

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

<b>ELECTRONIC TARIFF FILING OF</b>	)	
<b>LOUISVILLE GAS AND ELECTRIC COMPANY</b>	)	<b>CASE NO. 2024-00125</b>
<b>TO REVISE ITS LOCAL GAS DELIVERY</b>	)	
<b>SERVICE TARIFF</b>	)	

**RESPONSE OF**  
**LOUISVILLE GAS AND ELECTRIC COMPANY**  
**TO**  
**THE COMMISSION STAFF'S THIRD REQUEST FOR INFORMATION**  
**DATED JULY 17, 2024**

**FILED: July 31, 2024**



**LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Commission Staff's Third Request for Information  
Dated July 17, 2024**

**Case No. 2024-00125**

**Question No. 1**

**Responding Witness: Tom C. Rieth**

- Q-1. Refer to the consultant report filed by LG&E. Explain whether LG&E believes the consultant report recommends it increase the heating value requirements of the LGDS tariff. As part of the explanation, cite to specific information contained in the consultant report to support LG&E's decision to increase the required heat value of renewable natural gas (RNG).
- A-1. LG&E does not believe the consultant report recommends that LG&E increase the BTU value for RNG gas. LG&E made this decision based on the higher BTU content of gas received from its interstate pipeline suppliers, the resulting increase in gas cost to LG&E customers near the RNG injection site if the BTU value is not increased, and LG&E's knowledge of its own gas system.

**LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Commission Staff's Third Request for Information  
Dated July 17, 2024**

**Case No. 2024-00125**

**Question No. 2**

**Responding Witness: Tom C. Rieth**

- Q-2. Provide all RNG quality requirements applicable to LG&E's gas pipeline supplier(s). If a supplier does not have any such requirements, confirm no such requirements exist for each supplier.
- A-2. The quality requirements of LG&E's pipeline suppliers, Texas Gas Transmission, LLC ("Texas Gas") and Tennessee Gas Pipeline, LLC ("Tennessee") are attached.

Texas Gas supplies most of the gas delivered to LG&E's system. For example, in calendar year 2023, approximately 90% of the gas delivered to LG&E's system was transported on Texas Gas. While not specifically stated in the "Quality of Gas" section of its tariff, Texas Gas' quality requirements are applicable to all gas received by Texas Gas, including RNG. The minimum heat value for natural gas set forth in Section 2(c) is nine hundred sixty-seven (967) British thermal units. However, Texas Gas further specifies in Section 2(d) that the gas received shall "not contain less than one thousand eighteen (1018) British thermal units per standard cubic foot of gas determined on a dry basis if gas is received in a market area where it may become the sole supply to the market."

The "Quality" section of Tennessee's tariff states that it applies to all gas received, including RNG. The minimum heat value for natural gas set forth in Section 3(a) is nine hundred sixty-seven (967) British thermal units.

The quality requirements, including minimum Btu value, may necessarily be different for a local gas distribution company operating low volume distribution lines versus an interstate pipeline company operating high volume transmission lines. Regardless of where RNG is injected on LG&E's system, it is likely to represent a higher percentage of the gas delivered to customers than if the same RNG facility was delivering to an interstate pipeline.

The actual Btu value of the gas delivered to LG&E by interstate pipelines has been higher than the minimum Btu value set forth in each pipeline's tariff for several years. As stated in response to MSD 1-7, the actual weighted average Btu value of gas received from LG&E's pipeline suppliers during each month of 2023 is significantly higher than the minimum Btu value set forth in each pipeline's tariff.



### Quality of Gas

1. Gas received or delivered hereunder shall:
  - (a) Be merchantable natural gas, commercially free from dust, solids, gums, gum-forming constituents, gasoline, water, or any other substance of any kind which may become separated from the gas in the course of transportation through Transporter's or Transporter's agents' pipeline(s);
  - (b) Not contain more than seven (7) pounds of water per million standard cubic feet of gas determined by analytical instrumentation of standard manufacture for this purpose including the Bureau of Mines type dew point(s) tester;
  - (c) Not contain more than one (1) grain of hydrogen sulfide, nor more than twenty (20) grains of total sulphur, per one hundred (100) standard cubic feet of gas; and mercaptan sulphur shall not constitute any portion of the allowable total sulphur content.
  - (d) Contain zero 0% hydrogen, not more than one-tenth (.1) of 1% by volume of oxygen, nor more than 2 % by volume of carbon dioxide, nor more than 4 1/2% by volume of all non-hydrocarbon gases combined.
  
2. Gas received hereunder shall:
  - (a) Not be at a temperature more than one hundred twenty (120) degrees Fahrenheit, except where local conditions require or permit other; nor less than forty (40) degrees Fahrenheit; and
  - (b) Not have a hydrocarbon dew point in excess of ten (10) degrees Fahrenheit under expected operating conditions, if the gas is received in North Louisiana, Kentucky, Indiana, or Illinois, or other points determined by Texas Gas; and
  - (c) Not contain less than nine hundred sixty-seven (967) British thermal units per standard cubic foot of gas determined on a dry basis.
  - (d) Not contain less than one thousand eighteen (1018) British thermal units per standard cubic foot of gas determined on a dry basis if gas is received in a market area where it may become the sole supply to the market.
  - (e) Not contain less than one thousand twelve (1012) British thermal units per standard cubic foot of gas determined on a dry basis if gas is directly received as residue gas from a gas processing plant.
  
