

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. G-9, SUB 698

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of)	ORDER REQUIRING
Application of Piedmont Natural Gas)	COLLABORATIVE MEETINGS,
Company, Inc., for Approval of Appendix F)	REPORTS AND ADDITIONAL
to its North Carolina Service Regulations)	INFORMATION

BY THE COMMISSION: On December 6, 2016, Piedmont Natural Gas Company, Inc. (Piedmont) filed a petition in the above-captioned docket requesting approval of a new proposed Appendix F to its Service Regulations. In summary, proposed Appendix F includes a definition of "Alternative Gas" and sets forth the terms and conditions under which Piedmont will accept Alternative Gas onto its system and deliver or redeliver it to Piedmont's customers. Piedmont states that the need for establishing such guidelines has arisen due to the potential for sourcing supplies of methane from non-traditional suppliers, including landfills, swine waste-to-energy facilities, and poultry waste-to-energy facilities.

On December 20, 2016, the North Carolina Pork Council (NCPC) filed a petition requesting to intervene in this docket. On December 29, 2016, the Commission issued an Order granting the intervention of the NCPC.

On January 11, 2017, the North Carolina Sustainable Energy Association (NCSEA) filed a petition requesting to intervene in this docket. On January 13, 2017, the Commission issued an Order granting the intervention of NCSEA.

On January 12, 2017, the Commission issued an Order Requesting Comments. The Order, among other things, initiated an investigation of Piedmont's request to amend its Service Regulations. In addition, the Order directed that Public Service Company of North Carolina, Inc. (PSNC), Frontier Natural Gas Company, LLC (Frontier), Toccoa Natural Gas, the Public Staff-North Carolina Utilities Commission, and the North Carolina Attorney General are deemed to be parties to this proceeding. Further, the Order requested that the Public Staff and other interested parties file comments and reply comments on Piedmont's proposed Appendix F to its Service Regulations. Finally, the Order required that petitions to intervene and initial comments be filed on or before February 13, 2017, and that reply comments be filed on or before March 6, 2017.

On January 24, 2017, Enerdyne Power Systems, Inc. (Enerdyne) filed a petition requesting to intervene in this docket. On February 6, 2017, the Commission issued an Order granting the intervention of Enerdyne.

On January 26, 2017, the NCPC filed a Motion for Leave to Serve Discovery in this docket. On January 27, 2017, the Commission issued an Order Granting Leave to Serve Discovery approving NCPC's request to serve interrogatories on Piedmont. In addition, the Order required that Piedmont serve any objections to the interrogatories on NCPC by February 6, 2017, and serve its responses to the interrogatories by February 13, 2017.

On February 2, 2017, NCPC filed a motion requesting an extension of time to February 20, 2017, to file initial comments. In summary, NCPC stated that the parties' comments would be better informed if Piedmont's responses to the interrogatories were available for the parties to consider in preparing their comments. Further, NCPC stated that no party objected to the requested extension, although Piedmont noted that it reserved the right to request an extension of the date for reply comments, depending on the content of the parties' initial comments.

On February 3, 2017, the Commission issued an Order extending the deadline for all parties to file initial comments to February 20, 2017, and the deadline for all parties to file reply comments to March 13, 2017.

On February 3, 2017, the Coalition for Renewable Natural Gas (RNG Coalition) filed a petition requesting to intervene in this docket. On February 6, 2017, the Commission issued an Order granting the intervention of the RNG Coalition.

On February 20, 2017, comments were filed by PSNC, NCPC, Enerdyne, NCSEA, and the RNG Coalition.

On March 13, 2017, reply comments were filed by Piedmont, PSNC, NCPC, Enerdyne, NCSEA, and the RNG Coalition.

On March 13, 2017, Duke University filed a Petition to Intervene Out-of-Time. On March 14, 2017, the Commission issued an Order granting Duke University's request to intervene out of time.

Piedmont's Appendix F

In this docket, Piedmont has filed to add an Appendix F - Statement of Alternative Gas Requirements, to its Service Regulations. Piedmont explains that:

...as a result of economic and environmental incentives created by state and federal legislation, Piedmont has been approached by a number of developers regarding the possibility of sourcing supplies of methane from alternative, non-traditional sources such as swine or chicken waste or landfills and injecting that gas into Piedmont's local distribution system in North Carolina for use by Piedmont's customers. The viable proposals, to date, have not involved any proposal to sell such methane to Piedmont directly but instead to deliver this alternative methane ("Alternative Gas") to Piedmont for redelivery to an existing Piedmont transportation customer.

Appendix F sets forth the terms and conditions under which Piedmont proposes to accept and receive Alternative Gas into its system and pursuant to which it will continue to accept and redeliver such gas to customers.

Piedmont explains that the gas that it has been delivering to its customers has come from “naturally occurring underground supply reserves” that has been delivered to Piedmont by interstate pipelines. It added that the interstate pipelines have, “tariffed gas quality standards designed to address naturally occurring fluctuations in the heat content, chemical composition, and other physical attributes of gas quality of the natural gas.” It states that “Some of these interstate pipeline gas quality standards are relatively broad in scope although in actual practice the range of variations in gas quality actually received by Piedmont from these pipelines has been fairly narrow.”

Piedmont identifies “several operational and practical concerns.” First, equipment will have to be installed at the receipt point. This will include metering and regulating equipment to include a gas chromatograph to measure the constituent components of the gas. Piedmont states that “These incremental facilities are expensive and a mechanism for compensating Piedmont for such expenditures is required.”

Second, Piedmont states that Alternative Gas is comprised of varying constituents in addition to methane that are different from those contained in natural gas. It adds, “These include potentially corrosive chemical compounds as well as potentially dangerous biologic constituents which may pose a threat to either the health of humans coming into contact with them or to the physical integrity of Piedmont’s distribution system or to the equipment of Piedmont’s customers.”

Piedmont notes that, even if the Alternative Gas contains the same compounds as found in natural gas, it may contain them in different proportions, and that such different proportions “can have an effect on and impact the operations of the equipment transporting such Alternative Gas or burning it as an energy source.” In particular, Piedmont mentions possible variations in heat content which could result in performance problems with gas-burning equipment, as well as “more complicated and potentially problematic chemical reactions which may threaten the physical integrity of the systems and equipment they come in contact with.” Piedmont comments that the differences and potential variations in the composition of Alternative Gas can cause problems for industrial process users.

