinafter called the "Seller")

- and -

**NATURAL RESOURCE GAS LIMITED**

(Hereinafter called by "Buyer")

**WHEREAS** the Buyer is engaged in purchasing and distributing natural gas in the Province of Ontario;

**AND WHEREAS** the Seller is a producer of natural gas within the Province of Ontario;

**AND WHEREAS** the Seller has agreed to sell and deliver natural gas to the Buyer, and the Buyer has agreed to receive and purchase natural gas from the Seller as hereinafter provided;

**AND WHEREAS** the Seller and the Buyer have established natural gas Delivery Locations, as hereinafter defined, through which natural gas produced from the Seller's wells shall be sold by the Seller to the Buyer.

**NOW THEREFORE THIS AGREEMENT WITNESSETH** that in consideration of the mutual covenants and agreements hereinafter provided, the Parties hereto each covenant and agree with the other as follows.

**GENERAL TERMS AND CONDITIONS**

**Article I – Definitions**

The following words and expressions where used in this Agreement mean and are respectively defined as follows: In the event that a term is used but not defined herein, it is agreed that said term shall have the meaning generally accepted by the natural gas industry.

- 1.01 "Agreement" shall mean this agreement and all schedules as amended from time to time.
- 2.03 "Cubic Meter" or its symbol "m<sup>3</sup>" shall mean the volume of Gas which occupies one cubic meter when such Gas is at a temperature of fifteen (15) degrees Celsius, and at a pressure of one hundred and one decimal three two five (101.325) kilopascals absolute.
- 1.03 "Day" shall mean any day, within the term or extended term of this Agreement, with a period of twenty-four (24) consecutive hours beginning at 08:00 hours. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence.
- 1.04 "Delivery Location" shall mean each of the properties on which a meter station is constructed by Buyer for the purpose of receiving and measuring the volumes of Gas received by Seller hereunder.

- 1.05 "Gas" shall mean natural gas as defined in the Ontario Energy Board Act, R.S.O. 1990, C.O. 13.
- 1.06 "Gross Heating Value" expressed in megajoules per Cubic Meter or "MJ/m<sup>3</sup>", shall mean the total energy produced by the complete combustion at a constant pressure of one Cubic Meter of Gas with air, with the Gas free of water vapour and the temperature of the Gas, air and products of combustion at standard temperature and all water formed by combustion reaction condensed to the liquid state.
- 1.07 "Joule" and its symbol "J" shall mean the work done when the point of application of a force of one (1) Newton is displaced a distance of one (1) meter in the direction of the force. The term "Megajoule" and its' symbol "MJ", shall mean one million (1,000,000) joules.
- 1.08 "Market Demand" shall mean the varying demand for the supply of Gas, as determined by Buyer, carried in Buyer's pipeline system for users of Gas who are supplied or delivered Gas by Buyer's pipeline system.
- 1.09 "Maximum Daily Volume" shall mean that volume of Gas for each Delivery Location as described in Schedule "A", Clause One (1).
- 1.10 "Month" shall mean the period of time beginning 08:00 hours EST on the first Day of a calendar month and ending just before 08:00 hours EST on the first Day of the next succeeding calendar month; however, the first Month shall commence on the date of this Agreement, and the last Month shall terminate on the Day of the Month on which this Agreement expires or is terminated.
- 1.11 "Pascal" (Pa) shall mean the pressure produced when a force of one Newton is applied to an area of one square meter. The term "kilopascal", or its symbol "kPa" shall mean one thousand (1,000) Pascal.
- 1.12 "Point of Delivery" for all Gas delivered hereunder shall mean the point at the inlet side of Buyer's custody transfer meter that is located on each Delivery Location.
- 1.13 "System Capacity" shall mean the volumetric capacity that exists from time to time within the Buyer's pipeline system which determines Buyer's ability to accept volumes of Gas into Buyer's pipeline system hereunder. System Capacity shall be determined by Buyer and such determination, in addition to the physical characteristics of Buyer's pipeline system, shall also include consideration of Buyer's local Market Demand, Buyer's total system Market Demand, other Gas being purchased and delivered into Buyer's pipeline system and Buyer's overall Gas supply under contract.
- 1.14 "10<sup>3</sup>m<sup>3</sup>" shall mean one thousand (1,000) Cubic Meters of Gas.

