BASS BERRY + SIMS PLC

A PROFESSIONAL LIMITED LIABILITY COMPANY
ATTORNEYS AT LAW

R. DALE GRIMES

TEL: (615) 742-6244
FAX: (615) 742-2744
dgrimes@bassberry.com

150 THIRD AVENUE SOUTH, SUITE 2800
NASHVILLE, TN 37201
(615) 742-6200

www.bassberry.com

OTHER OFFICES:

KNOXVILLE
MEMPHIS
WASHINGTON, D.C.

November 14, 2014

Via Hand-Delivery

The Honorable Earl Taylor
Executive Director
Tennessee Regulatory Authority
c/o Sharla Dillon
502 Deaderick Street, Fourth Floor
Nashville, Tennessee 37243

Re: ***Petition of Piedmont Natural Gas, Inc. for Approval of a CNG Infrastructure Rider to Its Approved Rate Schedules and Service Regulations***
Docket No. 14-00086

Dear Mr. Taylor:

I enclose an original and five (5) copies of the public version of Piedmont Natural Gas Company, Inc.'s Responses to the Consumer Advocate and Protection Division's Supplemental Data Requests.

This material is also being filed by way of email to the Tennessee Regulatory Authority Docket Manager, Sharla Dillon. Filed along with this material are four copies of the Confidential material responsive to the Data Requests, submitted under seal, containing Confidential Responses #18, 19 and 21, in a separate envelope.

Please file the original and four copies of the public version of this filing and stamp the additional copy as "filed". Then please return the stamped copy to me by way of our courier.

Should you have any questions concerning this matter, please do not hesitate to contact me at the email address or telephone number listed above.

With kindest regards, I remain

Very truly yours,

R. Dale Grimes

Enclosures

cc: Melvin Malone, Esq.
Wayne Irvin, Esq.
Sharla Dillon (via email)

PIEDMONT NATURAL GAS COMPANY, INC.
CNG IR
TRA DOCKET NOS. 14-00086 & 14-00087
CONSUMER ADVOCATE AND PROTECTIVE DIVISION
SUPPLEMENTAL DISCOVERY REQUEST
Date Issued: November 7, 2014

1. Refer to the Supplemental Testimony of Ken Valentine, page 2, lines 19-21. Provide any analyses, studies, reports or other documents, including websites, that demonstrate that, "high mileage and heavy fuel use vehicles currently render the best payback economics for users to recoup their incremental initial costs through the lower fuel cost of natural gas," alone or as compared to other types of vehicles.

Response: A source that Piedmont used as support for such information is located at the link below:

http://www.google.com/url?url=http://www.aga.org/our-issues/natural-gas-vehicles/Documents/Natural%2520Gas%2520Fleet%2520Savings%2520Calculator.xlsm&rct=j&frm=1&q=&esrc=s&sa=U&ei=jf9kVKOEJsSRyASg54DQDw&ved=0CB0QFjAA&usg=AFQjCNFoi-0AbchMpcZ4bOhR7ZrC_Kix2w

Response provided by Piedmont Natural Gas on November 14, 2014.

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2. Refer to the Supplemental Testimony of Ken Valentine, page 3, lines 19-21. Provide any analyses, studies, reports or other documents, including websites that support the statement that "CNG has 25% less CO2 emissions than gasoline and diesel, 70% less carbon monoxide, and 87% less nitrogen oxides..."

Response: A source that Piedmont referenced to support such information is located at the link below:

https://www.ngvamerica.org/natural-gas/environmental-benefits/

Response provided by Piedmont Natural Gas on November 14, 2014.

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3. Refer to the Supplemental Testimony of Ken Valentine, page 4, lines 1-2. Provide any analyses, studies, reports or other documents, including websites, that calculate a dollar value for, or otherwise quantify, "the great benefit to both the local environment and in curbing greenhouse gas emissions" as a result of using natural gas as a transportation fuel.

Response: See response to Item 2.

Response provided by Piedmont Natural Gas on November 14, 2014.

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4. Refer to the Supplemental Testimony of Ken Valentine, page 5, line 6. Provide any analyses, studies, reports or other documents, including websites that identify the current " cost premium for NGVs."

Response: Please see the response to Item 1.

Response provided by Piedmont Natural Gas on November 14, 2014.

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5. Refer to the Supplemental Testimony of Ken Valentine, page 2, lines 3-9. Explain whether it is the Company's position, and provide any support for such position, that the megatrend described will consist of regulated entities providing CNG to customers in such megatrend or will consist of non-regulated entities providing CNG to customers in such megatrend.

Response: Piedmont has no position on the issue whether the megatrend will consist of regulated or non-regulated entities providing CNG to customers. Currently, both regulated and non-regulated entities provide CNG to customers in Piedmont's service territory. Through this petition, and as explained throughout the testimony, Piedmont has requested new Rate Schedule 343, which will allow Piedmont to provide regulated CNG services to the market, some facets of which presumably will be non-regulated by the TRA.

Response provided by Piedmont Natural Gas on November 14, 2014.

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6. Refer to the Supplemental Testimony of Ken Valentine, page 2, line 6. Please provide: (i) the percentage of the 1,440 CNG stations that are operated as regulated stations, as Piedmont proposes to do, and the percentage that are operated as non-regulated entities and (ii) the source(s) for the Response provided in subpart (i) of this request.

Response: Piedmont has not performed additional research regarding this question and therefore, does not know the answer to the CAPD question. See response to Item No. 1 for the cite to the original reference for those facts.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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CONSUMER ADVOCATE AND PROTECTIVE DIVISION
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7. Refer to the Supplemental Testimony of Ken Valentine, page 8, lines 6-12. Explain whether it is the Company's position, and provide any support for such position, that the provision of natural gas and/or CNG is a monopoly at the current stage of the CNG markets development.

Response: Piedmont has no position on the current stage of the CNG market's development. Piedmont does not believe that the provision of CNG in Tennessee is a monopoly. Piedmont recognizes that CNG services are provided to customers through various regulated and non-regulated providers.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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8. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10. Explain whether it is the Company's position, and provide any support for such position, that no other entity is authorized to provide natural gas and/or CNG in the Company's service territory in Tennessee.