3. Gas delivered hereunder shall:
  - (a) Not be at a temperature more than one hundred twenty (120) degrees Fahrenheit; and
  - (b) Not contain less than nine hundred eighty-six (986) British thermal units per standard cubic foot of gas determined on a dry basis.

4. Fayetteville Lateral and Greenville Lateral

4.1 All gas received or delivered on the Fayetteville Lateral or the Greenville Lateral shall be natural gas of pipeline quality and shall conform to the gas quality specifications set forth in Section 6.3[1], [2], and [3], except as otherwise provided in this Section 6.3[4].

(a) Hydrogen Sulfide – The hydrogen sulfide content shall not exceed one-half (1/2) grain per one hundred (100) standard cubic feet of gas.

4.2 Fayetteville Lateral Blending Arrangements.

(a) Shipper blending arrangements will be permitted on the Fayetteville Lateral only to the extent that they:

(1) Are consistent with Transporter's historical operations;

(2) Comply with the terms and conditions of any applicable Special Permit from PHMSA (including an 80% SMYS waiver); and

(3) Do not cause a downstream shipper or interconnected party to refuse to take delivery of gas pursuant to that party's tariff.

(b) If the blending arrangement complies with Section 6.3[4.2(a)] above, Transporter agrees to waive its gas quality specifications for carbon dioxide (CO<sub>2</sub>) and hydrogen sulfide (H<sub>2</sub>S) at individual receipt points and to use the aggregate average composition of all gas from all receipt points used by a Shipper as a single blended stream in determining whether such Shipper meets Transporter's gas quality specifications with respect to CO<sub>2</sub> and H<sub>2</sub>S, subject to the following conditions:

(1) Water – The gas stream at each receipt point shall not contain free water nor a water vapor content of more than four (4) pounds of water per million cubic feet of gas.

(2) Carbon Dioxide -

(i) The gas stream at each mainline monitoring point shall not exceed 4% by volume of CO<sub>2</sub>; and

(ii) The gas stream at the last monitoring point before Delivery Meter No. 9163 (NGPL Bald Knob) shall not exceed 2% by volume of CO<sub>2</sub>.

(3) Non-hydrocarbons - The gas stream at each receipt point and each mainline monitoring point shall not exceed 4.5% by volume total non-hydrocarbon gases combined.

(4) Hydrogen Sulfide –

(i) The gas stream at each mainline monitoring point shall not exceed 1 grain (15.9 ppm) of H<sub>2</sub>S, nor more than 20 grains of total sulfur, per 100 standard cubic feet of gas; and

- (ii) The gas stream at the last mainline monitoring station before Delivery Meter No. 9163 (NGPL Bald Knob) shall not exceed one-quarter ( $\frac{1}{4}$ ) grain (4 ppm) of H<sub>2</sub>S.
5. Transporter reserves the right:
- (a) To utilize hydrocarbon dew point curves to evaluate the gas received to determine if condensate will form out of the gas into its pipeline under expected operating conditions;
- (b) To refuse to accept totally, or in part, gas that, in its opinion, will create operating problems during the course of movement through its pipeline.
6. Customer or Customer's supplier (or designee) shall not permit or cause the injection of oxygen or any other substance which will dilute such gas, even if such dilution does not render the gas unable to meet the quality specifications outlined above.
7. Either party shall not be obligated to receive and transport gas hereunder that fails to conform to the requirements above and shall have the right, after giving notice to the other party, to refuse to receive and transport such gas as long as such gas fails to conform to the foregoing requirements.
8. If at any time the receipt gas tendered fails to conform to any of the applicable quality specifications set forth herein ("Quality Incident"), Transporter may, at its option, shut-in gas pending correction of the deficiency by Customer or the point operator ("Shut-in"). Acceptance of gas that does not conform to these standards will not prevent Transporter from refusing future receipts of non-conforming gas.
9. Failure to meet receipt specifications: Should any gas tendered for delivery to Transporter(s) hereunder experience a Quality Incident, Transporter(s) shall notify Customer of any such Quality Incident and Transporter(s) may at their option suspend all or a portion of the receipt of any such gas, and they shall be relieved of their obligations hereunder for the duration of such time as the gas does not meet such specifications.
10. Repeated failure to meet specifications: If, following actions by a Customer or point operator to correct a Quality Incident, any gas tendered for receipt under an agreement fails to conform to the same quality specification for a second time within a one (1) year period from the date of the initial Quality Incident, Transporter may require Customer/point operator to install, at Customer's/point operator's expense, equipment necessary to provide on-line monitoring with automatic shut-in capability prior to acceptance of future receipts from the affected location. Transporter's decision to require the installation of the necessary equipment to protect Transporter's system integrity at a receipt point will be exercised in a not unduly discriminatory manner.
11. Failure to meet delivery specifications: Should the gas tendered for delivery to Customer(s) hereunder fail at any time to conform to any of the specifications of this Article, Customer shall notify Transporter(s) of any such failure and Transporter(s) shall make a diligent effort to correct such failure by treatment consistent with prudent operations and by means which are economically feasible in Transporter's(s)' opinion so as to deliver gas conforming to the above specifications. If Transporter(s) are unable to deliver gas conforming to the above specifications, Customer may at its option suspend delivery and receipt of all or a portion of the gas to be transported hereunder, and upon such suspension shall be relieved of its obligations hereunder, including demand charges, for the duration of such time as the gas does not meet such