Piedmont states that using Alternative Gas in a distribution system “is a relatively new phenomenon and there is comparatively little experience or data to support the conclusion that it will not harm or disrupt the facilities of Piedmont or its customers or threaten the public health.” Piedmont further states that it is supportive of the underlying environmental goals that give rise to the use of Alternative Gas, but it is also fully cognizant of the potential harm that such gas can do to Piedmont’s facilities and those of its customers. Piedmont’s approach to addressing these concerns is two-fold: (1) establishing the Alternative Gas standards in Appendix F, and (2) establishing an Alternative Gas testing program that includes tests performed by an independent third-party laboratory satisfactory to Piedmont.

Finally, Piedmont states that the standards set forth in its proposed Appendix F are in large part drawn from those adopted by other natural gas local distribution companies (LDCs).

Initial Comments

On February 20, 2017, comments were filed by the Public Staff, PSNC, NCPC, Enerdyne, NCSEA, and the RNG Coalition. The comments support the establishment of gas quality standards through an approved tariff provision. However, NCPC, Enerdyne, NCSEA, and the RNG Coalition generally argued that Piedmont's standards were too high and its testing requirements were excessive and could inhibit the development of Alternative Gas. The NCPC asked that "The Commission order the Public Staff to convene a stakeholders meeting with the express purpose of developing a standard governing the obligation of a local distribution company in North Carolina to receive, transport and deliver biogas."

The following sections contain a brief summary of the comments filed by each of the parties.

Public Staff

The Public Staff points out that "Piedmont's proposed Appendix F contains terms and conditions under which Piedmont will accept the injection of Alternative Gas into its system." The terms and conditions are necessary to protect Piedmont's system and customers from any negative impacts such as corrosion of steel piping and components and accelerated degradation of plastic piping and components. The Public Staff states that customers' gas burning equipment can be impacted due to the differences in the physical and chemical composition and characteristics of Alternative Gas as compared to traditional natural gas. Appendix F provides that all "Alternative Gas delivered to Piedmont shall be free of components which might interfere with its merchantability or cause damage to the operation of Piedmont's system or equipment or those of its customers."

The Public Staff included two specific recommendations in its comments. First, in its reply comments, Piedmont should propose any necessary amendments to its North Carolina Service Regulations, and in particular, Section 8 – Gas Quality and Waiver of Warranties, to ensure that the Service Regulations adequately contemplate the acceptance of Alternative Gas by Piedmont. Secondly, Piedmont should include in its reply comments measures it will take to ensure that the receipt of Alternative Gas does not impact its ability to comply with the requirements of Commission Rule R6-34, which addresses the heating value of gas.

The Public Staff emphasized a few areas in which they were in agreement with Piedmont. These include (1) that capital costs and operating expenses associated with the Alternative Gas suppliers interconnecting to Piedmont's system should be borne by the Alternative Gas supplier and not Piedmont's customer base, and (2) that the remote shut off functionality is appropriate, particularly due to unknown operating issues that may

be caused by the injection of Alternative Gas. The Public Staff also states that it supports the continued efforts of Duke Energy Carolinas, LLC (DEC) and Duke Energy Progress, LLC (DEP) to comply with the swine and poultry waste set-asides of the Renewable Energy and Energy Efficiency Portfolio Standard (REPS), and the Public Staff supports the adoption of Piedmont's proposed Appendix F if it enhances the ability of the electric utilities to comply with the set-aside obligations in a cost-effective manner without impacting the safety, reliability, and rates of natural gas customers.

PSNC

PSNC states that any gas delivered into a LDC's system should be sufficiently processed to remove contaminants that cause pipeline deterioration and operational problems. Even in small amounts, certain contaminants can have a corrosive effect on steel pipe and degrade the safety and integrity of a pipeline system. In addition, PSNC notes that heating value is important to the safe and effective operation of customers' end-use appliances. A LDC should establish gas quality and interchangeability standards. Therefore, PSNC supports Piedmont's decision to file for approval of gas quality standards applicable to Alternative Gas received into its system.

However, PSNC states that the gas quality standards adopted for one LDC's system may not necessarily be appropriate for another LDC's system. Gas quality and interchangeability requirements need to accommodate different local needs and, for that reason, requirements should be considered on a case-by-case basis.

Alternative Gas interconnections require the installation of gas chromatographs or other instrumentation to detect specified contaminants and insure that the gas meets the LDC's gas quality standards. Since the equipment may not be capable of detecting all specified contaminants, periodic testing of Alternative Gas samples may be required. Therefore, Piedmont has proposed initial and quarterly testing of Alternative Gas, and additional testing if necessary based upon specified conditions.

PSNC supports a mechanism to reimburse the LDC for incremental facilities associated with the LDC's receipt of Alternative Gas, which should be spelled out in an agreement between the parties. PSNC argues that it is appropriate to address these issues in case-specific interconnection agreements.

NCPC

NCPC states that there is not sufficient data and information to support Piedmont's proposed standard. Rigid constituent control and high testing costs will negatively impact biogas projects and potentially prevent projects from being developed. NCPC argues against adopting the standards for biogas that the California Public Utilities Commission has adopted and points out that following the adoption of those standards in California, no new biogas projects have interconnected to public utility pipelines and the amount of renewable natural gas produced has decreased significantly.

In addition, NCPC contends that the Public Staff should be ordered by the Commission to convene a stakeholders meeting with the purpose of developing a standard governing the obligation of a local distribution company in North Carolina to receive, transport and deliver biogas. At the stakeholders meeting, knowledge and experience will be brought together in order to develop a standard which achieves Piedmont's objective but does not hinder growth in the renewable natural gas sector. The resulting standard would be submitted to the Commission for adoption along with any concurring or dissenting opinions.

NCPC argues that certain criteria should be adjusted. Piedmont's standards are more stringent for certain constituents than in natural gas. These more stringent standards will add significant costs without justification. NCPC submits that the heating value should be set at 960 British thermal units per Standard Cubic Foot (Btu/SCF) rather than 980 Btu/SCF in order to remove a significant barrier in developing biogas projects. Also, the terms "interrupted" or "suspended" should be defined in Appendix F.

NCPC argues that biogas from swine waste is not the same as biogas from landfills. Therefore, separate standards should apply. NCPC notes that vinyl chloride and siloxanes are not in swine waste, and, therefore, testing for those should not be required. NCPC promotes a standard that limits the cost of access and testing.

Enerdyne

Enerdyne supports Piedmont's decision to propose standards to accept biogas. However, Enerdyne opines that Piedmont's terms and conditions would hurt the development and the use of any renewable natural gas generated in North Carolina because some of Piedmont's proposed requirements cannot reasonably be met. Enerdyne contends that biogas is already being delivered through Piedmont's system in North Carolina and that the Commission should review the standards of other LDCs and pipeline companies around the country. Further, Enerdyne asserts that alternative gas as a substitute or replacement is not a relatively new phenomenon because biomethane began being injected into pipelines in this country in the 1980s.

