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October 31, 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 and original and five (5) copies of Piedmont Natural Gas Company, Inc.'s supplemental testimony of Ken Valentine.

This material is also being filed by way of email to the Tennessee Regulatory Authority Docket Manager, Sharla Dillon. Please file the original and four copies of this filing and stamp the additional copy as "filed". Then please return the stamped copies 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)

**Before the
Tennessee Regulatory Authority**

Docket No. 14-00086

**Petition of Piedmont Natural Gas Company, Inc.
For Approval of a CNG Infrastructure Rider to Its
Approved Rate Schedules and Service Regulations**

**Supplemental Testimony
of
Ken Valentine**

**On Behalf of
Piedmont Natural Gas Company, Inc.**



October 31, 2014

1 **Q. Please state your name, business address, and occupation.**

2 A. My name is Ken Valentine and my office is located at 4720 Piedmont Row
3 Drive in Charlotte, North Carolina. I am the Vice President - Business
4 Development and Gas Technology Services for Piedmont Natural Gas
5 Company, Inc.

6 **Q. Have you previously filed testimony in this proceeding?**

7 A. Yes, I prefiled direct testimony in TRA Docket No. 14-00086 on October 17,
8 2014.

9 **Q. What is the purpose of your supplemental testimony?**

10 A. I am supplementing my testimony in this docket to include information
11 concerning Piedmont's filings in Docket No. 14-00087, which by agreement of
12 the parties and upon approval of the Authority will be consolidated in this
13 docket, and which included proposed revisions to the Company's Rate Schedule
14 No. 342 and new proposed Rate Schedule No. 343. These rate schedules
15 pertain to Piedmont's provision of CNG service to Tennessee customers and
16 were filed concurrent with Piedmont's petition for a CNG Infrastructure Rider
17 in Docket No. 14-00086.

18 **Q. Could you please provide the Authority with a brief overview of the state**
19 **of the CNG market nationally and how that fuel is being used for**
20 **transportation services?**

1 A. With the advent of low, stable natural gas prices due to a technology-driven
2 surge in vast new domestic supplies, coupled with recent advances in natural
3 gas vehicle (NGV) technology, I believe we are at the beginning of a mega-
4 trend with CNG steadily becoming an increasingly significant part of
5 transportation fueling in the our country. This is reflected in industry numbers.
6 Nationwide, there are about 1,440 CNG stations. Just one year ago, there were
7 approximately 600 public CNG stations nationwide. According to DOE, there
8 are currently 770 CNG stations open to the public, a 28 percent increase in just
9 12 months, and DOE lists 162 currently planned public stations. There are
10 roughly 150,000 refueling stations in the U.S., so CNG stations represent a very
11 small portion of the total, but growth rates of 20% or greater per year indicate
12 significant market growth. Ownership of CNG stations can be grouped among
13 several large categories: LDCs like Piedmont, municipalities, private companies
14 and governmental agencies. Clearly, the approaches to infrastructure vary,
15 which we view as the signs of a new, growing and evolving market.

16 According to Natural Gas Vehicles of America (NGVA), there are
17 approximately 142,000 NGVs in the U.S. (and more than 14 million world-
18 wide). NGVs have an additional premium in terms of cost for engine
19 conversions and different fuel tanks. As a result, high mileage and heavy fuel
20 use vehicles currently render the best payback economics for users to recoup
21 their incremental initial costs through the lower fuel cost of natural gas. As a

1 result, heavy- to medium-duty vehicles such as refuse trucks, distribution and
2 delivery trucks, transit buses, tractor trailers and service fleet vehicles comprise
3 the bulk of vehicles currently using natural gas in the U.S. For example, 55% of
4 all new refuse trucks will be fueled by natural gas. Waste Management, Inc.
5 alone deploys over 2,000 NGV trucks (including dozens at their Nashville site)
6 while operating 50 stations at the company's business sites. At Piedmont, we
7 have 300 CNG-capable vehicles in our utility vehicle fleet of 1,052 service
8 vehicles across our three-state service territory.

9 **Q. Could you provide a brief description of the benefits of natural gas as a**
10 **motor vehicle fuel and provide your assessment of the likelihood that it**
11 **may be adopted by Americans to any substantial degree?**

12 **A.** CNG has economic, environmental and energy security benefits over other
13 vehicle fuels such as gasoline and diesel. Since 2010, our CNG prices generally
14 have fallen between \$1.50 to \$2.00 per gallon-equivalent cheaper than gasoline
15 and diesel prices. Even with the recent plunge in oil prices (reminding us of the
16 volatility of gasoline and diesel prices), CNG still remains \$1.00 to \$1.50 less
17 expensive. Moreover, some fleet operators report that vehicle maintenance is a
18 much cleaner and healthier process than with diesel and that NGVs can typically
19 avoid every third normal oil change. Because CNG has 25% less CO₂ emissions
20 than gasoline and diesel, 70% less carbon monoxide, and 87% less nitrogen
21 oxides, providing access to and encouraging natural gas as a transportation fuel

1 is a great benefit to both the local environment and in curbing greenhouse gas
2 emissions. Additionally, natural gas in the form of CNG is a clean, abundant
3 American fuel, displacing imported oil while creating domestic jobs and
4 investment. It will not happen overnight, but momentum for natural gas as a
5 fuel continues to rise as more stations are built, more fleets test pilot projects
6 and companies purchase NGVs as vehicle replacement cycles occur.