Response: Tennessee Code Annotated §§ 65-4-201 and 65-4-203 define the requirements for Tennessee public utilities to obtain certificate authorizations from the TRA to own and operate public utility facilities for service to the public. Piedmont is a public utility providing natural gas service within its established service area in Tennessee. It is currently the only public utility, within the meaning of TCA 65-4-101(6)(A), authorized to provide such service within its service area. As such, Piedmont believes that it is the only entity currently authorized to provide natural gas utility service within its service territory. As such, and in light of the provisions of its approved rate schedule 342, Piedmont believes that it is currently authorized to provide natural gas to customers within its service area who choose to use that gas as vehicular fuel. Piedmont does not believe that its status as a natural gas public utility in Tennessee prevents third-parties from selling compressed natural gas, on a resale basis, to the public as a motor fuel. In fact, the changes proposed to its tariff in this docket are meant to facilitate such resales of natural gas.

Response provided by Piedmont Natural Gas on November 14, 2014.

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9. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10. Explain whether it is the Company's position, and provide any support for such position, that no other entity has the capability to provide natural gas and/or CNG in the Company's service territory in Tennessee.

Response: Please see response to item 8 above. In addition, given that Piedmont is the only authorized provider of piped natural gas service within its service territory, it is the only entity practically and readily able to provide natural gas for motor vehicle fuel purposes.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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10. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10. Explain whether it is the Company's position, and provide any support for such position, that no other entity is authorized to provide natural gas and/or CNG as a wholesale provider in the Company's service territory in Tennessee.

Response: Please see responses to Items 8 and 9 above.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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11. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10. Explain whether it is the Company's position, and provide any support for such position, that no other entity has the capability to provide natural gas and/or CNG as a wholesale provider in the Company's service territory in Tennessee.

Response: Assuming that this request is referring to the capability to provide natural gas for motor vehicle fuel use through underground transmission and distribution piping, it is the Company's position that Piedmont is the only entity currently able to provide wholesale gas supplies for that purpose within its service area.

Response provided by Piedmont Natural Gas on November 14, 2014.

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12. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10. Describe in detail the market conditions under which retail CNG service would be appropriately offered to the public as a non-regulated service.

Response: As indicated in the supplemental testimony, CNG service currently is offered to the public by various entities as a retail non-regulated service.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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Date Issued: November 7, 2014

13. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 14 through page 9, line 10, and the Company's Response to Item 46 and 47 of TFCSA's data requests. Explain in detail how ratepayers who do not use the Company's CNG service would be compensated for their payments for CNG infrastructure upon the conversion of the Company's CNG service business from a regulated to non-regulated status.

Response: Piedmont currently has no intention of converting its CNG service business from a regulated to non-regulated status. Therefore, Piedmont will not speculate as to a response to this Item.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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14. Refer to the Supplemental Testimony of Ken Valentine, page 8, line 6 through page 9, line 10, and the Company's Response to Item 46 of TFCSA's data requests. Explain in detail why the state or stage of development of the CNG market is a determinate of whether the provision of CNG services is a regulated or non-regulated business. Further, in the context of the development of the CNG services market, explain in detail the distinguishing characteristics of a regulated CNG market and, separately, a non-regulated CNG market.

Response: Piedmont has not taken the position that the state or stage of development of the CNG market is a determinate of whether the provision of CNG services is a regulated or non-regulated business. Currently, CNG services are provided by Piedmont as a regulated entity, as well as by other non-regulated entities. Piedmont's provision of piped natural gas services and CNG falls under the jurisdiction of the Authority. Accordingly, Piedmont currently provides its natural gas and CNG services under approved tariffs while other non-regulated entities serve the retail market without the use of approved tariffs. Therefore, it is the status of the entity providing the CNG services as opposed to the market that currently dictates whether the services are regulated or not.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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15. Refer to the Supplemental Testimony of Ken Valentine, page 9, lines 4-5. Is it the Company's position that Rate Schedule 342, as approved in 2012, establishes that the provision of CNG service is a regulated service? Please explain fully.

Response: It is Piedmont's position that Rate Schedule 342 establishes the terms and conditions upon which Piedmont currently offers natural gas for consumption as a motor vehicle fuel as a fully regulated and jurisdictional utility service. Piedmont does not contend that such service is the exclusive means by which CNG might be offered to the public for use as a motor vehicle fuel.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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CONSUMER ADVOCATE AND PROTECTIVE DIVISION
SUPPLEMENTAL DISCOVERY REQUEST
Date Issued: November 7, 2014

16. Refer to the Supplemental Testimony of Ken Valentine, page 9, lines 4-5. Provide any responses by Piedmont to data requests from the TRA Staff, Consumer Advocate, or any other requestor related to or in connection with the provision of CNG service, whether or not in connection with any rate case or other proceeding, since 2010 (other than as provided in this TRA docket 14-00086, as consolidated with TRA docket 14-00087).

Response: See attachments.

Response provided by Piedmont Natural Gas on November 14, 2014.

Piedmont Natural Gas Company
Docket No. 11-00144
CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1
September 23, 2011

6. Refer to Company Exhibit DPY-10. Provide the source and support in excel format with all formulas intact for the Company's calculation of Average Monthly Use, Peak Monthly Use, and Projected NGV Monthly Load Factor. Also, explain why this information was not properly included with the Company's response to MFR #55.

Response: As explained in the direct testimony of witness Dan Yardley, the rates for NGV Service are derived based on those for Small General Service customers. NGV Service is not included in the Company's Allocated Cost of Service Study provided in MFR 55 because there are no NGV customers or therms reflected in the Attrition Period forecast. Relying on the rates for Small General Service customers as a proxy for prospective NGV customers is a reasonable method for deriving rates for a new service that is not included in an allocated cost of service study. Mr. Yardley also noted that the Company would reflect NGV Service in a subsequent Allocated Cost of Service Study to the extent that customers take service under the rate schedule in the future.

The average monthly use and peak monthly use for Small General Service classes are taken directly from the Company's weather-normalized and grown therms for the Attrition Period provided with the Company's filing. These are provided in the table below:

	Total Annual	**Average Month**	**Peak Month**
Small GS Standard	2,717,008	226,417	312,279
Small GS Value	2,411,114	200,926	621,190
Total Small GS		427,343	933,469

The anticipated load factor for NGV service is based on Mr. Yardley's judgment and experience in developing rates for new services and on the nature of NGV service as described in Mr. Yardley's testimony.

Response provided by Piedmont Natural Gas on October 26, 2011.

Piedmont Natural Gas Company
Docket No. 11-00144
TRA DATA REQUEST NO. 1
Issued September 22, 2011

4. Identify, explain, and quantify all benefits received by Piedmont and its customers from GTI research projects over the past three (3) years.

