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January 17, 2018

*Via E-mail and  
Hand-Delivery*

The Honorable Earl Taylor  
Tennessee Public Utility Commission  
c/o Sharla Dillon  
502 Deaderick Street, Fourth Floor  
Nashville, Tennessee 37423



***Re: Petition of Piedmont Natural Gas Company, Inc. for Approval of an Integrity Management Rider to its Approved Rate Schedules and Service Regulations  
Docket No. 17-00138***

Dear Mr. Taylor:

Enclosed please find an original and five (5) copies of Piedmont Natural Gas Company Inc.'s ("Piedmont" or "Company") Testimony of Pia K. Powers in the above-captioned docket.

This material is also being filed today by way of email to the Tennessee Public Utility Commission docket manager, Sharla Dillon. Please file the original and four copies 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: Dan Whitaker, III (CPAD)  
Bruce Barkley  
Pia Powers  
Jim Jeffries, IV

**Before the  
Tennessee Public Utility Commission**

**Docket No. 17-00138**

**Petition of Piedmont Natural Gas Company, Inc.  
for Approval of an Integrity Management Rider to its  
Approved Rate Schedules and Service Regulations**

**Direct Testimony and Exhibit  
of  
Pia K. Powers**

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



**January 16, 2018**

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

2 A. My name is Pia K. Powers. My business address is 4720 Piedmont Row Drive,  
3 Charlotte, North Carolina.

4 **Q. By whom and in what capacity are you employed?**

5 A. I am the Director – Gas Rates & Regulatory Affairs for Piedmont Natural Gas  
6 Company, Inc., (“Piedmont” or the “Company”).

7 **Q. Please briefly describe your educational and professional background.**

8 A. I have a Bachelor of Arts degree in economics from Fairfield University and a  
9 Master of Science degree in environmental and resource economics from the  
10 University College London. From 1999 through 2003, I was employed as an  
11 Economist with the Energy Information Administration, the statistical agency  
12 of the U.S. Department of Energy, where I focused on international energy  
13 forecasting and environmental issues. I was hired by Piedmont as a Regulatory  
14 Analyst in 2003, promoted to Supervisor – Federal Regulatory in 2005, and  
15 promoted to Manager of Regulatory Affairs in 2006. In 2013, I was promoted  
16 to my current position as a Director.

17 **Q. Have you previously testified before the Tennessee Public Utility  
18 Commission or any other regulatory authority?**

19 A. Yes. I have presented testimony before the Tennessee Regulatory Authority  
20 (“TRA”), now the Tennessee Public Utility Commission (“TPUC” or  
21 “Commission”), the Public Service Commission of South Carolina, and the  
22 North Carolina Utilities Commission on a number of occasions.

23 **Q. What is the purpose of your testimony in this proceeding?**

1 A. The purpose of my testimony in this proceeding is to support Piedmont's 2017  
2 annual filing with the Commission under its previously approved Integrity  
3 Management Rider ("IMR") mechanism set forth in Service Schedule 317 of its  
4 Tennessee Tariffs. This annual filing ("2017 IMR Annual Report") was made  
5 by Piedmont on November 30, 2017 in Docket No. 17-00138.

6 **Q. Could you please explain the purpose of the IMR mechanism?**

7 A. Yes. The IMR mechanism is designed to provide a reasonable and effective  
8 means for Piedmont to begin recovering the costs associated with its integrity  
9 management capital investment since its most recent rate case. These costs are  
10 being incurred by the Company as a result of compliance with regulations for  
11 pipeline integrity and safety, namely transmission integrity management  
12 planning ("TIMP") and distribution integrity management planning ("DIMP")  
13 standards under Subparts O & P of Part 192 of the United States Department of  
14 Transportation regulations. The costs eligible for recovery through the IMR  
15 mechanism are costs that are not already included in the Company's current  
16 base rates, and therefore, absent the IMR mechanism, would not otherwise be  
17 eligible for recovery until the Company's next general rate case.

18 **Q. When and how was the IMR mechanism approved by the Commission?**

19 A. The IMR mechanism was initially approved by the TRA in Docket No. 13-  
20 00118 at the Conference held on December 18, 2013, with the written Order  
21 issued on May 13, 2014.

1 **Q. Is the IMR mechanism still in the public interest?**

2 A. Yes. This mechanism continues to create a partial and interim bridge between  
3 rate cases to recover the costs of new capital invested by the Company to  
4 comply with mandatory federal pipeline safety and reliability regulations. In  
5 approving the IMR mechanism, the TRA stated on page 9 of its May 13, 2014  
6 Order that the IMR mechanism was in the public interest because: 1) “it should  
7 eliminate the need for rate case filings in order to recover the costs associated  
8 with federal safety requirements”; 2) “it will also eliminate the recovery of the  
9 associated rate case legal expenses from ratepayers, thereby lessening the  
10 financial burden to ratepayers”; and 3) “the IMR mechanism will allow  
11 Piedmont to recover the funds necessary to repair and replace necessary plant in  
12 a timely manner which will result in a safe and reliable service to customers.” I  
13 do not believe any circumstances to this effect have changed since that TRA  
14 ruling. Indeed, having the IMR mechanism in place since January 1, 2014 has  
15 enabled Piedmont to avoid general rate cases that would otherwise have been  
16 necessary to place these critical system integrity management investments into  
17 rate base for recovery.

18 **Q. Can you provide a general description of the IMR mechanism and how it**  
19 **works?**

20 A. Yes. Under this mechanism, as is set forth in Service Schedule 317, the  
21 Company calculates an annual integrity management revenue requirement

1 (“IMRR”) based upon its actual amount of integrity management capital  
2 investment through the applicable period and then allocates that IMRR (plus  
3 the balance in the Company’s integrity management deferred account) across  
4 Piedmont’s customer classes using allocation factors and throughput levels  
5 established in Piedmont’s most recent rate case.<sup>1</sup> This calculation, which is  
6 performed once each year and reflected in Piedmont’s annual IMR report filing,  
7 results in a volumetric (i.e., per therm) customer surcharge referred to in the  
8 tariff as the “Integrity Management Adjustment.” This customer surcharge is  
9 effective for a twelve-month billing period beginning each January, then  
10 refreshed for the next twelve-month period based upon an updated calculation  
11 of the IMRR (and the updated integrity management deferred account balance).

12 At the time of Piedmont’s next general rate case, the Company’s net integrity  
13 management capital investment will be included in the calculation of base rates  
14 and the IMR mechanism will be reset to zero.<sup>2</sup>

15 **Q. Has Piedmont made any previous annual report filings under this IMR**  
16 **mechanism?**

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1 Pursuant to the IMR mechanism, Piedmont tracks the under-collection or over-collection of its annual integrity management revenue requirement, by month, through its integrity management deferred account. Therefore, the actual balance in the integrity management deferred account is incorporated into the calculation of the IMR customer surcharge.

2 In the Company’s next general rate case application, the net integrity management capital investment will be included in rate base. Any remaining balance in the Company’s integrity management deferred account at that time shall be included in the proposed cost of service, amortized for refund or recovery as applicable.

1 A. Yes. Piedmont has filed four previous IMR annual reports. Piedmont filed its  
2 first annual report on December 2, 2013, and it was approved by the TRA in  
3 Docket No. 13-00118. Piedmont filed its second annual report on December 1,  
4 2014, and it was approved by the TRA in Docket No. 14-00147. Piedmont  
5 filed its third annual report on November 30, 2015 and it was approved by the  
6 TRA in Docket No. 15-00116. Finally, Piedmont filed its fourth annual report  
7 on November 30, 2016 and it was approved by the TPUC in Docket No. 16-  
8 00140.

9 **Q. Does Piedmont provide any additional information to the Commission**  
10 **about its Integrity Management investments other than the annual report?**

11 A. Yes. In addition to the four previously filed annual reports and consistent with  
12 its tariff, Piedmont files ongoing monthly reports with the TPUC Staff  
13 regarding its actual integrity management investments and actual monthly  
14 integrity management deferred account activity and balance. The Company's  
15 annual IMR report filing simply aggregates the data provided in its monthly  
16 reports and, using that aggregated monthly data, shows the exact computation  
17 of the IMRR and proposed rate adjustments. The Consumer Advocate also  
18 receives copies of these monthly and annual reports.