Enerdyne lists six entities that it asserts are accepting biomethane at 950 - 967 Btu/SCF minimum per standard cubic foot which is below the 980 Btu/SCF minimum proposed by Piedmont. Enerdyne submits that the 980 Btu/SCF minimum per standard cubic foot is not in line with the industry and cannot be met without the installation of costly processing equipment to reject nitrogen.

Further, Enerdyne states that the Commission should not adopt the California standards but instead adopt standards that do not require testing or monitoring of biologicals, copper, or toluene. At a minimum, if initial testing does not reveal that such constituents are not present, then there should be no requirement for further testing or monitoring.

In addition, clarification is sought by Enerdyne on the intended meaning of the mg/m³ quantitative abbreviation used in Appendix F because the difference is significant.

NCSEA

The pipeline standards for swine waste and poultry waste should not be overly burdensome. The electric suppliers have noted that overly restrictive standards can make the compliance with REPS challenging, and NCSEA supports standards that do not harm the ability of the electric power suppliers to comply with the set-aside obligations under the REPS.

NCSEA contends that California's rules are highly problematic since no renewable biogas projects have been completed since their adoption and the 2016 California legislature has directed state agencies to revisit those rules and to study specific issues relating to minimum heating value and maximum siloxane specifications. Further, NCSEA states that Duke Energy Ohio's standards should not be overly relied on because they are solely focused on landfill gas.

Piedmont's proposed standard is duplicative because it necessitates pre-injection testing and the installation of in-pipeline monitoring equipment which creates unnecessary expenses for renewable biogas suppliers. NCSEA suggested allowing testing for a specific constituent to be discontinued after a certain number of consecutive tests have failed to find the constituent in unacceptable amounts.

Moreover, NCSEA encourages the Commission to avoid any actions that would discourage the expansion of natural gas infrastructure in underserved areas. Also, NCSEA opines that the Commission needs to ensure that the proposed standard does not harm any potential fuel price hedging benefits that could be realized by electric ratepayers.

NCSEA supports the adoption of appropriate standards but points out that the standards proposed by Piedmont are unduly burdensome and should be modified.

RNG Coalition

The RNG Coalition supports Piedmont's willingness to accept the interconnection and injection of Alternative Gas into its system. According to the RNG Coalition, Alternative Gas is already delivered through Piedmont's system in North Carolina through scenarios already approved by the Commission or by the fact that pipelines connected to Piedmont have transported renewable natural gas for years.

In addition, RNG Coalition submits that Piedmont's proposed guidelines rely too heavily on the California standard which is unworkable. Testing should be consistent with the testing done on geologic natural gas. In cases where the lab tests consistently show compliance with the standards lab testing should be reduced to an annual requirement instead of quarterly.

Further, RNG Coalition contends that a heating value at a minimum of 980 Btu/SCF is too high and should be adjusted below 970 Btu/SCF because it will exclude most sources of biomethane. The RNG Coalition lists several companies with minimum

heating value requirements below 980 Btu/SCF and suggested that a minimum heating value between 950 and 970 is reasonable.

RNG Coalition also urges the Commission to adopt a nitrogen standard at not more than 4%, since there is no rational basis for holding renewable natural gas to a different standard than geologic natural gas. Further, the Commission is requested to adopt a Total Inerts standard at not more than 5% in line with geologic natural gas. Gas should be “commercially free of” dust, gums and particulate matter to protect the integrity of the pipeline and customer’s end-use equipment. The Commission should not require siloxanes testing. There is no need for testing arsenic, p-Dichlorobenzene, n-Nitroso-do-n-propylamine, antimony lead and methacrolein, or the Commission should not require testing them after showing that a source does not contain them. There is also no rationale for testing vinyl chloride. Ethylbenzene, toluene, and copper are found in natural gas and mercaptans are injected into all forms of natural gas; therefore, Piedmont should measure and test identical to its own treatment of geologic natural gas.

The RNG Coalition also seeks clarification on the intended meaning of the mg/m3 quantitative abbreviation used in Appendix F.

Reply Comments

In the reply comments, the four intervenors continue to argue that Piedmont’s standards are too high and its testing requirements are excessive and could inhibit the development of Alternative Gas. PSNC reiterates, as expressed in its initial comments, that a LDC should adopt gas quality standards before it accepts Alternative Gas on its system and standards agreed to by the company and its customers should be approved. However, PSNC also emphasizes that any gas quality standards adopted for Piedmont’s system in this docket may not necessarily be appropriate for another LDC. PSNC also notes that Piedmont’s intent with respect to the addition of Appendix F to its North Carolina Service Regulations is to treat Alternative Gas in a manner identical to “Gas” or “Natural Gas,” except where higher standards for Alternative Gas are articulated in the proposed new Service Regulations.

The following sections contain a brief summary of the reply comments filed by each of the parties.

Piedmont

Piedmont states that the RNG Coalition and Enerdyne claimed in their comments that Piedmont has already received Alternative Gas into its system, either by the directed biogas scenarios approved in other dockets or by virtue of Alternative Gas transported on upstream interstate pipelines. Based on their claims in the comments, the intervenors asserted that Piedmont’s system has accepted biogas previously without the requirement of the proposed gas quality standards and that no negative effects of this prior receipt of biogas has occurred. Piedmont responds that there is no evidence to support this speculative contention and to the best of Piedmont’s knowledge, it has not occurred.

Piedmont maintains that the entire point of this docket is to establish a uniform baseline standard in order to ensure the continued safety and reliability of operations by Piedmont and the standards should ensure that the receipt and delivery of Alternative Gas do not damage or disrupt its existing system. Further, Piedmont submits that the proposed Appendix F standards are rational and are based upon multiple reliable and existing standards. Several intervenors criticized Piedmont's reference to the California Air Resources Board Standards and claimed that standard had impeded renewable gas development in California. However, Piedmont points out that only the "constituents of concern" were adopted from California for Appendix F and these compounds are not found in natural gas and are threats to LDC systems and human health by their nature. Piedmont is willing to eliminate them from testing if testing experience ultimately indicates that they are not present, but Piedmont points out that it cannot know if these compounds are present unless the Alternative Gas is subject to testing.

Piedmont notes that there is no singular industry standard for the various gas quality thresholds. Since Piedmont has very little ability to blend Alternative Gas with pipeline-delivered natural gas, Piedmont's proposed standards allow for Alternative Gas to be processed or blended before it enters Piedmont's system in order to be in compliance with Commission Rule R6-30. Further, Piedmont's engineers are concerned that a heat content for Alternative Gas lower than 980 Btu/SCF would have an unacceptable risk of operational problems with customer equipment.