## **Article II – Volumes**

- 2.01 Seller shall tender for sale to Buyer, at the Point of Delivery, on a reasonable efforts basis, Gas produced from Seller's wells, excepting such volumes of Gas as required by Seller to operate Seller's Gas wells.
- 2.02 Buyer shall receive and purchase, on a reasonable efforts basis, Gas tendered by Seller provided that:

- (i) Buyer has sufficient System Capacity to receive and sell the Gas offered for sale by Seller;
  - (ii) The quality of such Gas meets the Terms and Conditions of this Agreement, and in particular Article X and;
  - (iii) The volume of Gas tendered at each Point of Delivery does not exceed the corresponding Maximum Daily Volumes as stated in Schedule "A", Clause One (1) unless mutually agreed upon in writing by both Parties.
- 2.03 Buyer shall have the right, at all times, to reconstruct or modify Buyer's pipeline and the pressure carried therein, notwithstanding that such reconstruction or modification may reduce Buyer's system capacity available to receive Seller's gas or Seller's ability to deliver gas to Buyer. Should Buyer expect any such reconstruction or modification to reduce the delivery or receipt of gas by either Party, Buyer shall provide Seller with six (6) months notice or as much notice as is reasonable practical of such undertakings.

### **Article III – Price**

- 3.01 The "Price" per cubic meter to be paid by Buyer to Seller for all Gas received by Buyer under this Agreement, for the period from October 1, 2008 to September 30, 2009, shall be equal to \$8.0431 per gigajoule (\$0.30120 per cubic meter).
- 3.02 The Price shall be subject to any orders, rules and regulations of any body having jurisdiction over such Price, or the calculation of such Price, now or hereafter in effect during the term of this Agreement.
- 3.03 If an event occurs or circumstances arise of any nature whatsoever (including but not limited to governmental or regulatory action), which relates to the purchase price of Gas hereunder which is not within the control of either Party and which is not specifically provided for herein, and the effect of which is to render a Party's further performance under this Gas Purchase Agreement unduly onerous, such an event or circumstance (herein referred to as "Hardship") shall cause the Parties to take all reasonable steps to amend the pricing provision. In the event that the Parties cannot agree as to the necessitated amendments created by such event or circumstance this Agreement shall terminate upon sixty (60) days written notice being provided by either Party one to the other.
- 3.04 If at any time during the term of this Agreement the Price payable hereunder is established, prescribed or otherwise set by acts of the Federal or Provincial Parliaments or their Boards, Agencies or Commissions or other governmental authority having jurisdiction whether under present or future acts, rules or orders (hereinafter referred to as "Re-regulation"), the Parties hereto shall immediately determine the terms and conditions in this Agreement that are affected by such Re-regulation and shall take steps to amend such terms and conditions accordingly. In the event that the Parties cannot agree as to the require amendments this Agreement shall terminate upon sixty (60) days written notice being provided by either Party one to the other.

### **Article IV – Payments**

- 4.01 Buyer shall pay to Seller, the amount of money as calculated in Article III herein for each cubic meter of Gas received in any Month, on or before the twenty-fifth (25<sup>th</sup>) Day of each Month (the "Payment Day") following the Delivery Month.

- 4.02 In the event that Buyer, prior to making any payments herein provided for, receives notice in writing of any adverse claim to any money due hereunder or of the filing of any lien which might affect the rights of the Parties hereunder, Buyer shall have the right to withhold, in trust, the payment then becoming due and such other future payments as the Buyer, acting reasonably, estimates to be a sufficient reserve against such adverse claim or lien, in an interest bearing account, until the controversy has been settled and all adverse claims have been withdrawn with notice in writing or have been decided by a Court of competent jurisdiction in Ontario, or until Seller has supplied Buyer with a Letter of Credit in an amount and on conditions satisfactory to Buyer with respect to such claim or lien.
- 4.03 The Parties hereby agree that any error discovered by either Party within eighteen (18) months of the date of the error, regarding billings, invoices or measurement of Gas shall be corrected on the Payment Day immediately following the date on which the value of the error has been determined, unless otherwise mutually agreed upon by both Parties. In the event that Buyer has underpaid Seller then within thirty (30) days after the discovery of the error, Buyer shall pay the amount of under payment together with interest thereon at the rate of Prime Rate calculated from the date when such error occurred and compounded monthly. No interest shall be paid by Seller for any adjustments caused by said errors. Neither Party shall have any claim to an error discovered beyond eighteen (18) months from the date of such error.