Response: Many innovative products – products that have helped build a stronger natural gas infrastructure and enhance pipeline system safety - were developed with support from the OTD program, and these products are now commercially available. The OTD program has also supported several studies and reports that provide useful information in the development of new tools, processes and products for natural gas delivery and operations. Examples of these are attached. One technology in particular listed on the attachment, the Metallic Joint Locator (MJL), has provided tremendous benefit to Piedmont's operations and, in turn, our customers. Through the use of MJL, Piedmont has achieved significant operational efficiencies from the avoided time and ongoing operation and maintenance costs associated with the prior methods used to locate metallic tapping tees, flanges and repair clamps, for example, during retrofitting of pipelines to comply with transmission integrity management requirements.

Piedmont has funded and accordingly participated in GTI's Utilization Technology Development (UTD) program and Sustaining Membership Program (SMP) for several years, based on full cost recovery from the Company's NC customers. The UTD program focuses on end use applications of natural gas, thus these applications have direct benefit to the customer. The projects Piedmont has recently benefited most from under UTD has been the Source Energy and Emission Analysis Tool and the Whole House Residential Energy Wizard.

The attachments describe some of the recent achievements in these GTI programs.

Response provided by Piedmont Natural Gas on October 21, 2011.

Results in Use

Utilities, pipeline companies, service providers, and others in the natural-gas-delivery business are using a number of innovative products developed with support from the OTD program.

These products – and others on the horizon – help build a stronger infrastructure, enhance system safety, and improve the efficiency of a wide range of operations activities.

Selected OTD-Developed Products in the Marketplace

> Metallic Joint Locator (MJL)

SENSIT Technologies

The SENSIT Ultra-Trac® MJL provides an easy way to locate cast-iron joints, chill rings in welded steel pipe, metallic tapping tees, metallic flanges, and metal repair clamps. In field tests, the MJL was also able to detect bell and spigot joints for an eight-inch-diameter water main buried at a depth of six feet.

Contact: Scott Kleppe | 219-465-2700 | jScottK@gasleaksensors.com | info@gasleaksensors.com

> Portable Methane Detector (PMD)

SENSIT Technologies

The handheld SENSIT® PMD uses optical-detection technology to provide sensitivity and cost advantages over conventional techniques employing flame ionization detectors. The PMD improves the efficiency of leak surveys, is less costly to maintain than other technologies, and can detect leaks from low ppm to 100% gas.

Contact: Scott Kleppe | 219-465-2700 | jScottK@gasleaksensors.com | info@gasleaksensors.com

> GPS-Enabled Leak Surveying

Integrated Mapping Services, Inc.

Automating the leak surveying and pinpointing process with GPS eliminates paper records, providing increased efficiency and reliable compliance documentation. Implementation of the GPS-enabled system with VeroTrack AST™ software application is under way at several utility companies. *(Project Summary, p. 11)*

Contact: Langley Willauer | 207-236-3485 x306 | langley@inmaps.com | www.inmaps.com

> FLASH Excavation Shielding System

Pro-Tec Equipment, Inc.

This lightweight shielding system provides a versatile method for accessing, repairing, and rehabilitating underground pipes and facilities in congested areas where other utility lines are present. It can be easily transported (with one utility truck) and can be installed by one or two people in about 20 minutes.

Contact: Ron Wey | 1-800-292-1225 | ron@pro-tecequipment.com | www.pro-tecequipment.com

> Keyhole Pipeline Inspection Camera System

ULC Robotics

The PRX250K keyhole camera is small and flexible, making it easily maneuverable through tight bends, allowing utilities to examine pipe segments without the need to drill additional access holes for hard-to-reach locations. It is able to access pipe through 18-inch-diameter diameter surface keyholes. *(Project Summary, p. 71)*

Contact: Greg Penza | 631-667-9200 | gpenza@ulcrobotics.com | www.ulcrobotics.com

> Pavement Breaker Lift Assist

Integrated Tool Solutions

This device assists workers in lifting the pavement breaker after the bit has broken through the surface of the street and needs to be repositioned for the next penetration. By eliminating the need to manually lift and re-position the heavy tool, the lift assist makes pavement breaking easier and less physically demanding.

Contact: Jennifer Purczynski | 951-652-7175 | jpurczynski@integratedtoolsolutions.com | www.integratedtoolsolutions.com

> Utility Crew Truck

Boss Industries

This ergonomically designed truck can accommodate common utility tools as well as new technologies in a smaller package than conventional service vehicles. The truck has removable storage bins, a hydraulic lift gate, and other features to ease worker strain, increase the speed of operations, and enhance safety.

Contact: Todd Hudson | 1-800-635-6587 ext. 214 | thudson@bossair.com | www.bossair.com

> Modified Clegg Hammer

Lafayette Instrument Company

The Clegg Hammer is a soil-compaction-measuring device that obtains a measurement from a free-falling mass (hammer) from a set height onto a surface under test. Electronic modifications provide data storage and downloading capabilities. Other enhancements make it easy to transport.

Contact: Brian Brown | 765-423-1505 | brian@lafayetteinstrument.com | www.lafayetteinstrument.com

> Modified Soil Compaction Supervisor

MBW Inc.

The Soil Compaction Supervisor combines disposable buried electric sensors and an above-ground measurement instrument to determine proper soil compaction. New features include improved sensor reliability and sensitivity and modified data-processing and software to improve data output management.

Contact: Frank Multerer | 1-800- 678-5237 | fmulterer@mbw.com | www.mbw.com

> Field-Ready PCB Test Kit

Gas Technology Institute

The PCB test kit provides quick and accurate identification and field assessments of PCBs. The kit employs a user-friendly wipe-sampling method and provides a cost- and time-saving alternative to off-site laboratory testing. Improved materials handling reduces health risks to workers and the public.

Contact: Kristine Wiley | 847-768-0910 | kristine.wiley@gastechnology.org | www.gastechnology.org

> Meter X-Changer™

Mueller Co.

This new technology allows utilities to conduct meter change-outs without interrupting service. The change-out tool can increase productivity, reduce the cost of the meter change-out process, and virtually eliminate the impact on customers.

Contact: Bryan Kortte | 217-425-7516 | bkortte@muellercompany.com | www.muellercompany.com

> Directional Bag Stopper

Mueller Co.

Similar to the Meter X-Changer™ tool, the Directional Bag Stopper (DBS) technology allows for routine maintenance without interruption of gas service to the customer. It utilizes drilling, tapping, and stopping techniques using CNG as an alternative gas supply, enabling utilities to perform service and meter operations quickly. *(Project Summary, p. 51)*

Contact: Bryan Kortte | 217-425-7516 | bkortte@muellercompany.com | www.muellercompany.com

Informational Products

Selected OTD-Developed Technical Reports

In addition to the development of new tools, processes, and products, OTD supports research that results in useful information on various aspects related to gas delivery and operations.