**Section 6.3**

**G T & C - Quality of Gas**

**Version 5.0.0**

**Texas Gas Transmission, LLC**

FERC NGA Gas Tariff

Fourth Revised Volume No. 1

Effective On: June 12, 2023

specifications.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

1. Composition of gas: The gas delivered by Transporter or received by Transporter from Shipper(s) shall be a combustible gas consisting wholly or in part of:
  - (a) Natural gas of the quality and composition produced by nature in petroleum, oil, and gas fields.
  - (b) Gas from revaporized liquefied natural gas.
  - (c) Manufactured, synthesized or mixed gas consisting essentially of the hydrocarbons of the quality and character of natural gas such that when it is comingled with natural gas, the two become indistinguishable.
  - (d) Gas derived and recovered from biomass such as dairy-derived biomethane, methane recovered from a landfill, or methane recovered from a wastewater treatment facility, such that when it is comingled with natural gas, the two become indistinguishable.
2. Transporter, in its own right or in accord with the instructions of Shipper, may subject, or permit the subjection of, the natural gas to compression, cooling, cleaning and other processes and helium, natural gasoline, butane, propane, and any other hydrocarbons except methane may be removed prior to delivery to Shipper. Title to the products will remain with the party that has contracted for the processing rights and notified Transporter of such contract; otherwise, title to the products will remain with Transporter.
3. The provisions set forth in this Article II Section 3 shall apply to all gas delivered by Transporter under this FERC Gas Tariff.
  - (a) Heating value: The natural gas shall have a total heating value of not less than nine hundred and sixty-seven British thermal units per cubic foot nor more than eleven hundred and ten British thermal units. In the event that the total heating value of gas, per cubic foot, when determined by a chromatograph or chromatographic analysis of a sample of gas, falls below nine hundred and sixty-seven or above eleven hundred and ten British thermal units per cubic foot, Shipper shall have the option to refuse to accept said gas so long as said total heating value remains below nine hundred and sixty-seven or above eleven hundred and ten British thermal units per cubic foot.
  - (b) Wobbe Number: The gas shall have a Wobbe Number of at least 1314 but no more than 1400. The Wobbe Number shall be calculated by dividing the total heating value (dry) of the gas (at standard conditions of 14.73 psia and 60 degrees Fahrenheit) by the square root of the specific gravity of the gas.
  - (c) Non-Methane Hydrocarbons: The gas shall not contain more than 12% by volume of non-methane (C2+) hydrocarbons.
  - (d) Heavier Hydrocarbons: The gas shall not contain more than 1.5% by volume of heavier hydrocarbons (C4+).
  - (e) Carbon Dioxide: The gas shall not contain more than 2% by volume of carbon dioxide.
  - (f) Total Sulfur: The gas shall not contain more than five (5) grains of total sulfur (including mercaptans) per 100 cubic feet.
  - (g) Total Diluents: The gas shall not contain more than 4% by volume total diluents, which shall be the combined nitrogen, carbon dioxide, and oxygen by volume, provided however, that the carbon dioxide content does not exceed 2% and the combined nitrogen and oxygen content does not exceed 2.75%.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

3. (continued)

- (h) Hydrogen Sulfide: The gas shall not contain more than 0.25 grain of hydrogen sulfide (H<sub>2</sub>S) per 100 cubic feet.
- (i) Water Vapor: The gas shall not contain more than 7 pounds of entrained water vapor per million cubic feet at a pressure base of fourteen and seventy three hundredths (14.73) pounds per square inch and a temperature of sixty degrees (60 degrees) Fahrenheit.
- (j) Oxygen: The gas shall not contain more than 0.2% by volume of oxygen.
- (k) Freedom from objectionable matter: The natural gas delivered by Transporter under this Tariff shall be commercially free (at Transporter's prevailing pressure and temperature) from objectionable odors, dust, or other solid or liquid matters (including hydrocarbon liquids) which might interfere with its merchantability or cause injury to or interference with proper operation of the lines, regulators, meters or other appliances through which it flows at the point of delivery.
- (l) If required under Governmental Regulations, Transporter shall odorize the gas to be delivered by use of a malodorant agent as to indicate by a distinctive odor the presence of gas.