19 **Q. Is that statement true with respect to the Company's 2017 IMR Annual**  
20 **Report filed November 30, 2017?**

21 A. Yes.

1 **Q. Were the proposed rate adjustments shown in Piedmont's 2017 IMR**  
2 **Annual Report calculated in a manner consistent with Piedmont's Service**  
3 **Schedule 317?**

4 A. Yes. We utilized the methodology set forth in our approved tariff to calculate  
5 the updated IMR rates (i.e., the updated Integrity Management Adjustment, by  
6 rate schedule).

7 **Q. Please briefly summarize what is reflected in the 2017 IMR Annual Report**  
8 **filing with the Commission.**

9 A. The 2017 IMR Annual Report reflects updated customer IMR rates based upon  
10 a total of \$231 million in integrity management capital investment by the  
11 Company. Of this amount, \$38.2 million is integrity management capital  
12 investment by the Company during the most recent annual investment period,  
13 which is the twelve-months ended October 31, 2017. None of this integrity  
14 management capital investment is reflected in Piedmont's current base rates.  
15 The updated customer rates shown in the 2017 IMR Annual Report were  
16 calculated in accordance with the procedures set forth in Piedmont's Service  
17 Schedule 317. Specifically, in following the methodology shown in the  
18 Company's IMR tariff, the \$231 million of integrity management capital  
19 investment yielded an IMRR of \$26.3 million for the annual rate period  
20 beginning January 1, 2018. The actual balance in the integrity management  
21 deferred account as of October 31, 2017 reflected a cumulative under-collection



1 of \$6.6 million. Since this deferred account balance is an amount due the  
2 Company, the \$6.6 million is combined with the IMRR of \$26.3 million for the  
3 purposes of computing the proposed IMR rates. Therefore, the proposed IMR  
4 rates in the 2017 IMR Annual Report were calculated upon an allocation of  
5 \$32.9 million across the various customer classes.

6 **Q. Do the federal tax changes recently enacted through the Tax Cuts and Job**  
7 **Act of 2017 (“Act”) have any bearing on the revenue requirement**  
8 **computations and rate changes as proposed in Piedmont’s 2017 IMR**  
9 **Annual Report?**

10 A. Yes. The Act, which was signed into law on December 22, 2017, does have  
11 some bearing on the Company’s 2017 IMR Annual Report. Specifically, a  
12 ramification of the decrease in the corporate federal tax rate from 35% to 21%  
13 pursuant to the Act is that it effectively lowers, on a pre-tax basis, the  
14 Company’s rate of return (“ROR”) from the Relevant Rate Order.<sup>3</sup> Had the  
15 IMRR and proposed IMR rates been computed in the Company’s 2017 IMR  
16 Annual Report in light of the decreased federal corporate income tax rate and  
17 its effect on the Company’s authorized Pre-Tax ROR, the proposed IMR rate  
18 increases would have been lower than those shown in the filed report.

19 **Q. Please explain in more detail.**

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3 The Relevant Rate Order is defined in the Company’s Service Schedule 317 and herein references the *Order Approving Settlement Rates* dated April 18, 2012 in Docket No. 11-00144.

1 A. A component to the calculation of the Company's revenue requirement,  
2 whether be it in a general rate case or in a rider mechanism such as the IMR, is  
3 consideration for the income tax effect. As delineated in section 3 of our  
4 approved Service Schedule 317, the computation of the IMRR incorporates  
5 several factors from the Company's last general rate case. One such factor is  
6 the "Pre-Tax ROR set forth in the Relevant Rate Order". The Relevant Rate  
7 Order for Piedmont clearly identifies the authorized overall rate of return as  
8 7.98%. In consideration of the state excise tax rate of 6.5% and the statutory  
9 federal corporate income tax rate of 35% in effect at that time, the Company's  
10 pre-tax ROR from the Relevant Rate Order was 11.446%. In each of its annual  
11 IMR reports to date, Piedmont appropriately computed its IMRR based on the  
12 11.446% pre-tax rate of return. The Act was signed in law on December 22,  
13 2017 for effect January 1, 2018 and thereafter. Now, in consideration of the  
14 21% corporate income tax rate from the Act, the Company's pre-tax ROR from  
15 the Relevant Rate Order is 9.878%. Had the Company's 2017 IMR Annual  
16 Report used a 9.878% pre-tax ROR, not 11.446%, the proposed IMRR for the  
17 annual period beginning January 1, 2018 would have been computed at \$23.4  
18 million, not \$26.3 million.

19 **Q. In light of the Act, are you recommending any changes to the proposed**  
20 **IMRR and IMR rates as filed in the Company's 2017 IMR annual report?**

1 A. Yes. Changes in federal tax law such as those included in the Act are often  
2 complex and require careful consideration. There is precedent for how to  
3 handle federal corporate income tax rate reductions in the context of regulated  
4 utility ratemaking. In the wake of the Tax Reform Act of 1986, which also  
5 significantly lowered the federal corporate income tax rate, I believe most state  
6 commissions ultimately required their regulated utilities – those under cost of  
7 service-based rate structures – to lower their customer billing rates in light of  
8 lower annual income tax expense (lower cost of service).<sup>4</sup> Considering that the  
9 Act has a direct bearing on the Company's federal income tax position for 2018  
10 and considering that the proposed IMR rates effective January 2018 are  
11 currently pending before the Commission, I think it is appropriate and  
12 administratively efficient to flow through the cost of service impact beginning  
13 with the IMR rates effective January 1, 2018. Therefore, I am recommending  
14 that the federal corporate income tax rate decrease to 21% be incorporated into  
15 the Company's IMRR effective January 1, 2018. The Company's proposed  
16 IMRR and IMR billing rates, as revised to adjust for the cost of service impact  
17 from the Act, are included in Exhibit A to my testimony.

18 **Q. Please briefly summarize what is reflected in Exhibit A.**

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4 The decrease in the income tax rate also gives rise to the creation of some excess accumulated deferred income taxes on the utility's balance sheet; however, that impact is typically and most efficiently addressed in the Company's next general rate case proceeding.

1 A. Exhibit A includes a revision to several schedules that were filed as part of the  
2 Company's 2017 IMR Annual Report. With respect to the integrity  
3 management capital investment by the Company since inception of the IMR,  
4 Exhibit A reflects the same integrity management capital investment amounts  
5 as mentioned earlier in my testimony – a total of \$231 million, of which \$38.2  
6 million is from the most recent IMR investment period covering the 12 months  
7 ended October 31, 2017. Based on a federal income tax rate of 21%, the \$231  
8 million of integrity management capital investment yields an IMRR of \$23.4  
9 million for the annual rate period beginning January 1, 2018. The revised  
10 proposed IMR rates herein are calculated upon an allocation of \$30.0 million  
11 across the various customer classes, which layers the \$6.6 million integrity  
12 management deferred account balance at October 31, 2017 onto the revised  
13 IMRR.

14 **Q. Are the proposed IMR rate adjustments, as revised herein to address the**  
15 **Act, calculated in a manner consistent with Piedmont's Service Schedule**  
16 **317?**

17 A. Yes. The computations shown in Exhibit A are still consistent the  
18 methodology set forth in our approved tariff to calculate the updated IMR rates  
19 (i.e., the updated Integrity Management Adjustment, by rate schedule); they are  
20 just adjusted to reflect the impact of the recent corporate tax rate change.