#### **Article V – Term of Agreement**

- 5.01 The Seller retains the right, upon 30 days notice, to terminate this agreement at any time prior to the expiry date.

#### **Article VI – Delivery Pressure**

- 6.01 The pressure of the Gas delivered by Seller to Buyer at each Delivery Location shall not exceed the corresponding Maximum Allowable Operating Pressure ("MAOP") of the Buyer's pipeline distribution system as specified in Schedule "A", Clause Four (4) which Buyer may change from time to time. Buyer shall provide to Seller six (6) months notice of such change according to Clause 2.03. In any event the MAOP of Buyer's pipeline shall not exceed 550 kPa gauge.

#### **Article VII – Installation of Equipment/Delivery Location**

- 7.01 Buyer shall provide, at the Delivery Location, according to the terms hereunder, the meter station required to receive and measure the Maximum Daily Volume of Gas received by Buyer from Seller. Seller agrees, if requested by Buyer, to provide Buyer with detailed information regarding Seller's Gas reserves, open flow characteristics and expected daily delivery volumes, in order to aid Buyer in Buyer's design of the meter station.
- 7.02 Pursuant to Clause 7.01, Buyer shall purchase, install and maintain, on the Delivery Location:
- (i) A meter and any associated recording gauges as are necessary, in accordance with Clause 9.01 herein, and;
  - (ii) A suitable Gas odourizing injection facility where Buyer deems such facility to be necessary.

- 7.03 All equipment installed by Buyer at the Delivery Location shall remain the property of Buyer. Buyer shall be entitled to remove said equipment at any time within a period of sixty (60) days from any termination or expiry of this Agreement. Seller shall take all necessary steps to ensure Buyer may enter onto Delivery Location to remove such equipment for a period of sixty (60) days after termination or expiry of the Gas Purchase Agreement.
- 7.04 Upon Buyer's request Seller shall, at Seller's own cost and expense:
- (i) Obtain a registered lease or freehold ownership of each Delivery Location sufficient to provide the Buyer with free uninterrupted access to, from, under and above the Delivery Location, for a term (and extended terms) identical to this Agreement, plus sixty (60) days, and shall provide Buyer with a bona fide copy of such lease agreement prior to Buyer commencing the construction of the Gas purchase meter station;
  - (ii) Deliver Gas to Buyer on a reasonable efforts basis, at each Delivery Location according to the terms set out herein;
  - (iii) Furnish, install and set, suitable pressure and volume control equipment and such additional equipment as required on Seller's delivery system, to protect against the overpressuring of Buyer's facilities, as set out in Clause 6.01, and to limit the daily flow of Gas to the corresponding Maximum Daily Volumes as set out in Clause One (1) of Schedule "A" herein;
  - (iv) Supply, install and maintain a gravel or cut stone covering on each Delivery Location and shall maintain such Delivery Location in a safe and workmanlike manner;
  - (v) Install and maintain a fence where required by Buyer satisfactory to Buyer around the perimeter of each Delivery Location which will adequately secure and protect Buyer's equipment therein.
- 7.05 In the event that a Gas purchase meter station must be constructed and/or installed in order to give effect to this Gas Purchase Agreement, Seller agrees to pay Buyer for a portion of Buyer's actual cost, as hereinafter defined, for constructing and installing such station. Seller also agrees to pay the actual costs to connect such station to Buyer's pipeline. Seller's financial contribution for the actual costs related to the construction, installation and connecting of such station shall be herein referred to as an Aid to Construction. Buyer shall advise Seller as to the need for a Gas purchase meter station and shall provide Seller with an estimate of the Aid to Construction. Such Aid to Construction shall include the costs of all pipe, fittings and materials, third party labour costs and Buyer's direct labour, labour saving devices, vehicles and mobile equipment, but shall exclude the purchase costs of Gas pressure control equipment and Gas meters installed by Buyer and all material costs associated with a Gas odorant tank should one be required.
- 7.06 Seller shall within thirty (30) days of the delivery of an invoice by Buyer, reimburse Buyer for any actual costs incurred by Buyer: for any repair, replacement, relocation, or upgrading of any meter station requested by Seller or as required by law, duly constituted regulatory body, or through good engineering practice.