Listed here are some of the key reports developed under OTD sponsorship.

PIPE & LEAK LOCATION

> **Residential Methane Gas Detector Program**
This reports provides results of a project initiated to determine whether commercially available combustible gas detectors are susceptible to giving false positive responses to an assortment of typical household chemicals, including ammonia, ethanol, acetone, toluene, isobutane, ethyl acetate, isopropanol, heptane, and hydrogen. *(Project Summary, p. 21)*

> **Underground Facility Pinpointing**
This report presents the results of research conducted on several technologies used by utilities to locate underground pipes and facilities. Researchers investigated standard electromagnetic locators, ground-penetrating radar, and alternative imaging tools. The report provides a comparative, technical evaluation of tools that are currently available. (OTD-06/0001)

PIPE MATERIALS, REPAIR & REHABILITATION

> **50- to 70-Year Maintenance-Free Pipeline Coatings for Critical Locations**
This report summarizes an investigation of the use of thermal spray coatings for long-term pipeline corrosion protection. Applicable in various pipeline environments, the technology is especially beneficial for use in critical locations and on pipelines that are difficult to access. (OTD-10/0001)

> **Reducing Riser/Meter Set Corrosion To Lower Lifecycle Costs**
With an improved method for the constant rehabilitation of riser/meter sets, the useful life of the systems can be significantly extended and utility costs reduced. This report documents research on improved, simple, and more effective methods to clean, prepare, and coat atmospherically exposed risers and meter sets that have experienced corrosion. (OTD-07/0001)

> **"Black Powder" Contamination in the Gas Industry: Survey and Best Practice Manual**
Black powder – a substance composed mainly of iron sulfides and iron oxides – can cause corrosion and create wear on pipelines. This report provides information on issues, cleanup techniques, and management methods related to "black powder" contaminants. Results were compiled into a "best practices" industry manual. (OTD-07/0002)

> **Literature Review for Elemental Sulfur Deposits in Natural Gas Transmission Pipelines**
Deposits of "elemental sulfur" – which can block natural gas pipes and equipment – are becoming an increasing concern in the natural gas industry. This report summarizes a literature review to develop a better understanding of the sources, causes, and mitigation possibilities for sulfur deposits found in gas pipelines. (OTD-09/0001)

> **Flaw Acceptance Criteria and Repair Options for Low-Stress Natural Gas Pipelines**
Researchers partnered with pipeline companies and industry organizations to develop modified assessment criteria for low-stress pipelines. The goal, as outlined in this report, was to develop criteria for discriminating flaws that truly affect pipeline integrity from flaws that have no significant impact.

> **Technical Substantiation for an Increase in Design Factor for PE Pipe, Phase III**
This report provides details on research that demonstrates that an increase in the design factor for plastic gas piping would maintain safe operations while helping to provide more flexible system designs (based on capacity considerations), cost savings, and the ability for companies to bring natural gas service to new areas.

> Review and Selection Guide for Pipe Rehabilitation

The focus of this report is on reinforced thermoplastic pipe (RTP) as a pipe-rehabilitation option for use in the natural gas industry. To help pipeline operators gain a better understanding of the technology, researchers developed a product-selection guide based on thorough research of available RTP technology.

> Evaluation of Impact of Rework

The introduction of new plastic "rework" (also called "regrind") is a common practice in the manufacture of polyethylene (PE) pipes, where scrap pipe is re-introduced as a portion of the final product. This report documents evaluations of the impact of the use of rework on the long-term performance of PE pipe used for gas distribution.

> Evaluation of Polyamide 12 (PA12) for High-Pressure Gas-Distribution Applications

The introduction of new plastic materials will allow utilities to use plastic pipe at higher pressures and temperatures than possible with current plastic materials. Presented in this report are the results of studies on the use of Polyamide 12 (PA12) pipe for high-pressure gas-distribution applications.

EXCAVATION & SITE RESTORATION

> Evaluation of Permanent Cold-Patch Mixes

Research was conducted to identify and test permanent cold-patch materials for use in utility restorations. Various commercial products were evaluated under real wheel-loading conditions to help determine their long-term performance. *(Project Summary, p. 61)*

> Evaluation of Flowable Fill Around Buried Pipes

Flowable fill is required by some agencies for use as backfill material pipe repairs, rehabilitations, and other operations. Presented in this report are the results of performance tests of flowable fill, including the effects of flowable fill on pipeline corrosion and on the detection of gas flow and leaks through the backfill. (OTD-07/0004)

> Alternative Methods of Pavement Cutting

In an effort to reduce the costs and improve the process of pavement cutting, researchers investigated the application of current and new pavement-cutting methods. Technologies examined and summarized in this report include impact breaking, sawing, chemical and thermal methods, water-jetting, and laser cutting.

PIPELINE INTEGRITY MANAGEMENT & AUTOMATION

> Field-Applied Pipeline Coatings: Short- and Long-Term Performance

This report presents the culmination of a 10-year research program to assess more than 80 different commercially available field-applied pipeline-coating products. The goal was to establish an unbiased, third-party basis for operators to select the most appropriate coating system for particular applications. *(Project Summary, p. 47)*

> In-Field Corrosion Rate Measurement/Determination for Integrity Reassessment Intervals and Risk Prioritization

Research was conducted to develop a systematic and simple method to calculate realistic corrosion growth rates for determining pipeline-reassessment intervals.

OPERATIONS INFRASTRUCTURE SUPPORT

> Guidelines for the Use of Copper-Clad Steel Tracer Wire

Copper-clad steel (CCS) wire may prove to be a more economical alternative to the more common solid-copper wire used as buried tracer wire to help locate plastic gas pipes. For this study, investigators evaluated CCS tracer wire under various conditions and developed guidelines for its use.

> Study of Anode Effectiveness

The objective of the study was to quantify soil moisture, chemistry, conductivity, installation practices, or other factors that determine the effectiveness of cathodic protection provided by sacrificial anodes. The specific focus of the study was on one-pound drivable anodes used to protect isolated steel service risers.

> **Evaluating Vapor Dispersion Models for Safety Analysis of LNG Facilities**
Along with the American Gas Association, OTD supported the Fire Protection Research Foundation in the development of a Model Evaluation Protocol to assess the suitability of dispersion models for predicting hazard ranges associated with large spills of liquefied natural gas. This report reviews the protocol and models, with guidance on model applications.