1 **Q. What is the impact to customer bills due to the proposed rate adjustments,**  
2 **as revised herein?**

3 A. The current IMR rates, as approved by the Commission in Docket No. 16-  
4 00140, were calculated upon an allocation of \$24.5 million across the various  
5 customer classes.<sup>5</sup> Accordingly, the approved IMR rate for residential  
6 customers was set at \$0.13124 per therm. In the Company's 2017 IMR annual  
7 report, as revised by the computations shown in Exhibit A, the proposed IMR  
8 rate for residential customers is \$0.16057 per therm, reflecting a proposed  
9 increase of \$0.02933 per therm. This proposed increase in the residential IMR  
10 rate will result in a monthly bill increase of \$1.80 on average for our typical  
11 residential customer, who uses approximately 735 therms of natural gas per  
12 year.

13 **Q. How does Piedmont propose to recover its IMRR from customers this**  
14 **year?**

15 A. Piedmont proposes to recover its IMRR this year in a manner consistent with  
16 how Piedmont was granted recovery of its IMRR in certain prior dockets –  
17 Docket Nos. 14-00147 and 16-00140. In these two dockets, the Commission's  
18 authorization of the proposed IMRR was issued at a date subsequent to the  
19 January 1<sup>st</sup> effective date as set forth in the Company's tariff. In the former

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5 The Company's 2016 IMR annual report showed an annual integrity management revenue requirement of \$23.1 million for the annual period beginning January 1, 2017. This revenue requirement was combined with an integrity management deferred account balance at October 31, 2016 of \$1.4 million, yielding a total annual IMR amount for recovery of \$24.5 million.

1 docket, the Company's 2014 IMR annual report was approved at the TRA's  
2 January 12, 2015 Conference and the TRA granted amortization of the IMRR  
3 beginning January 2015, consistent with the accounting process set forth in  
4 Service Schedule 317. The TRA approved the proposed IMR rate change  
5 effective February 1, 2015, which avoided a mid-month disruption to  
6 Piedmont's regular monthly customer billing cycles. A similar process was  
7 granted in Docket No. 16-00140 for implementation of the IMRR amortization  
8 and rate changes from the Company's 2016 IMR Annual Report. The IMRR  
9 proposed by the Company in its 2017 IMR annual report was to be effective for  
10 accounting and rate adjustment purposes on January 1, 2018. Piedmont  
11 proposes to maintain the amortization of the proposed IMRR for accounting  
12 purposes effective January 2018, consistent with the process set forth in Service  
13 Schedule 317. Piedmont proposes that the rate adjustments shown in Exhibit A  
14 herein be allowed to take effect for customer billing purposes starting with the  
15 month following a ruling by this Commission.

16 **Q. In summary, what are you asking the Commission to do in this**  
17 **proceeding?**

18 A. I am asking the Commission to take two actions. First, I am requesting that the  
19 Commission accept and approve the 2017 IMR Annual Report which includes  
20 the amortization of the updated IMRR effective January 1, 2018, as amended  
21 by the revised schedules included in Exhibit A herein. Second, I am requesting

1       that the proposed 2018 IMR rates, as set forth in Fifty-Sixth Revised Sheet No.  
2       1 in Exhibit A herein, be approved effective the month following issuance of  
3       the Commission's ruling in this docket.

4   **Q. Does this conclude your pre-filed direct testimony?**

5   A. Yes.

# **EXHIBIT A**



**Docket No. 17-00138**  
**Integrity Management Rider**  
**Revised Proposed Billing Rates for January 2018**

PIEDMONT NATURAL GAS COMPANY, INC  
Tennessee Service Territory  
Billing Rates Effective: January 1, 2018

Rate Schedule	Description	Tariff Rate Approved In Docket No. 11-00144	-----Cumulative PGA-----		Current Refund	-----Current ACA-----		Current IPA	Current IM Adjustment	Total Adj. Factor (Sum Col.2 thru Col.7)	Proposed Billing Rate (Col.1+Col.8)
		<1>	<2>	<3>	<4>	<5a>	<5b>	<6>	<7>	<8>	<9>
Residential 301 301	Monthly Charge-Nov.-Mar.	\$17.45									\$17.45
	Monthly Charge-Apr.-Oct.	\$13.45									\$13.45
	Nov.- Mar. per TH	0.32000	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.16057	0.57334	0.89334
	Apr.- Oct. per TH	0.27000	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.16057	0.57334	0.84334
Small General 302 302	Monthly Charge	\$44.00									\$44.00
	Nov.- Mar. per TH	0.35400	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.14027	0.55304	0.90704
	Apr.- Oct. per TH	0.30000	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.14027	0.55304	0.85304
Medium General 352 352	Monthly Charge	\$225.00									\$225.00
	Nov.- Mar. per TH	0.35400	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.14027	0.55304	0.90704
	Apr.- Oct. per TH	0.30000	0.07577	0.30997	0.00000	(0.00398)	0.02593	0.00508	0.14027	0.55304	0.85304
Experimental Motor Vehicle Fuel 343 343	Monthly Charge		varies by customer per their corresponding rate schedule								
	Nov.- Mar. per TH		varies by customer per their corresponding rate schedule								
	Apr.- Oct. per TH		varies by customer per their corresponding rate schedule								
303 Firm General Sales	Monthly Charge	\$800.00									\$800.00
	Demand Charge per TH	0.80000	0.82829		0.00000	(0.05401)				0.77428	1.57428
	First 15,000 TH/TH	0.09682		0.30997	0.00000		0.02593	0.00508	0.06230	0.40328	0.50010
	Next 25,000 TH/TH	0.08953		0.30997	0.00000		0.02593	0.00508	0.06230	0.40328	0.49281
	Next 50,000 TH/TH	0.06450		0.30997	0.00000		0.02593	0.00508	0.06230	0.40328	0.46778
	Over 90,000 TH/TH	0.02764		0.30997	0.00000		0.02593	0.00508	0.06230	0.40328	0.43092
304 Interruptible General Sales	Monthly Charge	\$800.00									\$800.00
	First 15,000 TH/TH	0.09682		0.30997	0.00000		0.02593	0.00508	0.01557	0.35655	0.45337
	Next 25,000 TH/TH	0.08953		0.30997	0.00000		0.02593	0.00508	0.01557	0.35655	0.44608
	Next 50,000 TH/TH	0.06450		0.30997	0.00000		0.02593	0.00508	0.01557	0.35655	0.42105
	Over 90,000 TH/TH	0.02764		0.30997	0.00000		0.02593	0.00508	0.01557	0.35655	0.38419
313 Firm Transportation	Monthly Charge	\$800.00									\$800.00
	Demand Charge per TH	0.80000	0.82829		0.00000	(0.05401)				0.77428	1.57428
	First 15,000 TH/TH	0.09682			0.00000				0.06230	0.06230	0.15912
	Next 25,000 TH/TH	0.08953			0.00000				0.06230	0.06230	0.15183
	Next 50,000 TH/TH	0.06450			0.00000				0.06230	0.06230	0.12680
	Over 90,000 TH/TH	0.02764			0.00000				0.06230	0.06230	0.08994
314 Interruptible Transportation	Monthly Charge	\$800.00									\$800.00
	First 15,000 TH/TH	0.09682			0.00000				0.01557	0.01557	0.11239
	Next 25,000 TH/TH	0.08953			0.00000				0.01557	0.01557	0.10510
	Next 50,000 TH/TH	0.06450			0.00000				0.01557	0.01557	0.08007
	Over 90,000 TH/TH	0.02764			0.00000				0.01557	0.01557	0.04321
310 Resale Service	Demand Charge per TH	0.80000	0.82829		0.00000	(0.05401)				0.77428	1.57428
	Commodity Charge	0.09000		0.30997	0.00000		0.02593	0.00508	0.06230	0.40328	0.49328

## NOTES:

1/ In accordance with the Tennessee Public Service Commission order in Docket U-7074 customers metered inside Davidson County are required to pay an additional 6.61% for collection of the Metro Franchise Fee. Customers served by the Ashland City, Fairview, Greenbrier, Hartsville, Mt. Juliet and White House systems are required to pay 5.0%. Customers served by the Franklin and Nolensville systems are required to pay 3%.