## **Article VIII – Title and Risk Transfer**

- 8.01 Title, possession, custody and control of all Gas shall pass from Seller to Buyer at the Point of Delivery. Buyer shall have no responsibility with respect to any Gas deliverable hereunder until it is delivered to Buyer at the Point of Delivery and subject to Clause 8.02, Seller shall have no responsibility with respect to such Gas after its delivery to Buyer at the Point of Delivery provided it meets the terms of this Agreement.
- 8.02 Seller shall be liable for any and all damages suffered by Buyer and shall protect and indemnify and save Buyer harmless from and against any and all loss, claims and damages including claims against Buyer for personal injuries and damages to property, caused by or arising out of delivery of Gas the quality or condition of which does not confirm to the specifications herein contained or by the delivery of Gas in a manner not in accordance with the terms of this Agreement or any other breach of this Agreement by the Seller except for any damages resulting from or in way attributable to Buyer's negligence or failure to act reasonably. Buyer agrees to use reasonable efforts to mitigate all damages, expenses and costs.

## **Article IX – Measurement**

- 9.01 All Gas received and purchased from Seller or Buyer hereunder, shall be measured by a positive displacement, turbine or orifice type meter in accordance with Electricity and Inspection Regulations effective January 25, 1986, pursuant to the Electricity and Gas Inspection Act R.S.C. 1985 Ch.E4 and any modifications or amendments thereof, and such meter shall be installed and operated in accordance with the aforementioned Regulations.
- 9.02 For the purpose of determining volume hereunder, the unit of volume shall be one (1) Cubic Meter of Gas at a temperature of fifteen degrees Celsius and at an absolute pressure of one hundred and one decimal three two five (101.325) kPa. The average absolute atmospheric pressure, for the purpose of measurement, shall be determined according to methods laid down in the Electricity and Gas Inspection Regulations. The uncorrected volume determined from the metering equipment shall be corrected according to Charles Law, Boyle's Law and deviation from Boyle's Law.
- 9.03 Buyer shall at all times, maintain and keep in proper working order all Buyer's metering and associated measurement equipment. Buyer's measurement instrumentation will be calibrated at least once each Contract Year by Buyer, and if found to be registering inaccurately in any percentage, shall be adjusted at once to read as accurately as possible.
- 9.04 In the event either Party to this Agreement shall notify the other that it desires extra tests of any of Buyer's measuring equipment, in addition to the annual test completed by Buyer, the Parties shall cooperate to secure a prompt verification of the accuracy of such equipment. The expense of any such test, if requested by the Seller, shall be borne by Seller where less than two percent (2%) error is found in the volume measured by the measuring equipment being tested.
- 9.05 If the test conducted in accordance with Clause 9.04 shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Electricity and Gas Inspection Act R.S.S. 1985 Ch.E4 and regulations thereunder, as may be amended from time to time and in accordance with any successor statutes and regulations.

- 9.06 The records from the measuring equipment of both Buyer and Seller shall remain the property of the owner of such equipment and each Party, upon reasonable request, will submit to the other, copies of its records, together with any calculations therefrom and make the records available for review.
- 9.07 Each party shall preserve for a period of at least two (2) years all test data, charts and other similar records.