> **Integrating GPS into Routine Operations**
This report provides a set of recommendations and GPS implementation strategies developed through pilot programs, literature searches, and reviews of existing applications. Operations that were considered included meter reading, leak surveying, new installations, corrosion monitoring, and valve inspections.

> **Integrating Radio Frequency Identification into Daily Gas Operations**
Research indicates that the use of buried facilities and markers equipped with Radio Frequency Identification (RFID) can save considerable time and effort in daily utility operations. This report presents the results of a demonstration program conducted to further verify the benefits and applications for RFID in the utility industry.

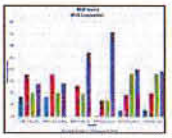
> **DVDs for Training First Responders**
DVD training products help gas companies better educate first-responding personnel about natural gas emergencies. Learning modules with realistic scenarios cover a variety of issues to enhance public and worker safety. The product also serves to improve emergency-response effectiveness and coordination.

ENVIRONMENTAL, RENEWABLES & GAS QUALITY

> **Field Measurement Program to Improve Uncertainties for Key Greenhouse Gas Emission Factors for Distribution Sources**
This report summarizes the results of field surveys conducted at six natural gas utilities. With the support of the American Gas Association, research updated emissions factors for metering stations, regulating stations, and customer meters. (OTD-10/0002)

> **Pipeline-Quality Methane: North American Guidance Document for Introduction of Dairy-Waste-Derived Biomethane into Existing Natural Gas Networks**
The guidance document provides reference and recommendations for the consideration of biomethane from dairy-waste digestion for introduction into gas pipeline networks. The report details results of a biogas/biomethane Gas Technology Institute research program.

> **Innovative Forensic Technique for Identifying VOC Sources**
This report details the results of research conducted to evaluate indoor air samples from former manufactured gas plant (MGP) sites and non-MGP sites. The study demonstrated that the use of compound specific isotope ratios of benzene, toluene, ethylbenzene, and xylenes may be used to discriminate between MGP-related VOCs and non-MGP-related VOCs.



> **Mercury Vapor in Indoor Air: Testing & Correlations Between Monitoring Techniques**
Research presented in this report focused on the investigation of techniques to test the quality of indoor air following the removal of mercury-containing devices or the cleanup of a mercury spill. Research compared the effectiveness of methods expected to be more efficient and less expensive than currently accepted practices.

> **Modified Cross-Sector-Averaging Technique Using Optical Remote Sensing for Perimeter Air Monitoring During MGP Site Cleanups**
New air-monitoring methods were investigated for use at former MGP sites during cleanup operations. Researchers tested a promising technology in the field and developed a guidance document based on research results.

Contact: Maureen Droessler
847-768-0608
maureen.droessler@otd-co.org
www.otd-co.org

August 2011 | UTD Update

UTD. Utilization Technology Development

We're excited about the progress UTD has achieved on several fronts. Below is a summary depicting our available products and resources, projects that have accomplished significant milestones, and new awards which help leverage UTD member funds. If you have any questions regarding this report or it's content, please give us a call.

Ron Snedic
847-768-0572

Greg Maxfield
952-250-7197

Our members serve over 20 million natural gas consumers in North America. Together we are shaping the energy future with new efficient end-use technologies.

Products Commercially Available or Being Readied for Commercialization

> Transport Membrane Condenser (TMC) Technology

An advanced heat-and-water recovery system, including TMC technology, was installed and commissioned at Baxter Healthcare in Thousand Oaks, CA, meeting performance expectations and increasing the boiler efficiency from 80% to 93% – saving the customer 15% on fuel bills, reducing greenhouse emissions by 15%, and saving over 250,000 gallons of water. The Ultramizer® system is available from Cannon Boiler Works, Inc.

Chris Giron
Cannon Boiler Works
724-335-8541 x414
sales@cannonboilerworks.com
www.cannonboilerworks.com

> Low-Oil-Volume Fryers

A new commercial foodservice low-oil-volume fryer has undergone development and pre-commercial testing with successful results. The fryer, marketed by Frymaster as Protector® fryers, increases energy efficiency while also extending cooking-oil quality and life to provide significant customer savings.

Linda Brugler
Frymaster
318-866-2488
lbrugler@frymaster.com
www.frymaster.com

> Equinox Solar-Assisted Heating System

The Equinox system is a combination thermal storage tank and instantaneous water heater capable of providing 100% of domestic hot-water and space heating needs. A staple in European and Australian markets, the technology has been made available in the U.S. through the efforts of Gas Technology Institute and Solar Usage Now, LLC. The technology – marketed as S.U.N. Equinox Heating Systems® – is one of the most energy-efficient systems available for residential and commercial applications.

Tom Rieker
Solar Usage Now, LLC
614-759-7242
service@netwalk.com
www.solarusagenow.com

> RASERT Technology

The Reverse-Annulus Single-Ended Radiant Tube (RASERT) technology increases productivity, raises thermal efficiency, and decreases NO_x emissions for industrial heat treating and other indirect heating applications.

Dennis Quinn
Fives North American Combustion, Inc.
216-271-6000, x417
dennis.quinn@fivesgroup.com
www.fivesgroup.com

> Stellar Countertop Steamer

This compact gas-fired countertop steamer for commercial food service offers enhanced cooking rates while providing users with added savings of energy and water consumption. The unit was the first gas-fired boilerless steamer with an ENERGY STAR rating.

Market Forge Industries/ Stellar Steam

617-387-4100
866-698-3188
custserv@mfii.com
www.mfii.com
www.stellarsteam.com

> Avantec Combi-Oven

The combination oven uses a patented technology for improving cooking performance, quality, and efficiency. Able to operate in various cooking modes, the oven provides enhanced uniformity when compared to similar-sized ovens.

Dave Goble

Avantec Food Service Equipment
800-322-4374
dave@twomarket.com
www.avantecequipment.com

> Cummins 8.9L Ultra-Low Emissions Engine

This is the first engine certified to the highly stringent California 2010 standards for heavy-duty vehicle engines—achieving emission levels below the 0.2 g NO_x/hp-hr requirement while also retaining high shaft efficiency. Since commercial introduction in 2007, the engine has been widely used in the United States (with 2010 sales of approximately 10,000 units) and throughout the world in transit, refuse-collection, and regional hauling applications.