**Docket No. 17-00138**  
**Integrity Management Rider**  
**2017 Annual Report**  
**Revised Schedules**

**Computation of the Integrity Management Adjustment**

Line No.	Rider Rate Period	Reference	Residential (301)	Small/Medium General (302,352)	Large General - Firm (303,313,310)	Large General - Interruptible (304,314)	Total
<b>Jan 1 2018 -Dec 31 2018</b>							
1	Customer Class Apportionment Percent	[Schedule 4]	59.6439%	31.2006%	4.9463%	4.2091%	100.0000%
2	IMRR for Recovery, excluding Refund Adjustment	[= Total from Schedule 5 x Line 1]	\$ 13,950,563	\$ 7,297,742	\$ 1,156,936	\$ 984,507	\$ 23,389,748
3	Deferred Account Adjustment Due From (To) Customers	Actual Deferred Account Balance at Oct 31, 2017	\$ 3,920,909	\$ 2,051,084	\$ 325,165	\$ 276,703	\$ 6,573,862
4	Total Amount for Recovery in this Rider	[= Line 2 + Line 3]	\$ 17,871,472	\$ 9,348,827	\$ 1,482,101	\$ 1,261,210	\$ 29,963,610
5	Throughput from Relevant Rate Case Order (Dekatherms)	[Schedule 4]	11,130,214	6,664,958	2,378,880	8,098,027	28,272,079
6	Rate per Dekatherm	[= Line 4 / Line 5]	\$1.60570	\$1.40270	\$0.62300	\$0.15570	
7	<b>Proposed Integrity Management Rate per therm</b>	[= Line 6 / 10 ]	<b>\$0.16057</b>	<b>\$0.14027</b>	<b>\$0.06230</b>	<b>\$0.01557</b>	
<b>As previously approved:</b>							
<b>Jan 1 2017 -Dec 31 2017</b>							
8	Customer Class Apportionment Percent	[Schedule 4]	59.6439%	31.2006%	4.9463%	4.2091%	100.0000%
9	IMRR for Recovery, excluding Refund Adjustment	[= Total from Schedule 5 of 2016 Annual Report x Line 8]	\$ 13,746,705	\$ 7,191,101	\$ 1,140,029	\$ 970,121	\$ 23,047,956
10	Deferred Account Adjustment	Actual Deferred Account Balance at Oct 31, 2016	\$ 860,834	\$ 450,315	\$ 71,390	\$ 60,750	\$ 1,443,289
11	Total Amount for Recovery in this Rider	[= Line 9 + Line 10]	\$ 14,607,539	\$ 7,641,416	\$ 1,211,419	\$ 1,030,871	\$ 24,491,245
12	Throughput from Relevant Rate Case Order (Dekatherms)	[Schedule 4]	11,130,214	6,664,958	2,378,880	8,098,027	28,272,079
13	Rate per Dekatherm	[= Line 11 / Line 12]	\$1.31240	\$1.14650	\$0.50920	\$0.12730	
14	<b>Proposed Integrity Management Rate per therm</b>	[= Line 13 / 10 ]	<b>\$0.13124</b>	<b>\$0.11465</b>	<b>\$0.05092</b>	<b>\$0.01273</b>	

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
State of Tennessee  
TPUC Docket No. 17-00138

2017 IMR Annual Report  
REVISED - Schedule 5

Summary of IMRR Computation

Line No.	Vintage Year	Rate Period	Rate Period
		Jan 1 2017 - Dec 31 2017	Jan 1 2018 - Dec 31 2018
1	Vintage 1	\$ 13,060,485	\$ 11,053,279
2	Vintage 2	5,781,344	4,922,199
3	Vintage 3	1,984,957	1,723,556
4	Vintage 4	2,221,171	1,924,902
5	Vintage 5	n/a	3,765,812
6	Total	<u>23,047,956</u>	<u>23,389,748</u>
7	<b>Total IMRR, excluding IM Deferred Account Adjustment</b>	<b><u>\$ 23,047,956</u></b>	<b><u>\$ 23,389,748</u></b>

Spread of Total IMRR, excluding IM Deferred Adjustment, by Month

8	January	\$ 3,968,988	\$ 4,027,846
9	February	3,776,923	3,832,933
10	March	2,851,854	2,894,146
11	April	1,842,916	1,870,246
12	May	1,166,798	1,184,102
13	June	826,224	838,477
14	July	769,291	780,699
15	August	775,305	786,803
16	September	776,117	787,627
17	October	1,104,272	1,120,648
18	November	2,002,042	2,031,731
19	December	<u>3,187,226</u>	<u>3,234,492</u>
20	Total	<b><u>\$ 23,047,956</u></b>	<b><u>\$ 23,389,748</u></b>

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
State of Tennessee  
TPUC Docket No. 17-00138

**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 1 - March 1, 2012 thru October 31, 2013**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Plant	100,306,283	100,306,283	100,306,283	100,306,283	100,306,283
Accumulated depreciation	(974,476)	(2,428,917)	(3,883,358)	(5,337,799)	(6,792,240)
Net plant	99,331,807	97,877,366	96,422,925	94,968,484	93,514,043
ADIT	(4,057,566)	(6,977,762)	(9,549,872)	(24,529,845)	(25,236,572)
NOL benefit	-	-	-	24,529,845	21,449,590
Net investment	95,274,242	90,899,604	86,873,053	94,968,484	89,727,060
Pre-tax ROR%	11.446%	11.446%	11.446%	11.446%	9.878%
Pre-tax rate of return	10,904,782	10,404,075	9,943,209	10,869,786	8,863,198
Depreciation expense	1,454,441	1,454,441	1,454,441	1,454,441	1,454,441
Property Tax expense	732,236	732,236	732,236	732,236	732,236
Total, excluding uncollectibles	13,091,459	12,590,752	12,129,886	13,056,463	11,049,875
Uncollectibles gross-up factor	1.000308	1.000308	1.000308	1.000308	1.000308
Total revenue requirement	13,095,492	12,594,631	12,133,623	13,060,485	11,053,279
<u>Assumptions and calculations:</u>					
Rider computed each year.					
Normal depreciation and AFUDC practices apply, AFUDC ends and depreciation begins when plant goes into service.					
Net of tax rate of return	6.96%	6.96%	6.96%	6.96%	7.30%

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
State of Tennessee  
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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 1 - March 1, 2012 thru October 31, 2013**

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		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Plant amount	100,306,283					
Book depreciation rate	1.45%					
Property Tax Rate	0.73%					
Tax depreciation	MACRS 15 Years 1 - 3					
Tax depreciation	BONUS 50% Years 4 - 5					
Plant in service date for this Vintage	31-Oct-13					
Original Rider effective date for this Vintage	1-Jan-14					
Fiscal year end for this Vintage	31-Oct-13					
SIT rate		6.50%	6.50%	6.50%	6.50%	6.50%
FIT rate		35.00%	35.00%	35.00%	35.00%	21.00%
Composite income tax rate		39.23%	39.23%	39.23%	39.23%	26.14%
Uncollectibles rate		0.0308%	0.0308%	0.0308%	0.0308%	0.0308%
Revenue requirement gross-up factor		1.000308	1.000308	1.000308	1.000308	1.000308
<u>Capital structure assumptions (rate case):</u>						
LTD	41.42%					
STD	5.87%					
Common equity	52.71%					
<u>Capital cost rate assumptions (rate case):</u>						
LTD	6.05%					
STD	1.59%					
Common equity	10.20%					
<u>Overall and pre-tax RORs</u>						
	<u>Overall</u>	<u>Pre-tax RORs</u>				
LTD	2.506%	2.506%	2.506%	2.506%	2.506%	2.506%
STD	0.093%	0.093%	0.093%	0.093%	0.093%	0.093%
Common equity	5.376%	8.846%	8.846%	8.846%	8.846%	7.279%
Total	7.976%	11.446%	11.446%	11.446%	11.446%	9.878%

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
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**Annual Revenue Requirement Computation**  
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**Vintage Year 1 - March 1, 2012 thru October 31, 2013**

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**Tax depreciation schedule**