Piedmont states that its proposed Alternative Gas standards will not inhibit the development of Alternative Gas in North Carolina. Piedmont already has two Receipt and Interconnection Agreements that are different in size, process, and technology and Piedmont is already in discussions with two others. Piedmont states that the two Receipt and Interconnection Agreements already entered into, which are pending Commission approval in Docket Nos. G-9, Subs 699 and 701, incorporate the identical Statement of Alternative Gas Requirements set forth in Appendix F, but also provide that the final Alternative Gas standards applicable to those agreements would be those approved by the Commission in this docket.

Further, Piedmont states that the Alternative Gas producers are subject to quality specifications and, as the RNG Coalition notes, most producers must comply with gas quality standards for Btu/SCF, oxygen, nitrogen, total inerts, total sulfur, hydrogen, water, temperature and Wobbe, but several commenters take issues with the limits set in the proposed Appendix F. Piedmont states that: (1) a large amount of water can cause corrosion on Piedmont's system; (2) high levels of nitrogen and carbon dioxide increase corrosion risk and effect heat content and efficiency; (3) siloxanes can build up on surfaces and affect the reliability and efficiency of impacted equipment; (4) dust, gums, and solid matter should not be in the Alternative Gas stream; and (5) Alternative Gas contains micro-biological contaminants and it is important to test for these contaminants. Piedmont urges the Commission to err on the side of caution in order to preserve the integrity, reliability, and safety of Piedmont's service in North Carolina. Piedmont emphasizes that its proposed testing regimen is reasonable but experience may allow for reduced testing or revised standards. If from experience, it is appropriate to modify the standards, then Piedmont would expect appropriate adjustments be made to Appendix F.

Piedmont states that additional amendments to its North Carolina Service Regulations are not necessary in order to accommodate the receipt of Alternative Gas if the Commission approves Appendix F and the approach to the applicability of the Service Regulations to Alternative Gas set out therein. With respect to compliance with Commission Rule R6-34, Piedmont does not believe that compliance with this Rule will be impacted by the receipt of Alternative Gas on its system.

PSNC

PSNC reiterates that a LDC should adopt gas quality standards before it accepts Alternative Gas on its system and that standards agreed to by the company and its customers should be approved. Any gas quality standards adopted may not necessarily be appropriate for another LDC, therefore, development of a single set of gas quality standards applicable to all LDCs in the state would not be productive. PSNC does not believe that a stakeholder meeting would be an appropriate use of the parties' time and resources.

PSNC states that the Commission should be cautious when it establishes gas quality standards for Piedmont. The standards established will apply to any Alternative Gas received regardless of the source of production, the capability and sophistication of the producer, or the specific parameters of a project. The Commission needs to be confident that the levels of constituents deemed acceptable will not create problems for Piedmont or its end-use customers under any set of circumstances.

PSNC explains that in order to possibly mitigate undue hardships that the Commission might consider allowing the utility to implement a tariff provision that would allow the utility to waive one or more standards on a case-by-case basis. The utility would have the flexibility to permit variances if it was not a threat to the operations of the distribution system or those of its customers.

NCPC

NCPC states that no rational basis exists for differentiating requirements solely based on the generic source of the gas, renewable natural gas or fossil-derived natural gas. NCPC disagrees with the Public Staff that Piedmont's proposed standards are derived from reliable sources because Piedmont used the California Public Utilities Commission's standard and that standard virtually killed the industry. Piedmont's standard is based partially on standards adopted for renewable natural gas from landfills, but landfill gas has different composition than swine waste. Therefore, no basis for requiring testing exists if the constituents being analyzed are not likely to be present or if present are not likely to be found at levels of concern.

NCPC disagrees with PSNC's comment regarding the weight the Commission should give to C2e Renewables NC's contingent agreement. NCPC submits that C2e Renewables' agreement to meet the standard is not evidence that the standard is appropriate and necessary to achieve the intended objectives. NCPC believes that testing

should be limited to constituents that are likely to be present in the gas stream and the concentration levels should match what the pipeline has been traditionally transporting for its customers, and if initial testing shows that a constituent is not present or is consistently below the level of concern (with a margin of safety), future testing should not include that particular constituent. NCPC states that testing is expensive.

NCPC states that a heating value requirement of 980 Btu/SCF will effectively preclude injection of renewable natural gas into Piedmont's pipeline in most cases. Renewable natural gas does not contain hydrocarbons such as propane, ethane, or butane and in order to get to a heat value of 980 Btu/SCF developers will have to blend hydrocarbons into the gas stream or invest in costly processing equipment in order to remove nitrogen. Both of these options present a significant cost and would be cost prohibitive to all but the largest projects.

NCPC requests a Commission order which directs the Public Staff to convene a stakeholders meeting with the purpose of developing a standard that will govern the obligation of a LDC in North Carolina to receive, transport and deliver renewable natural gas under various likely scenarios. A statewide standard which governs different scenarios will eliminate the possibility of having multiple proceedings for each LDC in the State and different proceedings or sub-parts for the various sources of the renewable natural gas. The resulting standard would be submitted to the Commission for adoption along with any concurring or dissenting opinions.

Enderdyne

Enderdyne supports the Commission creating reasonable standards for delivery of renewable natural gas to Piedmont and other LDCs because such standards will provide market certainty to developers of Alternative Gas projects in North Carolina. However, Enderdyne opposes certain Piedmont proposed standards because they are unreasonable and would needlessly hamper development of such projects in North Carolina.

In regards to the Public Staff's mention of Rule R6-30, Enderdyne states that Alternative Gas should have the same testing requirements as traditional "natural gas." At the very least, the Commission should approve standards that provide an "off-ramp" for laboratory testing when such tests demonstrate that a particular constituent is non-existent. In cases where testing consistently shows compliance with the standards and three consecutive quarters of compliance have been demonstrated, lab testing should not be more than annually. A 980 minimum Btu/SCF level is proposed by Piedmont, which is a standard that landfill gas producers cannot reliably achieve without nitrogen rejection equipment. If a nitrogen rejection capability is required to be included, few Alternative Gas projects are economically feasible. In response to the NCPC, Enderdyne agrees that the minimum Btu/SCF standard should be set at 960.

Further, Enderdyne comments that it is not in disagreement with the Public Staff's comment that an Alternative Gas producer should bear the capital costs and operating expenses for interconnecting with that producer. However, the charges passed through

to a producer should be based on actual cost, and the actual cost of interconnection should not be marked up to create a “profit center” for the pipeline owner.

In response to PSNC’s comments, Enerdyne states that basing the proposed standards on C2e’s agreement instead of on an industry-wide basis would be poor, since most Alternative Gas projects would have neither the scale nor budget of the C2e project.