#### **Article X – Quality**

- 10.01 All Gas delivered hereunder shall have a Gross Heating Value of at least thirty-six (36.0) MJ/m<sup>3</sup> and not more than forty decimal two (40.2) MJ/m<sup>3</sup>.
- 10.02 The Gas shall be merchantable and commercially free from sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the Gas or any other objectionable substance present in sufficient quantity so as to render the Gas toxic, unmerchantable or cause injury to or interference with the Gas pipelines, regulators, meters or other appliances through which it flows, or their operation.
- 10.03 The Gas shall not contain more than seven (7) milligrams of hydrogen sulphide (H<sub>2</sub>S) and not more than one hundred (100) milligrams of total sulphur (S) per Cubic Meter.
- 10.04 The Gas shall not contain more water vapour than an amount equivalent to two hundred and thirty (230) milligrams of water per Cubic Meter (m<sup>3</sup>) or fourteen (14) pounds of mmcf of Gas and water shall not be present in liquid phase. The Buyer may at its sole discretion reduce the water vapour requirement to eighty (80) milligrams of water per Cubic Meter should it encounter operational or any other problem related to water vapour in the natural gas supply.
- 10.05 The Gas shall not contain more than five milligrams per Cubic Meter (5 mg/m<sup>3</sup>) of mercaptan sulphurs.
- 10.06 The Gas shall not contain liquid hydrocarbons or hydrocarbons liquefiable at temperatures warmer than minus ten degrees Celsius (-10C) and a pressure of five thousand five hundred Kilopascals (550 kPa) absolute.
- 10.07 The Gas shall not contain carbon dioxide (CO<sub>2</sub>) in excess of two percent (2%) and shall be as free from oxygen (O<sub>2</sub>) as possible, but shall not in any event contain more than four tenths of one percent (0.4%) by volume of oxygen.
- 10.08 The temperature of the Gas shall not exceed forty-three degrees Celsius (43°).
- 10.09 The Gas shall not contain less than five tenths of one mole percent (0.5%) by volume of carbon monoxide (CO).
- 10.10 The Gas shall not contain more than a trace amount of hydrogen (H<sub>2</sub>).
- 10.11 The Gas shall be interchangeable with Buyer's pipeline Gas with which it commingles. Yellow tipping, flashback and lifting factors of appliances using Seller's Gas shall be in the range permitted for Gas according to AGA Research Bulletin No. 36.
- 10.12 The Gas shall not be odorized by Seller.

- 10.13 Seller shall subject any Gas delivered hereunder to compression, cooling, cleaning or other processes to such an extent as may be required to obtain the necessary quality and for transmission to the Delivery Point, provided the quality of the Gas continues to comply with the specifications set out in this Agreement.
- 10.14 Seller may extract hydrocarbon and non-hydrocarbon constituents, other than methane except as required in the processing or compression of the Gas, prior to delivery hereunder, and shall have the right to remove such methane as is removed by necessity from the Gas in removing other constituents, provided that Seller in such processing shall not reduce the Gross Heating Value below that which is stated in Clause 10.01 herein and provided that such extraction will not cause a breach of the quality specifications set forth in this Article X.
- 10.15 In the event that the quality of the Gas does not conform or if Buyer, acting reasonably, suspects the quality of the Gas may not conform to the specifications herein, then Seller shall, if so directed by Buyer acting reasonably, forthwith carry out, at Seller's cost, whatever field testing of the Gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Buyer with a certified copy of such tests. If Seller does not carry out such tests forthwith, Buyer may conduct such test and Seller shall reimburse Buyer for all costs incurred by Buyer for such testing.
- 10.16 If the Seller's Gas fails at any time to conform to the requirements of this Article X, Buyer, in addition to its other remedies, may refuse to accept delivery of Gas hereunder until such deficiency has been remedied by Seller. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

#### **Article XI – Force Majeure**

- 11.01 Notwithstanding anything herein contained, it is agreed that neither Party shall be deemed to be in default in respect of any of the Terms and Conditions of this Agreement if and so long as such default is occasioned by force majeure, which term as used herein shall mean, acts of God, or if the Queen's enemies strikes lockouts, labour troubles, earthquakes, fire, revolution, wars, riots, epidemics, insurrections, explosions, breakage or accidents to machinery or pipelines, the necessity for making repairs to or alterations of machinery or lines of pipe, inability to obtain materials, interference of any civil or military authority of any government, state or municipality whatsoever, or any other cause whether of the kind herein enumerated or otherwise not within the reasonable control of the Party claiming relief hereunder and which by the exercise of due diligence such Party is unable to prevent or overcome. Such causes or circumstances affecting the performance of this Agreement by either Party, however, shall not relieve it of liability in the event of its negligence or in the even to of its failure to use due diligence to remedy the situation and remove the cause or circumstances affecting the performance of this Agreement shall not relieve either Party from its obligations to make payments of amounts then due hereunder.
- 11.02 Neither Party shall be entitled to the benefit of the provisions of Clause 11.01 under any or all of the following circumstances:
- (i) To the extent that the failure was caused by the contributory negligence of the Party claiming suspension.