4. Failure to conform to specifications:

- (a) If the gas offered for delivery by Transporter shall fail at any time to conform to any of the specifications set forth in Section 3 of this Article II, then Shipper may, if practicable, notify Transporter of such deficiency and thereupon may, at Shipper's option, refuse to accept delivery. If Shipper notifies Transporter of such deficiency as provided above, then Transporter shall take steps to cure such deficiency or upon Transporter's failure promptly to cure such deficiency in quality as specified in Section 3 of this Article II, Shipper may accept delivery of such gas and may make changes necessary to bring such gas into conformity with such specifications, and subject to review of Shipper's expense for reasonableness, Transporter shall reimburse Shipper for any reasonable expense incurred by it in effecting such changes. Nothing in this subsection (a) limits Transporter's obligation to reimburse Shipper if Shipper accepts delivery of non-conforming gas without having knowledge that the gas is non-conforming.
- (b) If a Shipper requests delivery ("Requesting Shipper") of gas that does not meet one or more of the gas quality specifications contained in Article II, Section 3 above ("Non-Conforming Gas"), nothing in this Article II shall prevent the Requesting Shipper from waiving any of its rights under this Section 4 or agreeing to indemnify, defend, and hold Transporter harmless from any damages to the Requesting Shipper's or other downstream party's facilities relating to Transporter's delivery of such Non-Conforming Gas. The Requesting Shipper may specify whether it is waiving one or more of the gas quality specifications contained in Article II, Section 3 above. A Shipper will not be deemed to be a Requesting Shipper if, in accordance with Section 4(a) of this Article II, Shipper accepts gas that fails to conform to any of the specifications in Section 3 of this Article II. Transporter shall reject any request to deliver Non-Conforming Gas if Transporter determines that it will adversely impact Transporter's system or other Shippers. This subsection shall not apply to delivery meters used primarily for the end-use combustion of natural gas.
- (c) Except as applied to a Requesting Shipper, nothing in this Article II shall relieve Transporter of its obligation to deliver gas that conforms to the specifications of Article II, Section 3.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY (continued)

5. The provisions set forth in this Article II Section 5 shall apply to all gas delivered to Transporter. Gas that satisfies any individual Safe Harbor indicated in Subsections (a) through (g) must also satisfy all other applicable provisions in Transporter's FERC Gas Tariff in order to be accepted by Transporter. Gas delivered to Transporter hereunder:
- (a) Transporter shall not refuse to accept delivery of gas that has a total heating value of not less than nine hundred sixty-seven (967) Btu's per cubic foot, and not more than eleven hundred and ten (1110) Btu's per cubic foot. This standard shall be referred to as Transporter's total heating value low (967) and high (1110) Safe Harbor;
  - (b) Transporter shall not refuse to accept delivery of gas that has a Wobbe Number of at least 1314 but no more than 1400. This standard shall be referred to as Transporter's Wobbe low (1314) and high (1400) Safe Harbor;
  - (c) Transporter shall not refuse to accept delivery of gas that contains 12% or less by volume of non-methane (C2+) hydrocarbons. This standard shall be referred to as Transporter's C2+ Safe Harbor;
  - (d) Transporter shall not refuse to accept delivery of gas that contains 1.5% or less by volume of heavier hydrocarbons (C4+). This standard shall be referred to as Transporter's C4+ Safe Harbor;
  - (e) Transporter shall not refuse to accept delivery of gas that contains less than 4% by volume total diluents, which shall be the combined nitrogen, carbon dioxide, and oxygen by volume, provided however, that the carbon dioxide content does not exceed 3% and the oxygen content does not exceed 0.2% and the combined nitrogen and oxygen content does not exceed 2.75%. This standard shall be referred to as Transporter's diluent Safe Harbor;
  - (f) shall not contain more than 3% by volume of Carbon Dioxide. However, Transporter shall not refuse to accept delivery of gas that contains 2% or less by volume carbon dioxide, which standard shall be referred to as Transporter's carbon dioxide Safe Harbor;
  - (g) shall not contain more than ten (10) grains of total sulfur (including mercaptans). However, Transporter shall not refuse to accept delivery of gas that contains five (5) grains or less of total sulfur (including mercaptans), which standard shall be referred to as Transporter's total sulfur Safe Harbor;
  - (h) shall not contain, either in the gas or in any liquids with the gas, any microbiological organism, pathogen, active bacteria or bacterial agent capable of producing or contributing to corrosion and/or operational or other problems or are injurious to utility facilities or cause the gas to be unmarketable. Microbiological organisms, bacteria or bacterial agents include, but are not limited to, sulfate reducing bacteria and acid producing bacteria. Tests for bacteria or bacterial agents shall be conducted on samples taken from the meter run or the appurtenant piping using American Petroleum Institute (API) test method API-RP38 or any other test method acceptable to Pipeline and Customer which is currently available or may become available at any time;
  - (i) shall be commercially free from objectionable odors, dust, water, any other solid or liquid matter that might interfere with its merchantability or cause injury to, or interference with, proper operation of the equipment through which it flows and any substance that might become separated from the gas in Transporter's facilities. Shipper shall furnish, install, maintain and operate drips, separators, heaters, and other mechanical devices as may be necessary to effect compliance with such requirements (after having secured the prior approval of Transporter as to the design and construction of such facilities, which approval shall not be unreasonably withheld);
  - (j) shall not contain more than 0.25 grain of hydrogen sulfide (H<sub>2</sub>S) per one hundred (100) cubic feet;
  - (k) shall not contain more than 0.2% by volume of oxygen, and Shipper shall make every reasonable effort to keep the gas free of oxygen;

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

5. (continued)