In response to NCSEA, Enerdyne agrees with their assessment that Piedmont’s proposed standards are overly cautious and unduly burdensome, especially for North Carolina’s market for renewable biogas because Piedmont has little data or experience in order to support its concerns that Alternative Gas will cause the potential problems described in its Petition.

NCSEA

NCSEA stated that Piedmont’s sources used to draft proposed Alternative Gas requirements do not fit the unique characteristics of North Carolina. According to NCSEA, the Public Staff concluded incorrectly that the Alternative Gas standards proposed by Piedmont were from reliable sources. In particular, NCSEA disagrees with the Public Staff that the California Environmental Protection Agency’s Air Resource Board is a reliable source. Also, relying on Duke Energy Ohio’s standard too much for the injection of landfill gas may harm the ability of other forms of renewable biogas to be injected into Piedmont’s system.

NCSEA agrees with the RNG Coalition that Piedmont’s Petition relies too heavily on California’s standard, and agrees with the NCPC that Piedmont’s proposed standards are based upon insufficient data and information. NCSEA opines that Piedmont’s reliance on California’s standard will result in Piedmont not allowing new biogas projects to connect to Piedmont’s pipelines.

In addition, NCSEA submits that Piedmont’s proposal includes duplicative requirements, and that the Public Staff wrongly agrees that both pre-injection testing and in-pipeline monitoring are necessary. Remote shut-off functionality is unnecessary if pre-injection testing is effective and conversely, pre-injection testing should be less burdensome or is unnecessary, if remote shut-off functionality is effective. Although the proposal to reduce testing frequency reduces the cost burden placed on Alternative Gas suppliers, Alternative Gas suppliers will still be unduly burdened, and all duplicative testing and monitoring should be avoided in any Alternative Gas pipeline standard. NCSEA believe that NCPC concluded accurately that high testing costs and rigid constituent controls will impact biogas projects negatively and possibly prevent projects from being developed. NCSEA agrees with NCPC that a stakeholders meeting would help develop an appropriate Alternative Gas standard and would allow North Carolina’s burgeoning biogas industry to grow. NCSEA supports Enerdyne’s testing requirements proposal which limits testing only to situations in which constituents are found.

RNG Coalition

The RNG Coalition supports the initial comments offered by NCSEA and the adoption of appropriate standards since they would provide market certainty to developers. The RNG Coalition agrees with NCSEA that Piedmont's reliance on California's rules is highly problematic.

The RNG Coalition agrees with NCPC that testing should not be required for vinyl chloride or siloxanes on biomethane derived from hog, cattle, or poultry waste. The testing requirements should contain an off-ramp for lab testing where the lab tests have demonstrated the non-existence of a particular constituent. In cases where the lab tests consistently show compliance with the standards, lab testing should move to an annual basis after three consecutive quarters of demonstrated compliance.

The RNG Coalition agrees with PSNC that whatever gas quality standards are adopted for Piedmont's system may not necessarily be appropriate for another LDC. However, the RNG Coalition disagrees with PSNC's suggestion that just because C2e Renewables NC agreed to these standards in private negotiations that they are reasonable to adopt in this docket, and also emphasizes that the questions raised by the standards proposed by Piedmont in this docket are separate from any question of approval or the appropriateness of standards negotiated as part of one deal.

The RNG Coalition thanked the Public Staff for their comments. However, in regard to the Public Staff's comment that Piedmont's proposed standards are derived from reliable sources, the RNG Coalition does not agree with the evidence from the California Environmental Protection Agency's Air Resources Board report which has produced no new pipeline since adoption.

The RNG Coalition agrees with Enerdyne that projects cannot achieve a 980 minimum Btu/SCF level reliably without nitrogen rejection equipment, which will render many projects economically infeasible. The minimum heating value should be no higher than 970 Btu/SCF, and the minimum heating value ideally would be set at 950 Btu/SCF for biomethane. The RNG Coalition further opines that Enerdyne's requested standard for total sulfur is consistent with the standards established by some other pipelines and is preferable.

Discussion and Conclusion

As a threshold matter, the Commission notes that it has rules that generally address such matters as (1) the purity of the gas delivered to customers, (2) the heating value of gas, and (3) the responsibility of the utility for a "material change in character of service."

In brief, with regard to purity, Rule R6-30 requires that all gas supplied to customers has to be substantially free of impurities which may cause corrosion of lines, or form corrosive or harmful fumes when burned in a properly designed and adjusted burner.

Rule R6-34 deals with heating value and makes a distinction between “Manufactured and Mixed Gas” and “Natural and LP Gas” and describes when the heating value is deemed to be under the control of the utility and when it is not. The heating value of “Manufactured and Mixed Gas” “shall be considered to be under the control of the utility,” (except when natural gas is mixed with manufactured gas or propane for peak shaving or emergency purposes). The heating value of natural gas and propane is considered as being not under the control of the utility. Significantly, gas under the control of the utility is allowed a heating value tolerance of 5% high or low on any one day. However, “The monthly average heating value shall be not less than the standard total heating value.”

A related rule, Rule R6-18, deals with changes in character of service and states that the utility shall make such changes under its control only with the approval of the Commission, and after adequate notice to the customers. If changes in the character of service are deemed not under the utility’s control, it is required to, “maintain the proper combustibility of the gas supplied at the heating valve and specific gravity existing at the customers’ meters.”

Rule R6-35 deals with how heating value is determined and what records must be kept. Significantly, this Rule states in part that, “if the utility sells any of its gas on a Btu/SCF basis, it shall determine the heating value and install a calorimeter.” Furthermore, R6-35 specifies that “The Calorimetric equipment shall be installed in a suitably located testing station acceptable to the Commission and subject to its inspection.”

Rule R6-5 deals with the documents and information that the utility must file with the Commission and maintain in a current status. Rule R6-5(1)(a) requires that the utility keep on file at the Commission its Tariffs and Service Regulations, to include, “The standard total heating value of the gas in Btu/SCF’s per cubic foot. If necessary, this may be listed by district, division, or community.”

However, the above rules are only general guidelines and offer little in the way of specific standards by which to test the properties of Alternative Gas. The Commission agrees with Piedmont and PSNC that Alternative Gas is a product with which the LDCs and the Commission have little experience. Further, the LDCs’ transport and sale of Alternative Gas is an important matter on several fronts, notably North Carolina’s REPS requirements, our state’s position as a leader in poultry and swine production, and the environmental benefits to be gained by poultry and swine waste-to-energy projects. Thus, the Commission’s task is to find a way to support the development of poultry and swine waste-to-energy projects without compromising the quality of the gas transported and sold by the LDCs to their customers, or the integrity of their pipelines.