Rate	MACRS 15		BONUS 50%	
	Yearly	Cumulative	Yearly	Cumulative
Tax year 1	5.00%	5,015,314	52,660,799	
Tax year 2	9.50%	9,529,097	4,764,548	57,425,347
Tax year 3	8.55%	8,576,187	4,288,094	61,713,441
Tax year 4	7.70%	7,723,584	3,861,792	65,575,233
Tax year 5	6.93%	6,951,225	3,475,613	69,050,845
Tax year 6	6.23%	6,249,081	3,124,541	72,175,386
Tax year 7	5.90%	5,918,071	2,959,035	75,134,421
Tax year 8	5.90%	5,918,071	2,959,035	78,093,457
Tax year 9	5.91%	5,928,101	2,964,051	81,057,507
Tax year 10	5.90%	5,918,071	2,959,035	84,016,543
Tax year 11	5.91%	5,928,101	2,964,051	86,980,593
Tax year 12	5.90%	5,918,071	2,959,035	89,939,629
Tax year 13	5.91%	5,928,101	2,964,051	92,903,679
Tax year 14	5.90%	5,918,071	2,959,035	95,862,715
Tax year 15	5.91%	5,928,101	2,964,051	98,826,765
Tax year 16	2.95%	2,959,035	1,479,518	100,306,283
Total	100.00%	100,306,283	100,306,283	

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Accumulated depreciation					
Portion of year in service before rider	17%				
Pre-rider amount of depreciation	247,255				
Rider year BOY amount	247,255	1,701,696	3,156,137	4,610,578	6,065,019
Depreciation expense	1,454,441	1,454,441	1,454,441	1,454,441	1,454,441
Rider year EOY amount	1,701,696	3,156,137	4,610,578	6,065,019	7,519,461
Average accumulated depreciation	974,476	2,428,917	3,883,358	5,337,799	6,792,240



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**Vintage Year 1 - March 1, 2012 thru October 31, 2013**

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<b>MACRS 15</b>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
<u>Tax depreciation reserve</u>						
FY of completion tax depreciation	5,015,314					
Post FY tax depreciation to rider date	17%					
Tax year 2 tax depreciation	9,529,097					
Tax year 2 pre-rider tax depr	1,619,946					
Rider year BOY amount		6,635,261	16,002,363	24,433,607	32,025,890	38,857,751
Tax period A tax depreciation		7,909,150	7,118,235	6,410,575	5,769,517	5,186,738
Tax period B tax depreciation		1,457,952	1,313,009	1,181,708	1,062,344	1,006,072
Rider year EOY amount		16,002,363	24,433,607	32,025,890	38,857,751	45,050,561
Average tax depreciation reserve		11,318,812	20,217,985	28,229,749	35,441,821	41,954,156
Note - gap between fiscal year and rider year addressed by tax period A and tax period B.						
<u>Accumulated deferred taxes</u>						
Average tax depreciation reserve		11,318,812	20,217,985	28,229,749	35,441,821	41,954,156
Average book depreciation reserve		974,476	2,428,917	3,883,358	5,337,799	6,792,240
Difference		10,344,336	17,789,069	24,346,391	30,104,022	35,161,916
Composite tax rate w 35% FIT rate		39.23%	39.23%	39.23%	39.23%	39.23%
Average ADIT		4,057,566	6,977,762	9,549,872	11,808,303	13,792,262
Note - composite tax rate ignores excess deferred tax flowback						
<b><u>BONUS 50%</u></b>						
<u>Tax depreciation reserve</u>						
FY of completion tax depreciation	52,660,799					
Post FY tax depreciation to rider date	17%					
Tax year 2 tax depreciation	4,764,548					
Tax year 2 pre-rider tax depr	809,973					
Rider year BOY amount		53,470,772	58,154,323	62,369,945	66,166,087	69,582,017
Tax period A tax depreciation		3,954,575	3,559,118	3,205,287	2,884,759	2,593,369
Tax period B tax depreciation		728,976	656,505	590,854	531,172	503,036
Rider year EOY amount		58,154,323	62,369,945	66,166,087	69,582,017	72,678,422
Average tax depreciation reserve		55,812,547	60,262,134	64,268,016	67,874,052	71,130,220
<u>Accumulated deferred taxes</u>						
Average tax depreciation reserve		55,812,547	60,262,134	64,268,016	67,874,052	71,130,220
Average book depreciation reserve		974,476	2,428,917	3,883,358	5,337,799	6,792,240
Difference		54,838,072	57,833,217	60,384,658	62,536,253	64,337,980
Tax difference balance		54,838,072	57,833,217	60,384,658	62,536,253	64,337,980
Composite tax rate w 35% FIT rate		39.23%	39.23%	39.23%	39.23%	39.23%
Average ADIT		21,510,234	22,685,080	23,685,882	24,529,845	25,236,572

Piedmont Natural Gas Company, Inc.  
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**Vintage Year 2 - November 1, 2013 thru October 31, 2014**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Plant	53,974,676	53,974,676	53,974,676	53,974,676
Accumulated depreciation	(524,364)	(1,306,997)	(2,089,630)	(2,872,262)
Net plant	53,450,312	52,667,679	51,885,047	51,102,414
ADIT	(2,183,371)	(3,754,724)	(12,745,341)	(13,199,477)
NOL benefit			1,075,611	-
Net investment	51,266,941	48,912,955	40,215,316	37,902,937
Pre-tax ROR%	11.446%	11.446%	11.446%	9.878%
Pre-tax rate of return	5,867,848	5,598,419	4,602,915	3,744,035
Depreciation expense	782,633	782,633	782,633	782,633
Property Tax expense	394,015	394,015	394,015	394,015
Total, excluding uncollectibles	7,044,496	6,775,067	5,779,563	4,920,683
Uncollectibles gross-up factor	1.000308	1.000308	1.000308	1.000308
Total revenue requirement	7,046,667	6,777,154	5,781,344	4,922,199
<u>Assumptions and calculations:</u>				
Rider computed each year.				
Normal depreciation and AFUDC practices apply, AFUDC ends and depreciation begins when plant goes into service.				
Net of tax rate of return	6.96%	6.96%	6.96%	7.30%

Piedmont Natural Gas Company, Inc.  
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**Annual Revenue Requirement Computation**  
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**Vintage Year 2 - November 1, 2013 thru October 31, 2014**

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	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Plant amount	53,974,676			
Book depreciation rate	1.45%			
Property Tax Rate	0.73%			
Tax depreciation	MACRS 15 Years 1 - 2			
Tax depreciation	BONUS 50% Years 3 - 4			
Plant in service date for this Vintage	31-Oct-14			
Original Rider effective date for this Vintage	1-Jan-15			
Fiscal year end for this Vintage	31-Oct-14			
SIT rate	6.50%	6.50%	6.50%	6.50%
FIT rate	35.00%	35.00%	35.00%	21.00%
Composite income tax rate	39.23%	39.23%	39.23%	26.14%
Uncollectibles rate	0.0308%	0.0308%	0.0308%	0.0308%
Revenue requirement gross-up factor	1.000308	1.000308	1.000308	1.000308
<u>Capital structure assumptions (rate case):</u>				
LTD	41.42%			
STD	5.87%			
Common equity	52.71%			
<u>Capital cost rate assumptions (rate case):</u>				
LTD	6.05%			
STD	1.59%			
Common equity	10.20%			
<u>Overall and pre-tax RORs</u>				
	<u>Overall</u>	<u>Pre-tax RORs</u>		
LTD	2.506%	2.506%	2.506%	2.506%
STD	0.093%	0.093%	0.093%	0.093%
Common equity	5.376%	8.846%	8.846%	7.279%
Total	7.976%	11.446%	11.446%	9.878%

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**Annual Revenue Requirement Computation**  
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**Vintage Year 2 - November 1, 2013 thru October 31, 2014**

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**Tax depreciation schedule**