- (l) shall not contain more than 4% by volume of a combined total of carbon dioxide and nitrogen components; provided, however, that the total carbon dioxide content shall not exceed 3% by volume;
- (m) shall have a temperature of not more than one hundred twenty degrees (120 degrees) Fahrenheit;
- (n) shall have been dehydrated by Shipper for removal of entrained water present therein in a vapor state, and in no event contain more than seven (7) pounds of entrained water per million cubic feet, at a pressure base of fourteen and seventy three hundredths (14.73) pounds per square inch and a temperature of sixty degrees (60 degrees) Fahrenheit as determined by dewpoint apparatus approved by the Bureau of Mines or such other apparatus as may be mutually agreed upon.
- (o) Governmental authorities may require the odorization of gas by use of a malodorant agent as to indicate by a distinctive odor the presence of gas. Whenever odorized gas is delivered to Transporter, the quality and specifications of the gas shall be determined prior to the addition of such malodorant. Transporter shall not be obligated to receive such odorized gas from Shipper when such receipt may, in Transporter's sole discretion, be detrimental to Transporter's operations.
- (p) Procedures for Postings. Interchangeability Segment(s) and Monitoring Point(s) shall have the same meaning as HDP Segment(s) and Monitoring Point(s) as defined in Section 6 (a) and (b) of this Article II. Transporter shall, from time to time, and as Transporter deems operationally necessary, establish and post on its Interactive Website a limit on heating value, Wobbe Number, Carbon Dioxide, Nitrogen, C2+ or C4+, or total sulfur content (no lower than the applicable Safe Harbor) for receipts on specified Interchangeability Segments to cure or prevent an actual or anticipated Interchangeability Problem. As set forth below, Transporter shall post on its Interactive Website such limits when operational and engineering considerations on Transporter's System demonstrate, based on Transporter's determination, the need for such limits in order to prevent an anticipated Interchangeability Problem(s), to correct an actual Interchangeability Problem(s), or to assure that gas meets the specifications as defined in Article II, Section 3.
  - (i) To the extent that Transporter is able to meet delivery specifications set forth in Article II, Section 3 and to the extent that all other gas quality Tariff specifications are met, Transporter shall receive gas that has a heating value, Wobbe number, Carbon Dioxide, Nitrogen, C2+ or C4+, or total sulfur content outside of the Safe Harbor standards. In the event Transporter is unable to meet the delivery specifications as set forth in Article 3, Section 3, Transporter will post on its Interactive Website a limit for the specifications that cannot be met, not to be more stringent than the Safe Harbor value for the specifications. Transporter shall post the limit for the Interchangeability Segment(s) where Transporter is unable to meet the delivery specification through blending or other reasonable and prudent operational means, and any immediately upstream Interchangeability Segment(s) to the extent that Transporter deems it necessary to meet the delivery specifications.
  - (ii) The receipts in an Interchangeability Segment for which there is a posted limit that do not meet the Safe Harbor standard for the constituent for which there is a posting will be restricted volumetrically on a non-discriminatory, pro-rata basis. The posting will be applied to all segments upstream of the segment where it is anticipated that the delivery specification cannot be met provided that no segment is skipped between the segment where the delivery specification is not met and the segment where the limit is posted.



GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

5. (p)(continued)

- (iii) Transporter shall post limits in a given Interchangeability Segment that are no more restrictive than necessary to prevent or cure an Interchangeability Problem, consistent with the objective of maximizing supply while meeting the delivery specifications in Article II Section 3. During the period the Interchangeability Problem continues to exist, Transporter shall monitor gas quality in the affected Interchangeability Segment(s) and, as soon as reasonably practicable, will relax any posted limit to the maximum extent possible or remove the limit altogether.
- (iv) In the event of an actual or anticipated Interchangeability Problem, Transporter will provide as much notice of such limitation as reasonably practicable and will attempt to provide such notice at least ten (10) days prior to the effective date of the limitation.
- (v) Posted limits shall not exceed the limits needed to correct the specifically identified or anticipated inability to meet the delivery specifications set forth in Article II, Section 3.
- (vi) Where the Transporter cannot fully correct an identified or anticipated inability to meet the delivery specifications set forth in Article II, Section 3 by posting an limit in the most downstream Interchangeability Segment experiencing or anticipating the inability, it shall post a limit in contiguous upstream Interchangeability Segment(s) if Transporter determines that such upstream posting is operationally necessary. However, the limit in such Interchangeability Segment(s) may be no stricter than the limit in the first Interchangeability Segment. Where the gas flowing at upstream Interchangeability Monitoring Point complies with the posted limit, Transporter shall not apply any limit to that point or any other upstream receipt point.
- (vii) When Transporter posts a limit for a particular Interchangeability Segment, all gas receipts into the affected Interchangeability Segment either from interconnects or from any adjacent Interchangeability Segment feeding gas directly into the affected Interchangeability Segment must meet the posted limitation for the affected Interchangeability Segment.
- (viii) To the extent that it does not create undue risk of an Interchangeability Problem, Transporter will not apply the heating value, Wobbe Number, Carbon Dioxide, Nitrogen, C2+ or C4+, or total sulfur content limits of this Section 5 to receipts into Transporter's system from storage facilities (storage withdrawals).