- (ii) To the extent that the failure was caused by the Party claiming suspension having failed to remedy the condition and remove the cause or circumstances in an adequate manner, and to resume the performance of such covenants or obligations, with all reasonable dispatch;
  - (iii) If the failure was caused by lack of money or was related to the payment of any amount or amounts then due hereunder; or,
  - (iv) Unless as soon as possible after the happening of the occurrence relied upon or as soon as possible after determining that the occurrence was in the nature of force majeure and would affect the claiming Party's ability to observe or perform any of its covenants or obligations under this Agreement; the Party claiming suspension shall have given to the other Party notice to the effect that such Party is unable by reason of force majeure (the nature whereof shall be therein specified) to perform the particular covenants or obligations.
- 11.03 The Party claiming suspension shall give notice to the other Party as soon as possible after the force majeure condition has been remedied, to the effect that the same has been remedied and that such Party has resumed, or is then in a position to resume, the performance of the suspended covenants or obligations under this Agreement.
- 11.04 It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the Party whose labour force is on strike, and that the above requirement, that any force majeure shall be remedied with all reasonable dispatch, shall not require the settlement of strikes or lockouts by acceding to the demands of any opposing person when such course is inadvisable in the discretion of the Party whose labour force is on strike.

## **Article XII – Good Title**

- 12.01 Seller warrants that it will at the time of delivery of the Gas to Buyer, (a) possess a licence to produce Gas in the Province of Ontario, (b) have good and valid title to all Gas delivered by it under this Agreement, free and clear of all liens, encumbrances and claims whatsoever, and (c) have complete rights to sell Seller's Gas as aforesaid. Seller will indemnify Buyer and save Buyer harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of adverse claims of any and all persons to said Gas or to royalties, taxes, licence fees or any charges, thereon, which are applicable before the title to the Gas passes to Buyer.
- 12.02 Subject to Seller's rights to terminate this Agreement according to Clause 5.02 herein Seller agrees to use reasonable efforts and due diligence to maintain, in good standing, each lease it has to the extent that such lease relates to this Agreement. Subject to Clause 12.01, the Seller shall have the right to encumber such lease and its production facilities for the purpose of financing Seller's operations on said lease.

## **Article XIII – Planned Shut-Down/Start-Up**

- 13.01 Excepting instances of emergency, Seller and Buyer agree to give at least forty-eight (48) hours verbal notice before a planned curtailment of receipt or delivery, shut-down or start-up. Buyer's approval must be obtained prior to Seller shutdown.

#### **Article XIV – Access to Seller's Wells**

- 14.01 Seller shall provide to Buyer a plan showing Seller's gas production facilities, including gas wells and pipelines, on which all emergency shut off valves have been clearly indicated as well as the names and telephone numbers of those persons whom Buyer may contact in the event of any emergency situation arising with Seller's facilities.
- 14.02 In the event that Buyer is notified by a third party or if Buyer becomes aware of an emergency situation in which Seller's Gas well, pipeline or associated equipment is involved, Buyer shall immediately notify Seller or Seller's representative of such emergency condition. In the event Buyer cannot immediately notify Seller or Seller's representative of such emergency situation Seller agrees that Buyer shall have unlimited access to Seller's well, pipeline or equipment in order to rectify such emergency condition. Buyer shall expeditiously notify Seller or Seller's representative of such action taken. Seller further agrees, upon presentation of an itemized account by Buyer, to pay Buyer for all reasonable costs incurred by Buyer in rectifying such emergency.

#### **Article XV – Breach of Contract**

- 15.01 Excepting circumstances of force majeure, in the event that either Party is in breach of any material term or condition of this Agreement, the other Party may give written notice to the Party in breach requiring it to remedy such breach. If the Party in breach fails to remedy the breach within thirty (30) days of receipt of such notice, the other Party may, at its sole option, upon seven (7) days written notice to the Party in breach, terminate this Agreement. Termination pursuant to this Clause 15.01 shall not affect any liabilities accrued to the date of termination or thereafter and the right of termination shall be in addition to any other right or remedy available by law.
- 15.02 No waiver by or on behalf of either Party hereto of any breach of any covenant, proviso, condition, restriction or stipulation herein contained, negative or positive in form, shall take effect or be binding upon such Party, unless the same be expressed in writing by such Party or its duly authorized agent on its behalf, and any waiver so expressed shall not limit or affect such Party's rights with respect to any other similar future breach.