	Rate	MACRS 15		BONUS 50%	
		Yearly	Cumulative	Yearly	Cumulative
Tax year 1	5.00%	2,698,734		28,336,705	
Tax year 2	9.50%	5,127,594	7,826,328	2,563,797	30,900,502
Tax year 3	8.55%	4,614,835	12,441,163	2,307,417	33,207,920
Tax year 4	7.70%	4,156,050	16,597,213	2,078,025	35,285,945
Tax year 5	6.93%	3,740,445	20,337,658	1,870,223	37,156,167
Tax year 6	6.23%	3,362,622	23,700,280	1,681,311	38,837,478
Tax year 7	5.90%	3,184,506	26,884,786	1,592,253	40,429,731
Tax year 8	5.90%	3,184,506	30,069,292	1,592,253	42,021,984
Tax year 9	5.91%	3,189,903	33,259,195	1,594,952	43,616,936
Tax year 10	5.90%	3,184,506	36,443,701	1,592,253	45,209,189
Tax year 11	5.91%	3,189,903	39,633,605	1,594,952	46,804,140
Tax year 12	5.90%	3,184,506	42,818,111	1,592,253	48,396,393
Tax year 13	5.91%	3,189,903	46,008,014	1,594,952	49,991,345
Tax year 14	5.90%	3,184,506	49,192,520	1,592,253	51,583,598
Tax year 15	5.91%	3,189,903	52,382,423	1,594,952	53,178,550
Tax year 16	2.95%	1,592,253	53,974,676	796,126	53,974,676
Total	100.00%	53,974,676		53,974,676	

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Accumulated depreciation				
Portion of year in service before rider	17%			
Pre-rider amount of depreciation	133,048			
Rider year BOY amount	133,048	915,680	1,698,313	2,480,946
Depreciation expense	782,633	782,633	782,633	782,633
Rider year EOY amount	915,680	1,698,313	2,480,946	3,263,579
Average accumulated depreciation	524,364	1,306,997	2,089,630	2,872,262

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**Vintage Year 2 - November 1, 2013 thru October 31, 2014**

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<b>MACRS 15</b>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
<u>Tax depreciation reserve</u>					
FY of completion tax depreciation	2,698,734				
Post FY tax depreciation to rider date	17%				
Tax year 2 tax depreciation	5,127,594				
Tax year 2 pre-rider tax depr	871,691				
Rider year BOY amount		3,570,425	8,610,850	13,147,691	17,233,089
Tax period A tax depreciation		4,255,903	3,830,313	3,449,522	3,104,569
Tax period B tax depreciation		784,522	706,529	635,876	571,646
Rider year EOY amount		8,610,850	13,147,691	17,233,089	20,909,304
Average tax depreciation reserve		6,090,637	10,879,271	15,190,390	19,071,196
Note - gap between fiscal year and rider year addressed by tax period A and tax period B.					
<u>Accumulated deferred taxes</u>					
Average tax depreciation reserve		6,090,637	10,879,271	15,190,390	19,071,196
Average book depreciation reserve		524,364	1,306,997	2,089,630	2,872,262
Difference		5,566,273	9,572,274	13,100,760	16,198,934
Composite tax rate w 35% FIT rate		39.23%	39.23%	39.23%	39.23%
Average ADIT		2,183,371	3,754,724	5,138,773	6,354,032
Note - composite tax rate ignores excess deferred tax flowback					
<b>BONUS 50%</b>					
<u>Tax depreciation reserve</u>					
FY of completion tax depreciation	28,336,705				
Post FY tax depreciation to rider date	17%				
Tax year 2 tax depreciation	2,563,797				
Tax year 2 pre-rider tax depr	435,846				
Rider year BOY amount		28,772,551	31,292,763	33,561,184	35,603,882
Tax period A tax depreciation		2,127,952	1,915,156	1,724,761	1,552,285
Tax period B tax depreciation		392,261	353,264	317,938	285,823
Rider year EOY amount		31,292,763	33,561,184	35,603,882	37,441,990
Average tax depreciation reserve		30,032,657	32,426,973	34,582,533	36,522,936
<u>Accumulated deferred taxes</u>					
Average tax depreciation reserve		30,032,657	32,426,973	34,582,533	36,522,936
Average book depreciation reserve		524,364	1,306,997	2,089,630	2,872,262
Difference		29,508,293	31,119,977	32,492,903	33,650,674
Tax difference balance		29,508,293	31,119,977	32,492,903	33,650,674
Composite tax rate w 35% FIT rate		39.23%	39.23%	39.23%	39.23%
Average ADIT		11,574,628	12,206,811	12,745,341	13,199,477

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**Vintage Year 3 - November 1, 2014 thru October 31, 2015**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Plant	18,441,896	18,441,896	18,441,896
Accumulated depreciation	(179,163)	(446,571)	(713,978)
Net plant	18,262,733	17,995,326	17,727,918
ADIT	(746,007)	(4,170,784)	(4,354,788)
NOL benefit	-	-	-
Net investment	17,516,726	13,824,541	13,373,130
Pre-tax ROR%	11.446%	11.446%	9.878%
Pre-tax rate of return	2,004,908	1,582,312	1,320,992
Depreciation expense	267,407	267,407	267,407
Property Tax expense	134,626	134,626	134,626
Total, excluding uncollectibles	2,406,941	1,984,346	1,723,025
Uncollectibles gross-up factor	1.000308	1.000308	1.000308
Total revenue requirement	2,407,683	1,984,957	1,723,556
<u>Assumptions and calculations:</u>			
Rider computed each year.			
Normal depreciation and AFUDC practices apply, AFUDC ends and depreciation begins when plant goes into service.			
Net of tax rate of return	6.96%	6.96%	7.30%

**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 3 - November 1, 2014 thru October 31, 2015**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Plant amount	18,441,896		
Book depreciation rate	1.45%		
Property Tax Rate	0.73%		
Tax depreciation	MACRS 15 Year 1		
Tax depreciation	BONUS 50% Years 2 - 3		
Plant in service date for this Vintage	31-Oct-15		
Original Rider effective date for this Vintage	1-Jan-16		
Fiscal year end for this Vintage	31-Oct-15		
SIT rate	6.50%	6.50%	6.50%
FIT rate	35.00%	35.00%	21.00%
Composite income tax rate	39.23%	39.23%	26.14%
Uncollectibles rate	0.0308%	0.0308%	0.0308%
Revenue requirement gross-up factor	1.000308	1.000308	1.000308
<u>Capital structure assumptions (rate case):</u>			
LTD	41.42%		
STD	5.87%		
Common equity	52.71%		
<u>Capital cost rate assumptions (rate case):</u>			
LTD	6.05%		
STD	1.59%		
Common equity	10.20%		
<u>Overall and pre-tax RORs</u>			
	<u>Overall</u>	<u>Pre-tax RORs</u>	
LTD	2.506%	2.506%	2.506%
STD	0.093%	0.093%	0.093%
Common equity	5.376%	8.846%	7.279%
Total	7.976%	11.446%	9.878%

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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 3 - November 1, 2014 thru October 31, 2015**

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**Tax depreciation schedule**

	Rate	MACRS 15		BONUS 50%	
		Yearly	Cumulative	Yearly	Cumulative
Tax year 1	5.00%	922,095		9,681,995	
Tax year 2	9.50%	1,751,980	2,674,075	875,990	10,557,986
Tax year 3	8.55%	1,576,782	4,250,857	788,391	11,346,377
Tax year 4	7.70%	1,420,026	5,670,883	710,013	12,056,390
Tax year 5	6.93%	1,278,023	6,948,906	639,012	12,695,401
Tax year 6	6.23%	1,148,930	8,097,837	574,465	13,269,866
Tax year 7	5.90%	1,088,072	9,185,908	544,036	13,813,902
Tax year 8	5.90%	1,088,072	10,273,980	544,036	14,357,938
Tax year 9	5.91%	1,089,916	11,363,896	544,958	14,902,896
Tax year 10	5.90%	1,088,072	12,451,968	544,036	15,446,932
Tax year 11	5.91%	1,089,916	13,541,884	544,958	15,991,890
Tax year 12	5.90%	1,088,072	14,629,956	544,036	16,535,926
Tax year 13	5.91%	1,089,916	15,719,872	544,958	17,080,884
Tax year 14	5.90%	1,088,072	16,807,944	544,036	17,624,920
Tax year 15	5.91%	1,089,916	17,897,860	544,958	18,169,878
Tax year 16	2.95%	544,036	18,441,896	272,018	18,441,896
Total	100.00%	18,441,896		18,441,896	