6. Hydrocarbon Dewpoint. Transporter may not refuse to accept delivery of gas with a Hydrocarbon Dewpoint equal to or less than 15 degrees Fahrenheit ("F"), provided that such gas satisfies all other applicable provisions of Transporter's FERC Gas Tariff. This Standard shall be referred to as Transporter's Hydrocarbon Dewpoint Safe Harbor. Transporter shall, from time to time, and as Transporter deems operationally necessary, establish and post on its Interactive Website a limit on Hydrocarbon Dewpoint (no lower than the Hydrocarbon Dewpoint Safe Harbor) for receipts on specified HDP Segments to cure or prevent hydrocarbon liquid fallout. As set forth below, Transporter shall post on its Interactive Website such limits when operational and engineering considerations on Transporter's System demonstrate, based on Transporter's determination, the need for such limits in order to prevent anticipated hydrocarbon liquid fallout, to correct problems from actual hydrocarbon liquid fallout, or to assure that gas would be accepted for delivery into interconnects, including with interstate or intrastate pipelines, storage facilities, end users, and local distribution companies.

- (a) Procedures for Postings. Transporter shall establish Monitoring Points on its system for the purpose of posting Hydrocarbon Dewpoint limits pursuant to this Section 6. For purposes of this Section, "HDP Segment(s)" shall be that portion of Transporter's System between Monitoring Points or, for the furthestmost upstream Monitoring Points of Transporter's System, the applicable HDP Segment shall be the remaining portion of Transporter's upstream system.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY  
6(a) Hydrocarbon Dewpoint  
(continued)

- (i) HDP Problem(s) - Actual Hydrocarbon Liquid Fallout - If Transporter experiences an HDP Problem and Transporter determines that a limit on Hydrocarbon Dewpoint is operationally necessary, Transporter shall post on its Interactive Website Hydrocarbon Dewpoint limits (no lower than 15 degrees F) at the point where the liquid fallout occurs and then to the receipt points upstream of that location within the HDP Segment where the fallout is occurring. If that will not correct the HDP Problem, Transporter shall apply Hydrocarbon Dewpoint limits for each HDP Segment immediately upstream of the HDP Segment where the liquid fallout occurs up to the nearest Monitoring Point that satisfies the Hydrocarbon Dewpoint limit. Any such Hydrocarbon Dewpoint limit shall be applied uniformly to all receipt points in such HDP Segments. Transporter's analysis and posting of HDP limits shall not skip over any HDP Segment between the HDP Problem and the furthestmost upstream HDP Segment to which an HDP limit is posted.
- (ii) HDP Problem(s) - Anticipated Hydrocarbon Liquid Fallout - When Transporter anticipates an HDP Problem under foreseeable operating conditions and Transporter determines that Hydrocarbon Dewpoint limits are necessary, Transporter shall post on its Interactive Website, pursuant to the procedures established in this section below, Hydrocarbon Dewpoint limits (no lower than 15 degrees F) for the HDP Segment(s) of Transporter's System required to prevent the anticipated liquid fallout. Transporter shall make such a posting when Transporter's analysis of system operating factors indicates to Transporter a need for a limitation. Such factors may include, but are not limited to, anticipated processing plant operation, pressure reduction, flow patterns, flowing gas temperatures, and Hydrocarbon Dewpoint temperatures. Hydrocarbon Dewpoint limitations posted pursuant to this section shall be applied to all HDP Segment(s) where potential for liquid fallout is anticipated absent such Hydrocarbon Dewpoint limitation and to all HDP Segments required to prevent the anticipated liquid fallout under foreseeable operating conditions, provided such posting shall not skip over any HDP Segment between the HDP Problem and the furthestmost upstream HDP Segment to which an HDP limit is posted. Transporter shall post on its Interactive Website an explanation of the basis for the HDP limit. Upon Shipper's request, Transporter shall provide, within three Business Days, a written detailed explanation of the nature and level of the anticipated hydrocarbon liquid fallout problem, the reasons for its choices of the posted HDP limit and the affected HDP Segments and the specific points (i.e., valve, delivery meter, interconnection facility, etc.), if applicable, where Transporter anticipated hydrocarbon liquids fallout.
- (iii) Transporter shall post HDP limits in a given HDP Segment only to the extent necessary to prevent or cure an HDP Problem. Such posted Hydrocarbon Dewpoint limits shall remain in effect no longer than necessary.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

6(a) Hydrocarbon Dewpoint  
(continued)