7 With respect to vehicle owners, three things essentially need to happen to
8 drive a substantial shift to NGVs: they have to learn about the benefits to
9 themselves and to our country from the consumption of natural gas as a motor
10 fuel, they need to see more choice and lower or no additional cost for NGVs,
11 and they need to be confident that they can find a fueling station with relative
12 ease. These last two points combine to create the proverbial chicken-and-egg
13 problem for the industry – most of the public won't buy an NGV if it costs too
14 much extra and they don't have a station nearby. In the past, automakers have
15 shown a reluctance to commit to building many OEM (original equipment
16 manufacturer) vehicles if there isn't more robust CNG station infrastructure.
17 However, as NGVA reports on their website, there are now over 100 models of
18 NGVs produced by both OEMs and after-market conversion shops, and
19 companies such as Piedmont and many others are building more and more
20 stations, especially in urban areas and along existing major highway corridors to
21 support fleets and individuals who want to take advantage of all that NGVs

1 have to offer. In addition, many NGVs are now available that are dual fuel
2 capable, meaning that they can run on both natural gas and gasoline or diesel,
3 which greatly reduces any "range anxiety" for drivers. As more vehicles are
4 then purchased, automakers will produce more models and in bigger runs which
5 will naturally lead to economies of scale and reduce, and eventually eliminate,
6 any cost premiums for NGVs. With heavy duty (HD) vehicles as a leading
7 indicator for this emerging market, the Energy Information Agency (EIA)
8 projects that by 2035, 32% of all HD vehicles will be fueled by natural gas.
9 When you consider that already 55% of all refuse trucks on order are NGVs,
10 the EIA's projection may be very conservative.

11 **Q. Could you also describe the state of the CNG market within Piedmont's**
12 **Nashville service territory and how Piedmont is currently serving that**
13 **market?**

14 **A.** Piedmont has ten public CNG stations, including two in Nashville. One of the
15 Nashville stations is at our operations Resource Center on Century Boulevard.
16 This was one of our first CNG stations. Originally designed to fuel Piedmont's
17 fleet in order to provide fueling diversity after gasoline shortages in the
18 Southeast due to Hurricanes Katrina and Rita in 2005, Piedmont also enjoyed
19 fuel cost savings and emission savings by using natural gas. We eventually
20 opened our Resource Center site to the public so others could take advantage of
21 the attributes of CNG. We soon had to upgrade our facilities to serve the

1 substantially increased vehicle demand. Because this station was “inside the
2 fence” and near the rear of our Resource Center, we began to have safety and
3 security concerns as the traffic volume grew. Additionally, as more large
4 vehicles used the facility, particularly refuse trucks and tractor trailers, physical
5 space around the fueling island became an issue. Faced with limitations on
6 space as to what we could do at our Resource Center to address these safety
7 and customer concerns, we purchased a piece of land on Spence Lane near the
8 interchange of I-40 and I-24, and in 2014 opened our second public station in
9 Nashville (and the first Piedmont public station not located at a one of our
10 Resource Centers) providing ample space and fueling capacity for all manner of
11 customers, including transient traffic traversing the country across I-40 and I-
12 24. Between the two stations, Piedmont sold 216,000 therms of CNG for the
13 twelve months ended September 2014. Piedmont also serves two customer-
14 sited CNG stations in Nashville for Waste Management, Inc. and Trillium CNG,
15 both of which are also open to the public. Although both companies’ CNG
16 stations have been open less than a year, they have already taken 476,000
17 therms of natural gas. Incidentally, both companies regularly used Piedmont’s
18 Nashville stations until their own stations were ready, and continue to use our
19 stations for convenience or back-up if their station is down for maintenance or
20 an operational issue.