Accumulated depreciation  
Portion of year in service before rider  
Pre-rider amount of depreciation  
Rider year BOY amount  
Depreciation expense  
Rider year EOY amount  
Average accumulated depreciation

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
17%			
45,459			
	45,459	312,867	580,274
	267,407	267,407	267,407
	312,867	580,274	847,682
	179,163	446,571	713,978



Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
State of Tennessee  
TPUC Docket No. 17-00138

**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 3 - November 1, 2014 thru October 31, 2015**

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**MACRS 15**

Tax depreciation reserve

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
FY of completion tax depreciation	922,095		
Post FY tax depreciation to rider date	17%		
Tax year 2 tax depreciation	1,751,980		
Tax year 2 pre-rider tax depr	297,837		
Rider year BOY amount	1,219,931	2,942,128	4,492,261
Tax period A tax depreciation	1,454,144	1,308,729	1,178,622
Tax period B tax depreciation	268,053	241,404	217,264
Rider year EOY amount	2,942,128	4,492,261	5,888,147
Average tax depreciation reserve	2,081,030	3,717,195	5,190,204

Note - gap between fiscal year and rider year addressed by tax period A and tax period B.

Accumulated deferred taxes

Average tax depreciation reserve	2,081,030	3,717,195	5,190,204
Average book depreciation reserve	179,163	446,571	713,978
Difference	1,901,867	3,270,624	4,476,226
Composite tax rate w 35% FIT rate	39.23%	39.23%	39.23%
Average ADIT	746,007	1,282,902	1,755,800

Note - composite tax rate ignores excess deferred tax flowback

**BONUS 50%**

Tax depreciation reserve

FY of completion tax depreciation	9,681,995		
Post FY tax depreciation to rider date	17%		
Tax year 2 tax depreciation	875,990		
Tax year 2 pre-rider tax depr	148,918		
Rider year BOY amount	9,830,914	10,692,012	11,467,079
Tax period A tax depreciation	727,072	654,365	589,311
Tax period B tax depreciation	134,026	120,702	108,632
Rider year EOY amount	10,692,012	11,467,079	12,165,022
Average tax depreciation reserve	10,261,463	11,079,545	11,816,050

Accumulated deferred taxes

Average tax depreciation reserve	10,261,463	11,079,545	11,816,050
Average book depreciation reserve	179,163	446,571	713,978
Difference	10,082,300	10,632,975	11,102,072
Tax difference balance	10,082,300	10,632,975	11,102,072
Composite tax rate w 35% FIT rate	39.23%	39.23%	39.23%
Average ADIT	3,954,782	4,170,784	4,354,788

Piedmont Natural Gas Company, Inc.  
 Integrity Management Rider  
 State of Tennessee  
 TPUC Docket No. 17-00138

**Annual Revenue Requirement Computation****Rider Rate Period: January 1, 2018 - December 31, 2018****Vintage Year 4 - November 1, 2015 thru October 31, 2016**

	<u>Year 1</u>	<u>Year 2</u>
Plant	20,076,718	20,076,718
Accumulated depreciation	(195,045)	(486,158)
Net plant	19,881,673	19,590,560
ADIT	(4,305,362)	(4,540,513)
NOL benefit	-	-
Net investment	15,576,310	15,050,048
Pre-tax ROR%	11.446%	9.878%
Pre-tax rate of return	1,782,814	1,486,637
Depreciation expense	291,112	291,112
Property Tax expense	146,560	146,560
Total, excluding uncollectibles	2,220,487	1,924,309
Uncollectibles gross-up factor	1.000308	1.000308
Total revenue requirement	<b>2,221,171</b>	<b>1,924,902</b>
<u>Assumptions and calculations:</u>		
Rider computed each year.		
Normal depreciation and AFUDC practices apply, AFUDC ends and depreciation begins when plant goes into service.		
Net of tax rate of return	6.96%	7.30%

Piedmont Natural Gas Company, Inc.  
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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 4 - November 1, 2015 thru October 31, 2016**

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	<u>Year 1</u>	<u>Year 2</u>
Plant amount	20,076,718	
Book depreciation rate	1.45%	
Property Tax Rate	0.73%	
Tax depreciation	BONUS 50% Years 1 - 2	
Plant in service date for this Vintage	31-Oct-16	
Original Rider effective date for this Vintage	1-Jan-17	
Fiscal year end for this Vintage	31-Oct-16	
SIT rate	6.50%	6.50%
FIT rate	35.00%	21.00%
Composite income tax rate	39.23%	26.14%
Uncollectibles rate	0.0308%	0.0308%
Revenue requirement gross-up factor	1.000308	1.000308
<u>Capital structure assumptions (rate case):</u>		
LTD	41.42%	
STD	5.87%	
Common equity	52.71%	
<u>Capital cost rate assumptions (rate case):</u>		
LTD	6.05%	
STD	1.59%	
Common equity	10.20%	
<u>Overall and pre-tax RORs</u>		
	<u>Overall</u>	<u>Pre-tax RORs</u>
LTD	2.506%	2.506%
STD	0.093%	0.093%
Common equity	5.376%	8.846%
Total	7.976%	11.446%
		9.878%

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 4 - November 1, 2015 thru October 31, 2016**

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**MACRS 15 tax depreciation schedule**

	<b>MACRS 15</b>		<b>BONUS 50%</b>	
	Yearly	Cumulative	Yearly	Cumulative
Tax year 1	5.00%	1,003,836	10,540,277	
Tax year 2	9.50%	1,907,288	953,644	11,493,921
Tax year 3	8.55%	1,716,559	858,280	12,352,201
Tax year 4	7.70%	1,545,907	772,954	13,125,154
Tax year 5	6.93%	1,391,317	695,658	13,820,813
Tax year 6	6.23%	1,250,780	625,390	14,446,202
Tax year 7	5.90%	1,184,526	592,263	15,038,466
Tax year 8	5.90%	1,184,526	592,263	15,630,729
Tax year 9	5.91%	1,186,534	593,267	16,223,996
Tax year 10	5.90%	1,184,526	592,263	16,816,259
Tax year 11	5.91%	1,186,534	593,267	17,409,526
Tax year 12	5.90%	1,184,526	592,263	18,001,789
Tax year 13	5.91%	1,186,534	593,267	18,595,056
Tax year 14	5.90%	1,184,526	592,263	19,187,319
Tax year 15	5.91%	1,186,534	593,267	19,780,586
Tax year 16	2.95%	592,263	296,132	20,076,718
Total	100.00%	20,076,718	20,076,718	

Accumulated depreciation  
Portion of year in service before rider  
Pre-rider amount of depreciation  
Rider year BOY amount  
Depreciation expense  
Rider year EOY amount  
Average accumulated depreciation

	<u>Year 1</u>	<u>Year 2</u>
17%		
49,489		
	49,489	340,602
	291,112	291,112
	340,602	631,714
	195,045	486,158

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
State of Tennessee  
TPUC Docket No. 17-00138