- (iv) To the extent that it does not create undue risk of an HDP Problem, Transporter will not apply the Hydrocarbon Dewpoint limits of this Section to receipts into Transporter's system from storage facilities and from meters that are not upstream of a processing plant with available capacity and that flow 500 dth or less per day.
- (v) Transporter will provide as much notice of such limitation as reasonably practicable and will attempt to provide such notice at least ten (10) days prior to the effective date of the limitation.
- (vi) Posted Hydrocarbon Dewpoint limitations shall not exceed the limits needed to correct the specifically identified or anticipated HDP Problem on specific HDP Segments of Transporter's system.
- (vii) Where the Transporter can not fully correct an HDP Problem by posting a Hydrocarbon Dewpoint limit in the most downstream HDP Segment experiencing or anticipating an HDP Problem, it shall post a Hydrocarbon Dewpoint limit in subsequent upstream HDP Segment(s) if Transporter determines that such upstream posting is operationally necessary. However, the Hydrocarbon Dewpoint limit in the subsequent HDP Segment(s) may be no stricter than the limit in the first HDP Segment. Where the Hydrocarbon Dewpoint of an upstream Monitoring Point complies with the posted Hydrocarbon Dewpoint limit, Transporter shall not apply any Hydrocarbon Dewpoint limit to that point or any other upstream receipt point in the sequential HDP Segment.
- (viii) When Transporter posts a Hydrocarbon Dewpoint limit for a particular HDP Segment, all gas receipts into the affected HDP Segment either from interconnects or from any adjacent HDP Segment feeding gas directly into the affected HDP Segment must meet the posted HDP limit for the affected HDP Segment.
- (ix) Transporter will not require processing of gas at receipt points upstream of the tailgate of a straddle plant that meets the posted Hydrocarbon Dewpoint limit without processing.
- (x) To the extent operationally feasible, Transporter shall allow gas that does not meet a posted Hydrocarbon Dewpoint limitation at receipt points to continue to flow provided that Transporter approves a pairing proposal as set forth in Section 6(c).
- (xi) Transporter shall allow gas that does not meet a posted Hydrocarbon Dewpoint limitation at receipt points to continue to flow provided that the Shipper or a third party provides to Transporter proof of processing at a plant within the HDP Segment where the gas at the tailgate of that plant satisfies the Hydrocarbon Dewpoint limitation for the applicable HDP Segment.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY  
6 Hydrocarbon Dewpoint  
(continued)

(b) Monitoring Points. Transporter shall utilize the following Monitoring Points to establish HDP Segments on Transporter's System for purposes of posting Hydrocarbon Dewpoint limits per this Section 6.

1.	Rio Bravo, TX	16.	Mercer, PA
2.	Agua Dulce, TX	17.	Coudersport, PA
3.	Natchitoches, LA	18.	Union Dale, PA
4.	Kinder, LA	19.	Mahwah, NJ
5.	Yscloskey, LA	20.	Greenwich, CT
6.	Heidelberg, MS	21.	Bloomfield, CT
7.	Batesville, MS	22.	East Aurora, NY
8.	Centerville, TN	23.	Clifton Springs, NY
9.	TVA, TN	24.	Niagara Mohawk, NY
10.	Portland, TN	25.	Agawam, MA
11.	Dry Creek, KY	26.	Mendon, MA
12.	North Means, KY	27.	Hopkinton, MA
13.	Catlettsburg, KY	28.	Dracut, MA
14.	Greenup, KY	29.	Malden, MA
15.	Petersburg, OH		

For purposes of defining the HDP Segments upstream of the monitoring points established at Yscloskey and Kinder, and in recognition that although Kinder and Yscloskey are located on different supply legs of Tennessee's system, some of the facilities upstream of Kinder and Yscloskey are physically interconnected, Transporter shall limit the Yscloskey HDP Segment to that portion of the facilities upstream of Yscloskey that are receiving gas that physically flows in the direction of the Yscloskey Point, and shall similarly limit the Kinder HDP Segment to those receipt points that are receiving gas that flows in the direction of the Kinder Monitoring Point.

(c) Pairing. Subject to the conditions below, Transporter shall allow a shipper or supplier whose gas does not meet a posted Hydrocarbon Dewpoint limit to contractually pair its gas with a shipper or supplier whose gas satisfies the posted specification, or to self-pair its own gas supplies so that the combined supply meets the posted Hydrocarbon Dewpoint limit, so long as the pairing arrangement does not create undue risk of an HDP Problem.

- (i) A shipper or supplier wishing to contractually pair or to self-pair supplies must provide Transporter with a written proposal for the pairing of its volumes (including but not limited to e-mail or facsimile).
- (ii) Within two (2) Business Days of receipt of a pairing proposal, Transporter will determine and notify shipper or supplier whether the proposal can physically occur on Transporter's system without creating an undue risk of an HDP Problem, provided that such evaluation shall not consider receipts of gas from production area storage facilities upstream of Station 87.
- (iii) If Transporter determines that shipper's or supplier's proposal is physically possible, then Transporter will evaluate whether the commingled stream that would result from the proposal satisfies the Hydrocarbon Dewpoint limitation.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY

6(c) Hydrocarbon Dewpoint  
(continued)