21 **Q. Please explain the proposed revisions to Rate Schedule No. 342.**

1 A. Piedmont currently provides CNG service to its customers on a regulated basis
2 pursuant to its TRA approved Rate Schedule 342 and has done so since this rate
3 schedule was approved on April 18, 2012 in TRA Docket No. 11-00144. Rate
4 Schedule No. 342 was originally conceived to encompass the provision of
5 natural gas to customers for use as motor fuel in several different contexts
6 including the retail sale at Piedmont operated fueling equipment but also to
7 customers who were operating CNG fueling equipment of their own. If the
8 revisions of this rate schedule and new Rate Schedule 343 are approved, revised
9 Rate Schedule No. 342 will be limited to retail CNG services provided at
10 facilities operated by Piedmont. Piedmont's proposal to revise this rate schedule
11 does not seek any change in the jurisdictional status of that service. The rest of
12 the proposed revisions merely are to clean up and simplify the rate schedule.

13 **Q. Please explain Piedmont's intent behind proposed new Rate Schedule 343.**

14 A. In conjunction with the filing of the proposed revisions to Rate Schedule 342,
15 Piedmont also filed proposed new Rate Schedule 343. New Rate Schedule 343
16 is experimental in nature and designed to determine the relative need for
17 sales/transportation service to meet the natural gas motor vehicle needs of
18 customers and to determine the level of need for additional CNG facilities. New
19 Rate Schedule 343 also is targeted to facilitate wholesale natural gas sales and
20 transportation services to customers who will then compress the gas for use as
21 CNG using their own equipment. Those customers will either use the CNG

1 themselves or sell it to the public. Rate Schedule 343 is very similar to our
2 normal services (including our transportation services) except that natural gas
3 sales for resale in CNG form will be allowed.

4 **Q. What is the purpose of the revised Rate Schedule No. 342 and new Rate**
5 **Schedule 343?**

6 A. The purpose of revised Rate Schedule No. 342 and new Rate Schedule 343 is to
7 facilitate the growth of the wholesale and retail CNG market in Tennessee. The
8 state of the CNG market in Tennessee (and in other states where Piedmont
9 operates) is nascent but also filled with potential if the barriers to market
10 development can be overcome. These barriers include the scarcity of fueling
11 infrastructure and, to a somewhat lesser degree, the limited types and quantities
12 of available natural gas vehicles for purchase or lease. Currently, only a very
13 limited number of public CNG fueling stations offer CNG for sale to the public
14 as a motor vehicle fuel within Piedmont's service territory. Piedmont is
15 authorized to provide natural gas sales and redelivery service to the public
16 within its service territory and CNG is natural gas. The only distinguishing
17 characteristic of CNG is that it is compressed to a level necessary to allow its
18 use as a motor vehicle fuel. The only additional facilities needed to provide
19 CNG service beyond those utilized to provide normal sales/distribution service
20 are compression and dispensing equipment. Given the lack of a competitive
21 market for CNG within Piedmont's service territory, Piedmont's status as a

1 regulated provider of natural gas to the public within its service territory, and
2 the intrinsically identical nature of CNG and natural gas, it is Piedmont's
3 position that retail CNG service is appropriately offered to the public by
4 Piedmont as a utility service (at least under current market conditions), which
5 the Company has provided under Authority approval since 2012. Piedmont also
6 believes that it is appropriate for the Company to provide underlying
7 "wholesale" gas service to third-parties who wish to compress natural gas and
8 sell it to the public as CNG as we are the only ready source for such natural gas
9 within our service territory. Our existing tariffs do not readily allow for such
10 sales because they prohibit sales for resale of natural gas.

11 **Q. How will new Rate Schedule 343 facilitate the growth of the CNG market**
12 **in Tennessee?**

13 A. Piedmont's proposed revisions to Rate Schedule 342 as well as its new Rate
14 Schedule 343 will facilitate Piedmont's expansion of CNG service to the public.
15 To the extent that Piedmont's expanded natural gas fueling facilities are located
16 at new or existing third-party gas stations or convenience stores, those
17 additional facilities will enhance revenue opportunities for those businesses by
18 providing an alternate and additional fuel source for sale to the public. As I've
19 previously mentioned, the proliferation of available service stations is a driving
20 factor behind an increase in CNG as an alternative vehicle fuel. Commercial
21 store operators who sell gasoline and diesel to the public have expertise in

1 locating, supplying and operating retail stations and equipment. Piped and
2 compressed natural gas are services in which Piedmont has extensive expertise.
3 Piedmont believes that the usage of CNG as a transportation fuel will continue
4 to increase due to its attributes of price, abundance, relative cleanliness and
5 domestic sourcing as long as vehicle owners perceive that the fuel is
6 increasingly available. If commercial store operators wish to attract more
7 drivers to their stores, it would seem to be a natural pairing to place a CNG
8 station, built and operated by an experienced company, at locations that are
9 already designed and located to attract vehicular traffic. Piedmont would
10 provide these CNG services under new Rate Schedule 343 if approved.