Scott Baker

Cummins Westport Inc.
604-718-2025
scott.baker@cummins.com
www.cumminswestport.com

> FuelMaker's *Phill*

A field demonstration program was conducted to assess the performance, reliability, and economics of a natural-gas-fueling system that allows for the refueling of natural gas vehicles at homes and businesses. Six units were installed and monitored for one year. Data was analyzed and a user survey was conducted at the conclusion of the demonstration. Performance met or exceeded the manufacturer's specification and users' attitudes were very positive.

Paula Hebert

IMPCO Technologies/BRC FuelMaker
714-656-1268
phebert@impcotechnologies.com

> NovelAire ComfortDry™ 400

This advanced space-conditioning system was developed for residential and light-commercial buildings where humidity or allergen concerns prevail. Research provided enhanced operation and reduced cost, weight, size, and installation requirements.

Scott Janke

NovelAire Technologies
770-664-4756
sljanke@aol.com
www.novelaire.com

> Westport HPDI NGV Fuel System

High-Pressure, Direct-Injection (HPDI) technology enables engines designed for diesel combustion to operate with natural gas while retaining the same critical performance features of high torque, power, and fuel economy of a traditional diesel engine. A 2010 demonstration of the Westport HD-powered tractor allowed fleets to obtain first-hand experience with the new technology. Feedback was very positive and resulted in one company ordering 48 Westport HD-powered tractors.

Stephen Ptucha

Westport Innovations Inc.
604-718-2024
SPtucha@westport.com
www.westport.com

Significant Milestones

> FlexCHP High Efficiency Ultra-Clean Power and Steam Package

Researchers are developing a cost-effective supplemental burner, integrated with a gas-turbine based combined heat-and-power system, that can significantly increase energy efficiency while meeting stringent air emissions regulations. Laboratory tests have shown total efficiency of over 85% and NO_x emissions that are below stringent California emission levels. Field testing is planned at a food-processing plant in California.

Dave Cygan

Gas Technology Institute
847-768-0524
david.cygan@gastechnology.org
www.gastechnology.org

> Solar-Assisted Natural Gas Energy Systems

Researchers foresee significant efficiency improvements in several applications by combining higher-temperature solar-related technologies with natural-gas-fired equipment. Progress continues with the installation of solar thermal collectors using B2U Solar's External Compound Parabolic Concentrator (XCPC) technology at Gas Technology Institute. Additional testing is planned with SABMiller at its Los Angeles area brewery.

Dave Cygan

Gas Technology Institute
847-768-0524
david.cygan@gastechnology.org
www.gastechnology.org

> Wok Burner

A new commercial foodservice wok-burner range system – developed in cooperation with a major Asian restaurant chain – increases efficiency 100% (compared to current products) while enhancing kitchen comfort by lowering ambient temperatures. Activities are under way to license the wok technology to a manufacturing partner and build a prototype unit for a sponsor test site.

Frank Johnson

Gas Technology Institute
847-768-0670
frank.johnson@gastechnology.org
www.gastechnology.org

Cummins Westport (CWI) High-Horsepower NGV Engine

CWI, with UTD support, is developing a new 400-HP NGV engine for the large truck and bus market segment that includes regional haulers, refuse transfer trucks, and other larger vehicles. The new engine will satisfy the stringent California emission requirements. An alpha engine is undergoing field testing and the new engine is expected to be available in 2012.

Scott Baker

Cummins Westport Inc.
604-718-2025
scott.baker@cummins.com
www.cumminswestport.com

Analytical Tools & Information Products

> Venting Solutions

VENT-II, the industry standard software program for vent system design, offers application with commonly used desktop operating systems and spreadsheet tools. A venting Technical Advisors Group includes 30 subject matter experts, manufacturers, industry groups and asscciations, and GTI.

Larry Brand

Gas Technology Institute
847-768-0968
larry.brand@gastechnology.org
www.gastechnology.org

> Source Energy and Emissions Analysis Tool

Neil Leslie

Gas Technology Institute
847-768-0926
neil.leslie@gastechnology.org
www.gastechnology.org

The Source Energy and Emissions Analysis Tool (SEEAT) allows calculation of the energy source and greenhouse-gas emissions related to point-of-use (site) energy consumption by fuel type for each energy consuming device (e.g., appliances and vehicles). SEEAT includes a source-energy and carbon-emission calculation methodology that accounts for primary energy consumption and related emissions for the full fuel cycle (extraction, processing, transportation, conversion, distribution, and consumption of energy) for residential and commercial buildings, industrial applications, and light-duty vehicles. (Available online at www.cmictools.com.)

> International Green Construction Code (IGCC)

Neil Leslie

Gas Technology Institute
847-768-0926
neil.leslie@gastechnology.org
www.gastechnology.org

Based on the technical merits and societal benefits of source energy presented at code-development and hearing-committee meetings and conference calls, the International Green Construction Code (IGCC) development committee shifted from site energy to source energy and greenhouse-gas (GHG) emissions as the basis of the performance requirements in IGCC PV 1.0. The PV 2.0 hearing committee also approved a critical technical comment shifting to a single-reference building approach that will implement the source energy and GHG emission compliance requirements consistently and equitably. IGCC is scheduled to be published by the International Code Council as a model code in March 2012.

> Whole House Residential Energy Efficiency Wizard (REEW)

Marek Czachorski

Gas Technology Institute
847-768-0526
marek.czachorski@gastechnology.org
www.gastechnology.org

The REEW provides UTD members and their customers with a user-friendly Internet-server-based tool allowing for the analysis and easy selection of the latest technologies applicable to residential building energy efficiency measures customized to a specific member service territory.

> Commercial Green Building Analyzer (CGBA)

Marek Czachorski

Gas Technology Institute
847-768-0526
marek.czachorski@gastechnology.org
www.gastechnology.org

A Beta version of the CGBA, an Internet-server-based tool, has completed testing. The CGBA is designed to be a user-friendly tool allowing for easy selection of the latest applicable commercial "green" building energy efficiency measures customized to a specific member service territory.

Select New Cofunding and Leveraged Funding Sources

- GTI signed a contract with the California Energy Commission for a new $2 million program focused on technology development for the commercial foodservice market. Restaurants and institutional foodservice represents a major natural gas energy user. This program will develop a suite of higher-efficiency natural gas appliances for commercial kitchens. The program compliments the Conveyor Oven, Convection Oven and Commercial Range UTD projects.

- Under a contract with the U.S. Department of Energy Building America Program, GTI will address retrofit whole house, energy efficiency, and related building efficiency initiatives.

- Field testing of two new solarthermal systems, one at a winery in California and the other with a brewery operation in California, are being funded by the California Energy Commission.