#### **Article XVI – Miscellaneous**

- 16.01 All operations hereunder of both Parties to this Agreement shall be subject to any applicable laws, taxes, orders, rules and regulations of any governmental authority having jurisdiction therein, now or hereafter in effect during the term of this Agreement.
- 16.02 The terms and conditions of this Agreement express and constitute the entire Agreement between the Parties, and no implied covenant or liability of any kind is created or shall arise by reason of these presents or anything herein contained. No modification of the terms and conditions of this Agreement or any of them shall be made except by contract in writing executed by the Parties hereto.
- 16.03 All written notices required to be given hereunder may be delivered by hand, registered mail, by overnight courier or electronically delivered by facsimile, addressed to Seller at the address specified in Schedule "A" Clause Three (3), and to Buyer, at:

Natural Resource Gas Limited  
39 Beech Street East, P.O. Box 307  
Aylmer, ON N5H 2S1

Facsimile 519-773-5335

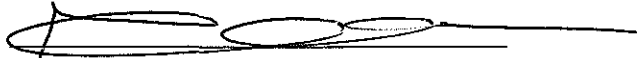
or to such other address as Seller or Buyer may from time to time designate by notice in writing one to the other. Notice shall be deemed to be received when the records of the mode of communication verifies the receipt of such notice.

- 16.04 All monies payable by Buyer for Gas delivered hereunder shall be made to the address so stated under Schedule "A", Clause Two (2) of this Agreement or to such other address as may be authorized in writing from time to time by notice from the Seller to the Buyer. Buyer shall pay only one payee unless a division thereof is consented to by Buyer and Seller.
- 16.05 This Agreement shall extend to and be binding upon the Parties hereto and each of them, their respective heirs, executors, administrators, successors and assigns, provided that this Agreement shall not be assigned by Seller, without the express written consent of Buyer, which shall not be unreasonably withheld, provided that the Seller shall have the right to include its interest in this Agreement in any mortgage, charge or hypothec for the purpose of financing its Gas producing operations on the Seller's lands.
- 16.06 In this Agreement, where ever the singular or neuter is used, it shall be construed as if the plural or the masculine or the feminine, as the case may be, had been used, where the context of the Party or Parties hereto so require, and the rest of the sentence shall be construed as if the grammatical or terminological changes thereby rendered necessary had been made.
- 16.07 The Parties hereto agree that this Agreement is made in the Province of Ontario and the courts of Ontario shall have exclusive jurisdiction in all matters contained herein. The Parties further agree that this Agreement shall be construed exclusively in accordance with the laws of the Province of Ontario.
- 16.08 The Buyer, at its sole discretion, may utilize the Imperial or International System of Units (SI) standard of measurement. All measurements provided for herein shall be interpreted as referring to the applicable equivalent measurement.
- 16.09 The Parties here to agree that this Agreement shall supersede and replace all prior Gas Purchase Agreements and amendments thereof between the Parties and that all prior Gas Purchase Agreements between the Parties and all amendments thereto have been cancelled.
- 16.10 Each of the Parties shall perform all further acts reasonably required in order to fulfill and carry out the terms of this Agreement.
- 16.11 The Schedules listed in this Clause 16.11 and attached hereto form part of this Agreement as found in the body of the Agreement.
- Schedule "A" – Special Terms and Conditions

**IN WITNESS WHEREOF** this Agreement has been properly executed by the parties hereto by their duly authorized officers as of the date first written above.


**BUYER**

**NATURAL RESOURCE GAS LIMITED**

Per: 

**SELLER**

**NRG CORP.**

Per: 

## **SCHEDULE "A" – SPECIAL TERMS AND CONDITIONS**

To the Gas Purchase Agreement dated the 1<sup>st</sup> day of October, 2008, between NRG Corp. and Natural Resource Gas Limited.

### **1. Maximum Daily Volume**

Seller agrees to limit the volume of Gas delivered in any one Day to that which may be determined by the Buyer from time to time.

### **2. Payments**

Payments to Seller for Gas received by Buyer, as provided for in Article IV – Payments, and Clause 16.04 of the GPA shall be made by cheque payable to:

NRG Corp.  
1299 Oxford Street East  
P.O. Box 3117, Terminal "A"  
London, ON N6A 4J4

### **3. Agreement Notices**

Notices to Seller with respect to this Agreement as provided for in Clause 16.03 of the GPA shall be addressed to Seller at:

NRG Corp.  
1299 Oxford Street East  
P.O. Box 3117, Terminal "A"  
London, ON N6A 4J4

### **4. Maximum Allowable Operating Pressure (MAOP)**

Seller's MOAP at each Delivery Location shall be 500 kPa.