- (iv) Once Transporter approves a specific pairing arrangement, such arrangement shall remain in effect until terminated by shipper or supplier, terminated by Transporter due to a material change in Transporter's operations so that the pairing arrangement creates undue risk of an HDP Problem or until Transporter reduces the Hydrocarbon Dewpoint limit on the segment(s) of Transporter's System that include the gas subject to the pairing arrangement. If Transporter reduces a Hydrocarbon Dewpoint limit, it will allow existing pairing arrangements to continue, so long as the parties to such arrangements notify Transporter within one (1) Business Day of adjustment of the affected volumes to meet the newly posted Hydrocarbon Dewpoint limit, and such volume adjustments do not create undue risk of an HDP Problem.
  - (v) To the extent that Transporter determines that the pairing proposal does not meet one or more of the above listed conditions, Transporter will provide shipper or supplier a written denial specifying the basis for the determination.
  - (vi) Transporter shall permit all shippers and suppliers interested in pairing to post relevant data, including contact information, on Transporter's Interactive Website.
  - (d) Transporter shall post on its Interactive Website each Receipt Point Hydrocarbon Dewpoint value Transporter calculates, within 24 hours after making the calculations, and the method by which the Hydrocarbon Dewpoint value was calculated.
  - (e) Transporter shall post on its Interactive Website each blended Hydrocarbon Dewpoint and blended BTU values Transporter calculates for a line segment of its system within 24 hours of such calculation.
  - (f) HDP Measurement - Transporter shall perform the Hydrocarbon Dewpoint (cricondentherm) calculations for Section 6 using the Peng-Robinson equation of state and C6+ assumptions consistent with industry practices. Upon a shipper's request, Transporter shall conduct a C9+ analysis; provided that in no event shall Transporter be required to conduct such C9+ analysis at any one receipt point more frequently than once every twelve months, except if a new source of supply has been added at that point.
7. The design and construction of any facilities to be installed by Shipper in order to comply with the quality specifications in Article II Sections 5 and 6 shall be approved by Transporter prior to such facilities being placed in service, such approval not to be unreasonably withheld.
8. Tests to determine sulfur, hydrogen sulphide, oxygen, carbon dioxide and nitrogen content shall be made by approved standard methods in general use in the gas industry.
9. If gas fails to meet the quality specifications set out in Sections 5 and 6 of this Article II, then Transporter shall have the right to refuse to accept delivery of such gas and in the event Shipper does not correct the quality deficiency within a reasonable period of time, Transporter may terminate the applicable gas service contract as to the deficient gas.

Nothing in this Article II shall prevent Transporter from waiving any quality specifications where the acceptance of non-conforming gas will not, in the reasonable judgment of Transporter, adversely impact Transporter's operations or create an HDP Problem or Interchangeability Problem and further provided that once such gas has been blended, to the extent that blending occurs, the comingled gas stream at any point on Transporter's system is compliant with the specifications set forth in Section 3 of this Article II.

GENERAL TERMS AND CONDITIONS (continued)

II. QUALITY (continued)

10. Notwithstanding the exercise by Transporter of the options in Section 9 above, Shipper shall use its best efforts to correct any quality deficiency in the gas tendered for transportation. Further, notwithstanding Transporter's election under Section 9 above, Shipper shall reimburse Transporter for all expenses incurred in repairing injuries to Transporter's facilities resulting from deliveries of gas which do not conform to the quality specifications set forth in Sections 5 and 6 of this Article II.
11. Transporter shall have the right to collect from all Shippers delivering gas to Transporter at a common Receipt Point their pro rata share of the cost of any additional gas analysis and quality control equipment which Transporter, at its reasonable discretion, determines is required to be installed at such Receipt Point to monitor the quality of gas delivered. With respect to Shippers subject to Rate Schedules contained in Volume No. 1 of Transporter's FERC Gas Tariff, the collection shall be by means of an Incidental Charge.
12. In the event that any separation and dehydration and/or processing required by Transporter is to occur after delivery of transportation gas to Transporter, then such transportation of liquefiable hydrocarbons shall be done pursuant to a PTR Transportation Agreement in the form included in Transporter's FERC Gas Tariff. Transportation and separation of liquid and gas dehydration may be done by separate agreement with Transporter. Any Shipper transporting PTR shall be required to enter into a PTR Transportation Agreement with Transporter or a Transportation Contract under Rate Schedule IT for the transportation of PTR make-up quantities.

III. MEASUREMENT AND MEASURING EQUIPMENT

1. Determination of volume: The volume of gas received and delivered by Transporter shall be determined as follows:
  - (a) Unit of Measurement: The service unit of gas scheduled, received, or delivered by Transporter shall be a dekatherm. Daily quantities shall be prorated uniformly over periods of hours for scheduling of service changes during the day.
  - (b) Dekatherms shall be determined by multiplying the Mcf volume by the ratio of the heating value per cubic foot to 1,000.
  - (c) The unit of volume, for the purpose of measurement, shall be defined as one cubic foot (1cf) of gas at a temperature of sixty degrees Fahrenheit (60°F), and at a pressure of thirty-three hundredths pounds per square inch (.33 PSI) above an assumed atmospheric pressure of fourteen and four tenths pounds per square inch (14.4 PSI) resulting in a pressure of fourteen and seventy-three hundredths pounds per square inch (14.73 PSI) absolute pressure. One thousand (1,000) cubic feet shall be denoted as 1 Mcf.
  - (d) The closing of measurement shall be no later than the fifth (5th) business day after the close of the production month.
2. Determination of Total Heating Value: The total heating value of gas received and delivered by Transporter shall be determined as follows:
  - (a) The total heating value of the gas per cubic foot shall be determined by taking the average of the heating values as determined each day by a chromatograph or the chromatographic analysis of a sample of gas, or any other method mutually agreed upon. The average (flow weighted) heating value of the gas per cubic foot (Btu/cf) for a unit of time shall be determined by the total dekatherms divided by the total Mcf volume multiplied by 1000.
  - (b) The temperature of the gas passing through the meters shall be determined continuously by a recording thermometer so installed that it may properly record the temperature of the gas flowing through the meters. Arithmetic averages of the temperature recorded each day shall be used in computing the Mcf of gas.