The Commission appreciates Piedmont’s effort in stepping forward with the initial proposal for guidelines governing Alternative Gas. Further, the Commission thanks the parties for their work in preparing extensive comments and reply comments in response to Piedmont’s proposed Appendix F.

The NCPC suggested that the Commission “convene a stakeholders meeting with the express purpose of developing a standard governing the obligation of a local distribution company in North Carolina to receive, transport and deliver renewable natural gas.” While there are clear benefits to the State to accommodating the receipt of Alternative Gas into the local distribution systems, the Commission is not persuaded that there is an obligation, particularly in the sense of a common carrier obligation, for LDCs to accept Alternative Gas. The LDCs’ distribution systems were built to receive natural gas from the interstate pipeline system and deliver it to customers. The system has been paid for by the LDCs’ customers. Alternative Gas producers and other interests are asking to use the natural gas distribution system for a purpose for which it was not intended. If that can be done while holding natural gas customers harmless, then every effort should be made to accommodate interconnections with Alternative Gas providers. However, the standards for delivery of Alternative Gas must be set to require delivery into the natural gas distribution system without degrading the quality of service to natural gas customers, particularly those customers just downstream from Alternative Gas projects.

After careful consideration of the parties’ positions and the record, the Commission concludes that there is good cause to request that the parties engage in further discussions to attempt to resolve the remaining issues. As a result, the Commission requests that the Public Staff convene and facilitate a meeting or meetings of the parties and facilitate a discussion aimed at producing Alternative Gas guidelines that will meet the goal of the LDCs to protect the quality of their gas and pipelines, and the goal of the producers of Alternative Gas to achieve transportation and use of their product.

In addition, the Commission acknowledges PSNC’s concern that Alternative Gas standards adopted for one LDC may not necessarily be appropriate for another LDC. The Commission agrees that it may not be acceptable to have a “one size fits all” approach to Alternative Gas standards. Therefore, the Commission will view the standards adopted in this docket as applicable only to Piedmont, and will not require PSNC, Frontier and Toccoa to adopt the same standards. However, the Commission values the participation of all LDCs in this collaborative effort, and anticipates that the standards developed in this docket will provide, at a minimum, an important starting point for PSNC, Frontier and Toccoa to use in proposing their Alternative Gas guidelines.

Finally, the Commission finds good cause to supplement the record by requiring the parties, as a part of their collaborative discussions, to answer the Commission questions attached hereto as Appendix A. The Commission notes that several of its questions seek information regarding existing standards for quality and testing of natural gas and Alternative Gas. The Commission is keenly interested in receiving more information about the standards that are being employed today, how well those standards are working, and whether those standards may be applicable in North Carolina.

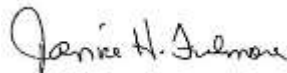
IT IS, THEREFORE, ORDERED as follows:

1. That the Public Staff shall convene and facilitate meetings of the parties to this docket for the purpose of discussing the issues surrounding Alternative Gas standards and testing requirements, with the ultimate goal of developing such Alternative Gas standards and testing requirements for Piedmont to incorporate into its Service Regulations.
2. That the first such meeting of the parties shall be convened by the Public Staff within thirty (30) days of the date of this Order, and that within thirty (30) days after the meeting the Public Staff shall file a report informing the Commission of the discussions had during the meeting, and the progress made in developing Alternative Gas standards and testing requirements for Piedmont to incorporate into its Service Regulations.
3. That the Public Staff shall continue to convene at least one meeting of the parties each thirty (30) days, and within thirty (30) days after each such meeting the Public Staff shall file a report informing the Commission of the discussions had during the meeting, and the progress made in developing Alternative Gas standards and testing requirements for Piedmont to incorporate into its Service Regulations.
4. That on or before six (6) months after the date of this Order the Public Staff shall file a final report regarding the conclusions reached by the parties in developing Alternative Gas standards and testing requirements for Piedmont to incorporate into its Service Regulations.
5. That the report(s) filed by the Public Staff shall include the information requested in the Commission questions attached hereto as Appendix A.

ISSUED BY ORDER OF THE COMMISSION.

This the 4th day of May, 2017.

NORTH CAROLINA UTILITIES COMMISSION



Janice H. Fulmore, Deputy Clerk

Commission Questions

1. Recognizing that interstate pipeline gas is subject to the pipeline gas quality standards that are approved by the Federal Energy Regulatory Commission (FERC), provide the details of all standards, testing equipment and tests that Piedmont, PSNC, Frontier and Toccoa use to ensure that natural gas delivered to their systems from interstate pipelines meet their gas quality standards.
2. Provide the details of all standards, testing equipment and tests that Transco, or other interstate pipelines, use to ensure that natural gas delivered to their systems from gas producers meet their gas quality standards.
3. In Piedmont's proposed Appendix F, under the heading "Alternative Gas Quality Standards," there is a list of numerous specific standards, such as delivery temperature and sulfur content, with which Alternative Gas would be required to comply. For each such standard, state the corresponding standard that Piedmont presently requires of natural gas delivered to its system.
4. In Piedmont's proposed Appendix F, under the heading "Testing Requirements," there are numerous specific tests with which Alternative Gas would be required to comply. For each such test, state the corresponding testing requirement, or the absence of such a testing requirement, that Piedmont presently requires of natural gas delivered to its system.
5. In Docket Nos. E-7, Subs 1086 and 1087, the Commission issued an Order approving registration statements for DEC to use directed biogas, including poultry and swine biogas produced in Missouri and Oklahoma. At page 2, the Order states: "The biogas produced by both directed biogas suppliers will be cleaned to pipeline quality, metered, injected into the interstate pipeline system, and nominated for use by DEC at Buck and Dan River." Provide the details, including the type of biomethane being delivered, the pressure at which the biogas is delivered into the interstate system, the applicable quality and testing standards required, and the source of the standards (state Commission, FERC, etc.) for the Missouri and Oklahoma interconnection points that will receive this directed biogas onto the interstate pipeline.
6. Piedmont states that in some situations Alternative Gas may be as much as 100% of the gas flow in certain segments of Piedmont's system under certain operating conditions.
 - (a) If the quality of gas to downstream customers – particularly the heat content – materially changes as a result, does a decision by Piedmont to accept Alternative Gas at a given point on its system constitute a "change under the control of the utility" within the meaning of Commission Rule R6-18(1)?