11 **Q. Why is new Rate Schedule 343 experimental?**

12 A. As I've stated, the state of the CNG market is in its earliest stages in Tennessee
13 and it is difficult to determine the timing and evolution of the retail and
14 wholesale market. New Rate Schedule 343 is designed to allow Piedmont to
15 provide CNG services outside of its own Company operated facilities for a
16 period of three years after which the Company, or any other interested party,
17 may seek to extend, terminate, modify or otherwise adjust the provision of those
18 services. By that time, the Company feels that we will be in a better position to
19 assess the viability of the CNG markets in Tennessee and how best to serve the
20 needs of those markets.

1 **Q. Pursuant to revised Rate Schedule No. 342 and new Rate Schedule 343,**
2 **does Piedmont intend to conduct any line of business other than CNG**
3 **services at its own facilities or a third-party facility?**

4 A. No, the Company does not conduct nor expect to conduct any line of business
5 other than CNG services at any of its own CNG station locations. If Piedmont
6 placed a station at a site owned and operated by a third-party, then other
7 commercial business may be conducted, but not by Piedmont.

8 **Q. Can you please explain the relationship between Piedmont's respective**
9 **requests for relief in Docket Nos. 14-00086 and 14-00087?**

10 A. Yes. In Docket No. 14-00087 we are proposing a restructuring of our CNG
11 service schedules to increase our flexibility to serve the CNG markets in
12 whatever form they manifest themselves. For example, under Rate Schedule
13 342, as revised, we will have the ability to provide end use retail CNG service
14 to members of the public fueling at stations where we own the compression and
15 dispensing equipment. Under new proposed Rate Schedule 343, we will have
16 the ability to serve customers who own their own compression and dispensing
17 equipment. This could range from circumstances where a residential customer
18 has slow-fill equipment in his garage at home to fuel a privately owned CNG
19 vehicle to small or large commercial/industrial fleet fueling stations maintained
20 by private corporations to CNG fueling equipment owned and operated by
21 independent motor vehicle fuel service stations or convenience stores. Under

1 proposed Rate Schedule 343, qualifying customers will also be able to transport
2 gas for use as CNG, which is something that is not provided for under existing
3 Rate Schedule 342. This is something that many larger commercial entities
4 desire.

5 **Q. Is it within the scope of Piedmont's regulated activities to provide the**
6 **types of services indicated in revised Rate Schedule 342 and new Rate**
7 **Schedule 343?**

8 A. Yes, as I've previously stated, Piedmont has provided CNG service to its
9 customers pursuant to the Authority approved Rate Schedule No. 342 since
10 2012. Further, T.C.A. section 65-5-103(d), the statute Piedmont referred to in
11 the Company's CNG Infrastructure Rider petition, specifically authorizes
12 alternative regulatory methods to allow for public utilities to recover expenses
13 associated with infrastructure and equipment targeted at alternative motor
14 vehicle transportation fuel. Clearly, the Tennessee lawmakers recognized the
15 need to facilitate infrastructure growth through regulated utilities to support the
16 spread of alternative fuel operations. It logically follows that it is within
17 Piedmont's regulatory purview to provide these types of CNG services.
18 Piedmont filed revised Rate Schedule 342 and new Rate Schedule 343 as
19 mechanisms to provide these services to retail and wholesale customers as well
20 as its CNG IR petition to recover some of the costs incurred to provide these

1 services, which will spur the increase in CNG use and drive economic growth in
2 the region.

3 **Q. Why are revised Rate Schedule 342 and new Rate Schedule 343 in the**
4 **public interest?**

5 A. As I've stated in my initial and supplemental testimony, these rate schedules are
6 targeted at facilitating the growth of CNG as an alternative motor vehicle fuel.
7 Increasing the availability of this alternative motor vehicle fuel to the public will
8 demonstrably reduce fuel costs to individuals and businesses adopting that fuel.
9 The increased savings by these individuals and companies, which will be local in
10 nature, will then be available for investment in other enterprises or for
11 consumption, thereby increasing economic opportunities within the area in
12 which these persons or companies operate. Expansion of natural gas as a motor
13 vehicle fuel will also reduce greenhouse gas emissions and diminish reliance on
14 foreign oil. All of these factors support a finding that Piedmont's proposed
15 tariff revisions are in the public interest.

16 **Q. Does this conclude your supplemental testimony in this proceeding?**

17 A. Yes.

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. Melvin J. Malone Butler Snow Suite 1600 150 Third Avenue South Nashville, TN 37201	Counsel for the Consumer Advocate and Protection Division of the Office of the Attorney General Wayne Irvin Assistant Attorney General Office of the Tennessee Attorney General Consumer Advocate and Protection Division P. O. Box 20207 Nashville, TN 37202-0207
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This the 31 day of October, 2014.

12.17 [Signature]