**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 4 - November 1, 2015 thru October 31, 2016**

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<b>MACRS 15</b>			
<u>Tax depreciation reserve</u>		<u>Year 1</u>	<u>Year 2</u>
FY of completion tax depreciation	1,003,836		
Post FY tax depreciation to rider date	17%		
Tax year 2 tax depreciation	1,907,288		
Tax year 2 pre-rider tax depr	324,239		
Rider year BOY amount		1,328,075	3,202,939
Tax period A tax depreciation		1,583,049	1,424,744
Tax period B tax depreciation		291,815	262,804
Rider year EOY amount		3,202,939	4,890,488
Average tax depreciation reserve		2,265,507	4,046,713
Note - gap between fiscal year and rider year addressed by tax period A and tax period B.			
<u>Accumulated deferred taxes</u>			
Average tax depreciation reserve		2,265,507	4,046,713
Average book depreciation reserve		195,045	486,158
Difference		2,070,462	3,560,556
Composite tax rate w 35% FIT rate		39.23%	39.23%
Average ADIT		812,139	1,396,628
Note - composite tax rate ignores excess deferred tax flowback			
<b>BONUS 50%</b>			
<u>Tax depreciation reserve</u>			
FY of completion tax depreciation	10,540,277		
Post FY tax depreciation to rider date	17%		
Tax year 2 tax depreciation	953,644		
Tax year 2 pre-rider tax depr	162,119		
Rider year BOY amount		10,702,396	11,639,829
Tax period A tax depreciation		791,525	712,372
Tax period B tax depreciation		145,908	131,402
Rider year EOY amount		11,639,829	12,483,603
Average tax depreciation reserve		11,171,113	12,061,716
<u>Accumulated deferred taxes</u>			
Average tax depreciation reserve		11,171,113	12,061,716
Average book depreciation reserve		195,045	486,158
Difference		10,976,067	11,575,558
Tax difference balance		10,976,067	11,575,558
Composite tax rate w 35% FIT rate		39.23%	39.23%
Average ADIT		4,305,362	4,540,513

Piedmont Natural Gas Company, Inc.  
 Integrity Management Rider  
 State of Tennessee  
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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 5 - November 1, 2016 thru October 31, 2017**

	<u>Year 1</u>
Plant	38,244,253
Accumulated depreciation	(371,543)
Net plant	37,872,710
ADIT	(8,201,309)
NOL benefit	-
Net investment	29,671,401
Pre-tax ROR%	9.878%
Pre-tax rate of return	2,930,927
Depreciation expense	554,542
Property Tax expense	279,183
Total, excluding uncollectibles	3,764,652
Uncollectibles gross-up factor	1.000308
Total revenue requirement	<b>3,765,812</b>
<u>Assumptions and calculations:</u>	
Rider computed each year.	
Normal depreciation and AFUDC practices apply, AFUDC ends and depreciation begins when plant goes into service.	
Net of tax rate of return	7.30%

Piedmont Natural Gas Company, Inc.  
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**Annual Revenue Requirement Computation**  
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**Vintage Year 5 - November 1, 2016 thru October 31, 2017**

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		<u>Year 1</u>
Plant amount	38,244,253	
Book depreciation rate	1.45%	
Property Tax Rate	0.73%	
Tax depreciation	BONUS 50%	
Plant in service date for this Vintage	31-Oct-17	
Original Rider effective date for this Vintage	1-Jan-18	
Fiscal year end for this Vintage	31-Oct-17	
SIT rate		6.50%
FIT rate		21.00%
Composite income tax rate		26.14%
Uncollectibles rate		0.0308%
Revenue requirement gross-up factor		1.000308
<u>Capital structure assumptions (rate case):</u>		
LTD	41.42%	
STD	5.87%	
Common equity	52.71%	
<u>Capital cost rate assumptions (rate case):</u>		
LTD	6.05%	
STD	1.59%	
Common equity	10.20%	
<u>Overall and pre-tax RORs</u>		
	<u>Overall</u>	<u>Pre-tax RORs</u>
LTD	2.506%	2.506%
STD	0.093%	0.093%
Common equity	5.376%	7.279%
Total	7.976%	9.878%

Piedmont Natural Gas Company, Inc.  
Integrity Management Rider  
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**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 5 - November 1, 2016 thru October 31, 2017**

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**MACRS 15 tax depreciation schedule**

Tax year 1  
Tax year 2  
Tax year 3  
Tax year 4  
Tax year 5  
Tax year 6  
Tax year 7  
Tax year 8  
Tax year 9  
Tax year 10  
Tax year 11  
Tax year 12  
Tax year 13  
Tax year 14  
Tax year 15  
Tax year 16  
Total

Rate	MACRS 15		BONUS 50%	
	Yearly	Cumulative	Yearly	Cumulative
5.00%	1,912,213		20,078,233	
9.50%	3,633,204	5,545,417	1,816,602	21,894,835
8.55%	3,269,884	8,815,300	1,634,942	23,529,777
7.70%	2,944,807	11,760,108	1,472,404	25,002,181
6.93%	2,650,327	14,410,435	1,325,163	26,327,344
6.23%	2,382,617	16,793,052	1,191,308	27,518,652
5.90%	2,256,411	19,049,463	1,128,205	28,646,858
5.90%	2,256,411	21,305,873	1,128,205	29,775,063
5.91%	2,260,235	23,566,109	1,130,118	30,905,181
5.90%	2,256,411	25,822,520	1,128,205	32,033,386
5.91%	2,260,235	28,082,755	1,130,118	33,163,504
5.90%	2,256,411	30,339,166	1,128,205	34,291,710
5.91%	2,260,235	32,599,401	1,130,118	35,421,827
5.90%	2,256,411	34,855,812	1,128,205	36,550,033
5.91%	2,260,235	37,116,048	1,130,118	37,680,150
2.95%	1,128,205	38,244,253	564,103	38,244,253
100.00%	38,244,253		38,244,253	

Accumulated depreciation  
Portion of year in service before rider  
Pre-rider amount of depreciation  
Rider year BOY amount  
Depreciation expense  
Rider year EOY amount  
Average accumulated depreciation

17%  
94,272

<u>Year 1</u>
94,272
554,542
648,814
371,543



**Annual Revenue Requirement Computation**  
**Rider Rate Period: January 1, 2018 - December 31, 2018**

**Vintage Year 5 - November 1, 2016 thru October 31, 2017**

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<b>MACRS 15</b>		<u>Year 1</u>
<u>Tax depreciation reserve</u>		
FY of completion tax depreciation	1,912,213	
Post FY tax depreciation to rider date	17%	
Tax year 2 tax depreciation	3,633,204	
Tax year 2 pre-rider tax depr	617,645	
Rider year BOY amount		2,529,857
Tax period A tax depreciation		3,015,559
Tax period B tax depreciation		555,880
Rider year EOY amount		6,101,297
Average tax depreciation reserve		4,315,577
Note - gap between fiscal year and rider year addressed by tax period A and tax period B.		
<u>Accumulated deferred taxes</u>		
Average tax depreciation reserve		4,315,577
Average book depreciation reserve		371,543
Difference		3,944,034
Composite tax rate w 35% FIT rate		39.23%
Average ADIT		1,547,047
Note - composite tax rate ignores excess deferred tax flowback		
<b>BONUS 50%</b>		
<u>Tax depreciation reserve</u>		
FY of completion tax depreciation	20,078,233	
Post FY tax depreciation to rider date	17%	
Tax year 2 tax depreciation	1,816,602	
Tax year 2 pre-rider tax depr	308,822	
Rider year BOY amount		20,387,055
Tax period A tax depreciation		1,507,780
Tax period B tax depreciation		277,940
Rider year EOY amount		22,172,775
Average tax depreciation reserve		21,279,915
<u>Accumulated deferred taxes</u>		
Average tax depreciation reserve		21,279,915
Average book depreciation reserve		371,543
Difference		20,908,372
Tax difference balance		20,908,372
Composite tax rate w 35% FIT rate		39.23%
Average ADIT		8,201,309

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on January 17, 2018, a copy of the attached was served on the following by electronic mail and by depositing a copy of the same in the U.S. Mail,

First Class Postage Prepaid, addressed as follows:

Daniel P. Whitaker III  
Assistant Attorney General  
Office of Tennessee Attorney General  
Public Protection Section  
Consumer Protection and Advocate Division  
P.O. Box 20207  
Nashville, TN 37202-0207  
[Daniel.Whitaker@ag.tn.gov](mailto:Daniel.Whitaker@ag.tn.gov)

*R. Dale Grimes*

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R. Dale Grimes