- (b) Commission Rule R6-34(c) requires the utility to determine the allowable range of monthly average heating values within which its customers' appliances may be expected to function properly without repeated readjustment of the burners. If the heat content delivered to customers can vary from the 980 Btu/SCF minimum with 100% Alternative Gas to 1,030 Btu/SCF or more with 100% interstate pipeline gas, would that constitute a range within which customers' appliances would require repeated adjustments?
- 7. In their comments, the RNG Coalition and Enerdyne discuss nitrogen rejection equipment. Provide in detail the benefits and costs of such nitrogen rejection equipment and/or any other method to bring the minimum Btu/SCF to 980 or higher.
- 8. Natural gas pipes are of different sizes, including 2-inch, 4-inch, 8-inch pipes. Explain the benefits and costs of injecting the biogas into different size pipes, how the gas quality will be affected depending on what size pipe it is injected into, and the likelihood of the biogas causing damage due to the size of the pipe.
- 9. After developing Alternative Gas standards and testing requirements, if the Alternative Gas causes damage to the pipes, such as corrosion of steel piping and components and accelerated degradation of plastic piping and components, or to the gas-burning equipment, explain in detail what course of action should be taken next.
- 10. Piedmont states that Alternative Gas is comprised of varying constituents in addition to methane that are different from those contained in natural gas. It adds, "These include potentially corrosive chemical compounds as well as potentially dangerous biologic constituents which may pose a threat to ... the health of humans coming into contact with them". What specific biological constituent or constituents does Piedmont expect might be found? Provide in detail what actions will be taken if dangerous biologic constituents are found to be present in Alternative Gas injected into Piedmont's system. Also, provide the details of how customers will be notified if dangerous biologic constituents are found which may pose a threat to the health of humans coming into contact with them.
- 11. Commission Rule R6-18 deals with the procedure to be followed whenever there is a material change in the character of the gas service. The difference between gas with a heat content of 1,030 Btu/SCF and gas providing 980 Btu/SCF is about 4.9%. (The difference between 1,030 Btu/SCF gas and the 960 Btu/SCF heat content recommended by the NCPC is 6.8%. and the 950 Btu/SCF heat content level advocated by the RNG Coalition as the ideal minimum heating value is almost 7.8% lower than Piedmont's typical interstate heat content). Given that level of change, should the Commission consider it a material change? If not, why not?

12. When the parties finalize their proposed Alternative Gas standards and submit them to the Commission, include with your submission information regarding any Alternative Gas standards that conflict with the Commission's current rules, and what the parties suggest be done so that the Commission rules do not conflict with the Alternative Gas standards.

Piedmont

13. Piedmont's cover letters in Dockets Nos. G-9, Subs 699 and 701 (Subs 699 and 701) state, "No other customer will be impacted by the Agreement...." However, the Application and Comments and Reply Comments in this docket make clear that Alternative Gas may be materially different from natural gas, particularly with regard to heat content. In a response to a data request from the NCPC, Piedmont states, "with respect to the two pending applications for approval of Alternative Gas production on its system, the Alternative Gas may be up to 100% of the gas flow in certain segments of Piedmont's system under certain operating conditions."

- (a) Does Piedmont accept responsibility if any customer is adversely impacted by its decision to accept Alternative Gas into its system?
- (b) With regard to the Alternative Gas producers involved in Subs 699 and 701, what pressures will they have to reach to inject gas into Piedmont's system?
- (c) Piedmont's Reply Comments [page 24 of 34] revealed that, with regard to the project in G-9, Sub 699, C2e intends to truck organic swine waste to a location for anaerobic digestion. Is that location on the 10-inch or 8-inch lines? If not, why not?
- (d) On page 24 of its Reply Comments, Piedmont discussed the OptimaKV project, which is covered by the Agreement in Sub 701. Piedmont stated that the project "will consist of 5 covered lagoon digesters where Alternative Gas will be collected, piped to a central location for clean-up using pressure swing adsorption technology and then injected into Piedmont's transmission system.

Has Piedmont made OptimaKV aware of potential changes in federal pipeline safety regulations concerning rural gathering pipelines?

- (e) Commission Rule R6-18(1) requires that the utility shall make material changes only with the approval of the Commission, and after adequate notice to the customers. The Agreements for which Piedmont seeks approval in Subs. 699 and 701 were filed as confidential. How does Piedmont intend to give adequate notice to

its customers when the location points of the Alternative Gas producers are not revealed?

- (f) Will Piedmont allow the producers in Subs 699 and 701 to choose where their gas is injected into its system? If so, is it reasonable to consider this change as under Piedmont's control, within the meaning of Commission Rule R6-18(1)? If Piedmont's answer is "No," explain.

- 14. Please explain whether Piedmont uses heat content as a factor in billing its customers. If so, provide the details of how heat content factors into a customer's bill.
- 15. Commenters representing Alternative Gas producers seek to inject Alternative Gas that has the lowest heat content allowable into Piedmont's distribution system. In the NCP's Comments, it was reported that Piedmont responded in a data request that the average heating value of gas in Piedmont's pipeline is 1031 Btu/SCF. Footnote 11 on page 12 of Piedmont's Reply Comments states:

Transco's gas quality standards provide for a minimum heat value of 980 BTUs/SCF for gas delivered into its system – which is the same minimum heat content proposed by Piedmont in Appendix F. The actual gas Piedmont has received from Transco, however, has consistently had a heat content of very close to 1030 BTUs/SCF.

Given Piedmont's statement that, under some operating conditions, some segments of its system may receive 100% Alternative Gas, how will Piedmont bill customers on those segments downstream of Alternative Gas injection points to ensure that they will not be adversely impacted by Alternative Gas agreements?

- 16. There is a 10-inch line and an 8-inch line in Duplin County. At what pressures do those lines operate? What is the direction of flow on those lines; does the direction change periodically? What is Piedmont's estimate of the volume of gas that those lines carry?
- 17. Piedmont used the landfill gas standards adopted by its sister LDC, Duke Energy Ohio, as one source of information in establishing standards. Describe in detail Duke Energy Ohio's facilities that receive landfill gas. Include the size and composition of the pipeline into which landfill gas is injected, the pressure, and whether or not the facilities are limited to transport of landfill gas. If the landfill gas is blended with interstate pipeline gas, describe the average heat content of the blended gas.

18. When Piedmont has established a satisfactory course of business with a natural gas supplier or marketer, such that Piedmont feels confident about the quality of natural gas being delivered by the supplier or marketer, does Piedmont continue to require regular gas quality testing by that supplier or marketer? If not, explain the details of how Piedmont determines to cease requiring such regular gas quality testing.
19. Piedmont stated that Duke may be “receiving” directed biogas from production facilities in Missouri and Oklahoma for the benefit of one or more of its electric distribution utilities. Describe in detail the interconnection with facilities in those states, including the heat content, pipeline the gas is injected into and the pressure at which the biogas is delivered into the pipeline.