- Southern California Air Quality Management District awarded GTI a $450,000 contract to address the development and testing of low NO_x emission home furnaces and space heating equipment to comply with future emission requirements.

- GTI was awarded a $1.8 million contract from the CEC for the demonstration of the planned Cummins 12 L natural gas vehicle (NGV) engine.

PIEDMONT NATURAL GAS COMPANY, INC.
CNG IR
TRA DOCKET NOS. 14-00086 & 14-00087
CONSUMER ADVOCATE AND PROTECTIVE DIVISION
SUPPLEMENTAL DISCOVERY REQUEST
Date Issued: November 7, 2014

17. Refer to the Supplemental Testimony of Ken Valentine, page 10, lines 1-10. Describe the marketing and/or advertising efforts the Company plans or expects to undertake to develop or increase vehicle owners' perception that CNG fuel is increasingly available.

Response: Piedmont and others regularly encourage current and prospective customers to visit the DOE's website that provides a listing and location of available alternative fuel stations in the US. It is important to customers, especially regional haulers and distribution companies, to know where they can refuel their vehicles given the limited number of stations currently available. A link is provided below:

http://www.afdc.energy.gov/locator/stations/

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
CNG IR
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19. Refer to TRA Rule 1220-4-1-.01(1)(a) regarding capital additions budgets of utilities, which reads as follows:

> "(1) All public utilities operating in the State of Tennessee shall submit one (1) copy of the following information on an annual basis, to be filed no later than ninety (90) days after the beginning of the current fiscal year with the Chief, Utilities Division or as otherwise agreed upon.
>
> (a) Projected expenditures on capital construction projects both routine and specific for the current year."

Please provide: (A) a copy of the Piedmont capital budgets for 2012, 2013 and 2014 that specifically mention the cost for construction of CNG related expenditures and (B) each filing with the TRA in 2012, 2013 and 2014 satisfying the above-described required filing of projected expenditures on capital construction projects.

Response: Piedmont prepares its annual capital expenditure budgets at the Total Company level. See the CONFIDENTIAL attachment showing the capital expenditure budgets for the Company's 2012, 2013 and 2014 fiscal years. Piedmont does not have the 2012 thru 2014 filings per TRA Rule 1220-4-1-.01(1)(a).

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
CNG IR
TRA DOCKET NOS. 14-00086 & 14-00087
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20. Refer to the Company's Response to Item 1c of the CAPD's Data Request. The Company's answer to this request item is not responsive. Specifically, provide the exact statutory and regulatory basis for the Company's conclusion that the sale of CNG is a TRA rate regulated service.

Response: Piedmont does not agree that its previous answer to this question is non-responsive. To restate its position: (1) Piedmont is a Tennessee natural gas public utility providing natural gas service to the public under its various approved tariffs and rate schedules; (2) It is currently the only authorized provider of public utility natural gas service within its Tennessee service area; (3) CNG is natural gas that is subject to enhanced compression required to allow it to be used as a motor vehicle fuel; (4) Piedmont's rate schedule 342, providing for the sale of CNG to the public, was included in the Stipulation with the CAPD and approved by the TRA in Piedmont's last general rate case proceeding in 2012; (5) Piedmont has been offering CNG to the public since that time; and (6) Piedmont has been requested by its existing and potential customers to widen the basis upon which it makes CNG available to the public – including the provision of a transportation service for CNG and the ability for its customers to resell gas provided by Piedmont for motor vehicle use. The TRA's acceptance of Piedmont's sale of CNG as a regulated utility service is consistent with similar treatment by the North Carolina Utilities Commission and the Public Service Commission of South Carolina. It is also consistent with authorizations granted by other state Public Service Commissions approving the provision of CNG service to the public as a regulated utility service.

Response provided by Piedmont Natural Gas on November 14, 2014.

PIEDMONT NATURAL GAS COMPANY, INC.
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TRA DOCKET NOS. 14-00086 & 14-00087
CONSUMER ADVOCATE AND PROTECTIVE DIVISION
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22. Refer to Item 8 of the Company's reply to the TFCSA Data Request. Please provide a copy of the Company's current CNG tariff for North Carolina and South Carolina.

Response: See the attachment with copy of the Company's current CNG tariff for North Carolina and South Carolina. For the most current copies of Piedmont's rates, please see the following link:

http://www.piedmontng.com/yourhome/residentialservices/ourrates/rates.aspx

Response provided by Piedmont Natural Gas on November 14, 2014.

RATE SCHEDULE 142
NATURAL GAS VEHICLE FUEL

Applicability and Character of Service
Gas Service under this Rate Schedule is available at Company-operated public stations to Customers seeking to obtain Gas for placement into the fuel tank of a motor vehicle. The nature of Service provided by Company to Customer under this Rate Schedule is interruptible sales Service.

Rates and Charges
The rates to be charged for Gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates applicable to Service hereunder include a per therm charge designed to recover the costs associated with compression and related equipment necessary to provide this Service. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Highway Use Taxes
The rates to be charged for Service pursuant to this Rate Schedule do not include applicable federal, state and/or local road use or motor fuel taxes and fees. Such taxes and fees shall be added to Company's approved rates when calculating total Customer charges for Service under this Rate Schedule.

Payment of Bills
Bills for Service provided pursuant to this Rate Schedule shall be paid at the time of Service with a valid credit or debit card accepted by the Company.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 242
SMALL GENERAL SERVICE – MOTOR FUEL

Applicability
Gas service under this rate schedule shall be separately metered and is available in the area served by the Company in the State of South Carolina to customers for the consumption and/or resale of compressed natural gas as a motor fuel.

Gas service under this Rate Schedule shall be metered at the Customer's Premises, or at the Company's Premises for purposes of providing public access to compressed natural gas filling stations.

Rates and Charges
The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the Public Service Commission of South Carolina (the "Commission") and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

Highway Use Tax
The rates reflected on the Company's "Rates and Charges" tariff sheet do not include applicable Federal, State and/or local highway motor fuel use taxes and fees. Bills rendered under this rate schedule will include such taxes and fees.

Payment of Bills
Bills are net and due upon receipt. Bills rendered for service provided at the Customer's Premises become past due 15 days after bill date. Bills rendered for service provided at the Company's Premises shall be paid at the time of service with a valid credit or debit card accepted by the Company.

Late Payment Charge
For service provided at the Customer's Premises, a late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

Applicable Documents Defining Obligations of the Company and Its Customers
Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including

events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at www.piedmontng.com.

Rider

Service to Customers under this rate Schedule using Company owned and maintained compressor facilities shall be billed at a maximum rate of $.50 per therm, in addition to the base rate for Service under this Rate Schedule 242 as set forth on the Company's "Rates and Charges" tariff sheet.