Public Staff

20. With regard to Commission Rule R6-18(1) [Change in Character of Service], does the Public Staff believe that the acceptance of Alternative Gas into Piedmont’s system at points chosen by an Alternative Gas supplier constitutes a change that is under Piedmont’s control?
21. If the Commission approves Appendix F, will Piedmont be required to seek Commission approval for agreements with additional Alternative Gas suppliers? If so, will Piedmont be obligated to provide adequate notice of such Agreements to its customers?
22. Does the Public Staff have an opinion on the need to adjust bills to reflect the lower heat content in Alternative Gas? Ease of administration is a well-accepted principle of ratemaking. The use of system-average heat content in billing was explicitly approved for PSNC in its last general rate case in Docket No. G-5, Sub 565. Is a variance of almost 5% acceptable for customers who are presently receiving gas that has a heat content close to the system average?

PSNC

23. On page 5 of PSNC’s Comments, a statement is made that “Gas quality and interchangeability requirements should accommodate differing local needs and, for that reason, such requirements should be considered on a case-by-case basis.” What is meant by “local needs?”
24. When the parties finalize their proposed Alternative Gas standards and submit them to the Commission, explain which Alternative Gas standards proposed are directed to the local needs of Piedmont and may not necessarily be applicable to another LDC system.

North Carolina Pork Council (see also Question 34)

25. On page 8 of the NCPC's Comments, it requests that the Commission convene a stakeholder conference "with the express purpose of developing a standard governing the obligation of a local distribution company in North Carolina to receive, transport and deliver biogas." What is the basis of the NCPC's assertion that a natural gas local distribution company has an obligation to receive biogas?
26. On page 7 of the NCPC's Reply Comments, it states, "In reality, the blended gas stream is likely to be dominated by fossil-derived natural gas with a higher Btu." What is the basis for that assumption?
27. In a data response to the NCPC, Piedmont explicitly stated, "with respect to the two pending applications for approval of Alternative Gas production on its system, the Alternative Gas may be up to 100% of the gas flow in certain segments of Piedmont's system under certain operating conditions." Would the NCPC be willing to accept a requirement that Alternative Gas production would be curtailed if the concentration at any point down-stream caused the heating value to fall below a level determined by the Commission?

Enerdyne

28. On Page 4 of Enerdyne's Reply Comments, Enerdyne contends that, "the Commission should ensure that the charges passed through to a RNG producer are based on actual cost, and that the actual cost of interconnection is not marked up to create a 'profit center' for the pipeline owner." North Carolina law allows utilities to earn a fair return on the investment they make to provide utility service. If LDCs are prohibited from earning a return on capital invested for interconnecting Alternative Gas providers, why should LDCs commit their capital to construct such interconnections?
29. Describe in detail the Alternative Gas facilities of the six entities described on Enerdyne Revised Exhibit 1, including:
 - (a) The type of biomethane being delivered, the size and material (iron, plastic) of the pipeline into which Alternative Gas is injected, the pressure, whether the pipeline contains interstate gas, and whether or not the pipeline facilities are limited to the transport of Alternative Gas.
 - (b) Whether all of these entities local distribution companies whose systems receive natural gas from interstate pipelines.

- (c) The applicable quality and testing standards required, and the source of the standards (state Commission, FERC, etc.) for each of the interconnections of these six entities with the LDC.

NCSEA

- 30. NCSEA stated that it “supports pipeline standards that would enhance the ability of electric public utilities to comply with the REPS set-aside obligations while not impacting rates for natural gas customers.” If the acceptance of Alternative Gas into Piedmont’s system results in certain natural gas customers receiving 5% or more less heat content in their gas, would NCSEA agree that some adjustment would have to be made to avoid “impacting rates?”
- 31. NCSEA objects to what it describes as “duplicative requirements by necessitating both pre-injection testing and in-pipeline monitoring” in Appendix F. Does in-line monitoring include the installation and measurement of gas quality with a chromatograph? If so, how would pre-injection testing measure such gas quantities as heat content on a continual basis?

RNG Coalition

- 32. On page 2 of its Comments, the RNG Coalition asserts that:

[R]NG Coalition members own, operate, build, install, transport, or otherwise service and support the 56 RNG projects in North America. Forty-eight (48) of those projects inject RNG into common carrier, natural gas pipelines.

 - (a) How does the RNG Coalition define a “common carrier natural gas pipeline?”
 - (b) Describe in detail the facilities into which the 48 projects inject RNG into common carrier, natural gas pipelines. Include the size and composition of the pipeline into which Alternative Gas is injected, the pressure, and whether or not the facilities are limited to the transport of Alternative Gas.
 - (c) If the Alternative Gas is blended with interstate pipeline gas, describe the average heat content of the blended gas.

33. On page 6 of its Comments, the RNG Coalition states:

As a purely practical matter, RNG is already delivered through Piedmont's system in North Carolina, either by virtue of the directed biogas scenarios approved by the Commission in other dockets, and/or by virtue of the fact that pipelines connecting to Piedmont have transported RNG for years (and some for decades).

- (a) Does the RNG Coalition believe that "directed biogas" physically moves through Piedmont's system? If so, explain in detail which out-of-state project the directed biogas comes from, how it reaches Piedmont's system and what percentage of the gas in any part of Piedmont's system that it traverses does it make up.
- (b) With regard to the pipelines connecting to Piedmont that have transported RNG for years or decades, describe in detail which Alternative Gas projects are the source of such gas, how the gas moves to North Carolina, and what percentage of the flow on such pipelines is Alternative Gas.

RNG Coalition and NCPC

34. The RNG Coalition contends that "The Appendix F requirement for Nitrogen at 'not more than 2% by volumetric basis is arbitrary and exclusionary since ACP accepts Nitrogen at up to 4%." The NCPC makes the same argument, pointing to both the nitrogen and the total inerts standards in the Atlantic Coast Pipeline's and Piedmont's gas quality standards. The NCPC states that "Piedmont explains the more stringent requirements in its Alternative Gas Quality Standards as being based on 'differences between pipeline provided natural gas and Alternative Gas.'" The NCPC then asserts, "That explanation lacks merit and suggests bias."

However, the RNG Coalition concedes that "Because biomethane does not have all of the higher-chain hydrocarbons, it does not reach the BTU levels of geologic natural gas." And the NCPC states that "Natural gas contains other 'wet alcohols' such as propane, butane and ethane that by the mere presence increase the heat value. Biogas does not contain these constituents and to consistently reach the 980 Heating Value a producer would need to produce a biogas consisting of 98% methane or would have to blend in propane or some other higher hydrocarbons.

By arguing for the rejection of the 4% nitrogen standard, do both the RNG Coalition and the NCPC accept the injection of other hydrocarbons into Alternative Gas as the preferred method of increasing heat value to the 980 Btu/SCF heat value minimum or to the system average of approximately 1,030 Btu/SCF, if those levels are ordered by the Commission?