Issued to comply with authority granted by
The Public Service Commission of South Carolina
Docket No. 2010-333-G
Issued: September 20, 2011
Effective: November 1, 2011

RATE SCHEDULE 143
EXPERIMENTAL MOTOR VEHICLE FUEL SERVICE

Availability

Gas Service under this Rate Schedule is available, on an experimental basis, in the area served by the Company in the State of North Carolina to all existing and qualified potential customers under Rate Schedules 101, 102, 103, 104, 113, 114, 152, 12, T-10, and T-12 seeking to purchase or transport Natural Gas for use as a motor vehicle fuel. All requests for Service under this Rate Schedule shall be subject to application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

This Rate Schedule is experimental in nature and designed to (a) determine the relative need for sales/transportation service to meet the Natural Gas motor vehicle fuel needs of Customers qualified for and/or receiving service under the applicable rate schedules identified above, and (b) to determine whether Company's existing facilities and structures can accommodate the provision of such Service. Company reserves the right, upon reasonable notice to the Commission, to suspend Service to new Customers under this Rate Schedule in the event further Service under this Rate Schedule would threaten, interfere with, or impede Piedmont's ability to meet its other contractual obligations or efficiently operate its system and/or facilities. Absent such suspension by Piedmont, this Rate Schedule shall remain in effect for a period of two (2) years after which Service hereunder may continue to be provided subject to any proposal by Piedmont or any other interested party to terminate, extend, modify or adjust the provision of such Service.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule shall be commensurate with the nature of Service for which Customer is qualified under the applicable Rate Schedule identified above. Gas received under the provisions of this Rate Schedule shall be used for motor vehicle fuel purposes only.

All Gas delivered pursuant to this Rate Schedule shall be metered and billed by the Company separately from any Gas delivered to Customer under any other Rate Schedule and utilized for non-motor vehicle fuel purposes.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

Rates and Charges

The rates to be charged for Gas Service pursuant to this Rate Schedule shall be those rates and charges (and components thereof) applicable to the corresponding individual Rate Schedule under which Customer qualifies for Service. These rates and charges are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at

RATE SCHEDULE 143
EXPERIMENTAL MOTOR VEHICLE FUEL SERVICE

www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates applicable to Service hereunder may, to the extent such Service includes compression of Gas for utilization as a motor vehicle fuel, include a per therm compression charge designed to recover the costs associated with such compression and related equipment. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Payment of Bills

Bills for Service rendered pursuant to this Rate Schedule shall be due and payable as provided under the individual Rate Schedules identified above under which Customer is qualified for Service.

Applicable Documents Defining Obligations of the Company and Its Customers

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

Resale

Gas delivered to Customer under the provisions and authority of this Rate Schedule, except for Customers receiving Gas for motor vehicle fuel purposes under Rate Schedule 101, may be resold solely for use as a motor fuel.

Taxes

Customer shall be solely and exclusively responsible for the payment of any local, state, or federal road tax, motor fuel tax, or similar tax, fee, or charge attributable to or arising out of the utilization of Gas delivered hereunder as a motor vehicle fuel.

Treatment of Gas Quantities Received Pursuant to this Rate Schedule

All quantities of Gas delivered to Customer for use as a motor fuel pursuant to this Rate Schedule 143 during any Annual Review Period shall be aggregated with quantities of Gas received by Customer under any of the Rate Schedules identified above solely for the purpose of establishing Customer's eligibility for continued Service from Company as provided in Paragraphs 34 and 35 of Piedmont's Service Regulations.

RATE SCHEDULE 144
EXPERIMENTAL MEDIUM GENERAL MOTOR FUEL TRANSPORTATION SERVICE

Availability

Gas Service under this Rate Schedule is available, on an experimental basis, in the area served by the Company in the State of North Carolina to qualifying Customers seeking to transport Natural Gas for use as a motor fuel. Customers qualifying for this Service shall be non-residential Customers seeking to utilize Gas for motor fuel purposes only whose actual or projected average daily usage under this Rate Schedule is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day. All requests for Service under this Rate Schedule shall be subject to application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

This Rate Schedule is experimental in nature and designed to (a) determine if there is a market/need for medium general transportation service by Company to Customers who intend to utilize Gas as a motor fuel, and (b) to determine whether Company's existing facilities and structures can accommodate the provision of such Service. Company reserves the right, upon reasonable notice to the Commission, to suspend Service to new Customers under this Rate Schedule in the event further Service under this Rate Schedule would threaten, interfere with, or impede Piedmont's ability to meet its other contractual obligations or efficiently operate its system and/or facilities. Absent such suspension by Piedmont, this Rate Schedule shall remain in effect for a period of two (2) years after which Service hereunder may continue to be provided subject to any proposal by Piedmont or any other interested party to terminate, extend, modify or adjust the provision of such Service.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm Redelivery Service. Gas redelivered under this Rate Schedule shall be used for motor vehicle fuel purposes only.

All gas delivered pursuant to this Rate Schedule shall be metered and billed by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver Gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

RATE SCHEDULE 144
EXPERIMENTAL MEDIUM GENERAL MOTOR FUEL TRANSPORTATION SERVICE

Rates and Charges
The rates to be charged for Gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. Rates applicable to Service hereunder, to the extent such Service includes compression of Gas for utilization as a motor vehicle fuel, may include a per therm compression charge designed to recover the costs associated with such compression and related equipment. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Volumetric Charges
The rate per therm shall be billed on the quantity of Gas delivered by Company to Customer.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

Resale
Gas delivered to Customer under this Rate Schedule may be resold solely for use as a motor vehicle fuel.

Taxes
Customer shall be solely and exclusively responsible for the payment of any local, state, or federal road tax, motor fuel tax, or similar tax, fee, or charge attributable to or arising out of the utilization of Gas delivered hereunder as a motor vehicle fuel.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the attached document was served upon the parties in this action by electronic mail and by depositing a copy of the same in the United States Mail, First Class Postage Prepaid, addressed as follows:

Counsel for Tennessee Fuel & Convenience Store Assoc.	**Counsel for the Consumer Advocate and Protection Division of the Office of the Attorney General**
Melvin J. Malone Butler Snow Suite 1600 150 Third Avenue South Nashville, TN 37201	Wayne Irvin Assistant Attorney General Office of the Tennessee Attorney General Consumer Advocate and Protection Division P. O. Box 20207 Nashville, TN 37202-0207

This the 14 day of November, 2014.