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September 2, 2022

Mr. Herbert H. Hilliard, Chairman
c/o Ectory Lawless
Tennessee Public Utility Commission
502 Deaderick Street, Fourth Floor
Nashville, Tennessee 37243

Electronically Filed in TPUC Docket Room on September 2, 2022 at 1:34 p.m.

Re: ***Review of Piedmont Natural Gas Company, Inc.'s Incentive Plan Account Relating to Asset Management Fees; Docket No. 05-00165***

Dear Chairman Hilliard:

Enclosed for electronic filing with the Commission is the public redacted version of the Review of Performance Incentive Plan, dated November 2021, which has been prepared in compliance with the Order Approving Settlement dated December 14, 2007 issued in the above-referenced docket. Also enclosed is a confidential unredacted version of this report which is submitted under seal.

Piedmont is transmitting the required five (5) physical copies of this filing, along with certain confidential materials included therewith from Charlotte today for delivery to Ms. Lawless.

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

Very truly yours,

Paul S. Davidson

PSD:cdg
Enclosure

cc: Pia Powers (Piedmont)
Bruce Barkley (Piedmont)
Karen Stachowski (TN CPAD)

4865-0389-3041.1

[redacted]

FINAL REPORT

PIEDMONT NATURAL GAS COMPANY

AUDIT STAFF OF THE TENNESSEE PUBLIC UTILITY COMMISSION

CONSUMER ADVOCATE DIVISION OF THE TENNESSEE ATTORNEY GENERAL

REVIEW OF PERFORMANCE INCENTIVE PLAN

November 2021

Prepared by:

EXETER
ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

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1. Introduction

Piedmont Natural Gas Company, Inc. (Piedmont or Company) is a wholly-owned subsidiary of Duke Energy Corporation (Duke Energy). Piedmont is an energy services company whose principal business is the distribution of natural gas. Acquired by Duke Energy in October 2016, Piedmont is headquartered in Charlotte, North Carolina. Duke Energy is also headquartered in Charlotte. Piedmont provides natural gas distribution service to over one million customers in Tennessee, North Carolina, and South Carolina. The gas procurement function at Piedmont is performed jointly for all three state jurisdictions by the corporate Gas Supply Department.

On May 31, 1996, the Tennessee Regulatory Authority (TRA), the predecessor to the Tennessee Public Service Commission (TPUC or Commission), issued an Order in Docket No. 96-00805 approving a gas cost Performance Incentive Plan (Plan) for Nashville Gas Company, the predecessor to Piedmont. Since its inception in 1996, the Plan has been reviewed and modified in several proceedings, including in Docket No. 05-00165. In that proceeding, Piedmont, the Audit Staff of the TRA (Staff), and the Consumer Advocate Division of the Tennessee Attorney General (CAD) (collectively, the "Settling Parties") filed a Settlement Agreement (2007 Settlement), which was approved by the TRA effective December 14, 2007.

The 2007 Settlement, among other things, provided for triennial reviews of Piedmont's activities under the Plan by an independent consultant. Exeter Associates, Inc. (Exeter) has been selected through a request for proposals (RFP) process by the Settling Parties to perform the independent review envisioned under the 2007 Settlement for the period July 1, 2017 through June 30, 2020 (review period or audit period). Exeter was previously selected to perform the first, second, and third triennial independent reviews provided for under the 2007 Settlement that covered the periods July 1, 2008 through June 30, 2011, July 1, 2011 through June 30, 2014, and July 1, 2014 through June 30, 2017, respectively. Exeter also performed an independent review of the Plan for the period July 1, 2006 through June 30, 2008. The purpose of the independent review, as specified in the RFP, is to evaluate and report on the transactions and activities conducted by Piedmont and/or its affiliates under the Plan, including, but not limited to: (a) natural gas procurement; (b) capacity management; (c) storage; (d) hedging; (e) reserve margins; (f) off-system sales; (g) citygate purchases; and (h) the calculation of the benchmark for monthly gas purchases to determine whether it produces reasonable rewards compared to benchmarks used by other comparable and similarly situated gas utilities operating under a gas procurement incentive plan.

A Draft Report presenting the findings, results, and conclusions of Exeter's current review was provided to the Settling Parties on October 13, 2021. On October 29, 2021, Piedmont provided the Settling Parties and Exeter its comments on the Draft Report. Piedmont's comments were intended to clarify certain facts regarding its Plan and gas procurement activities, as well as respond to several findings set forth in the Draft Report. Exeter has incorporated the Company's comments into this final report (Report), as Exeter deemed appropriate.

Exeter's Report consists of eight sections including this introductory section. Section 2 of the Report identifies the interstate pipelines serving Piedmont as well as the services the Company purchases from each pipeline. Included in Section 2 is a summary of the Company's review period Asset Management Agreements (AMAs) and gas supply contracts. Section 2 also provides a description of the Piedmont system and the markets it serves.

Section 3 of the Report summarizes each component of the Plan and reviews Piedmont's performance by component. These include the commodity procurement cost, gas supply reservation fee, off-system sales, and capacity management components of the Plan. Section 4 of the Report evaluates Piedmont's storage management activities.

Section 5 of the Report reviews and examines the design peak day, winter season, and annual capacity resources, or entitlements, acquired and maintained by Piedmont to meet customer demands; assesses the manner in which Piedmont forecasts the design day demands of its customers; and evaluates whether Piedmont maintains a reasonable balance between its capacity entitlements and the anticipated demands of its customers. Section 5 includes an evaluation of the design day criteria selected by Piedmont for capacity planning purposes and identifies actual winter season peak day demands experienced during the review period. A discussion of the various commodity, or variable, charges incurred by Piedmont from its interstate pipeline service providers and the collection of these costs from customers is also included in Section 5. Finally, Section 5 includes a discussion of potential modifications to Piedmont's interstate pipeline capacity portfolio.

Section 6 of the Report summarizes and evaluates Piedmont's hedging activities. Section 7 begins with a comparison of Piedmont's Plan with the performance-based gas procurement incentive mechanisms of Chattanooga Gas Company (Chattanooga Gas) and Atmos Energy Corporation (Atmos), two Tennessee natural gas utilities that also operate under gas cost incentive mechanisms. This is followed by an evaluation of the balance of incentives between sales customers and Piedmont under the Plan. The Gas Supply Incentive Compensation Program (Incentive Compensation Program) that was in effect for a portion of the review period is also addressed in Section 7.

The final section of the Report, Section 8, summarizes Exeter's conclusions, includes findings of fact, and identifies and describes areas of concern and improvement that may warrant further consideration.

2. Piedmont System Capacity and Gas Supply Resources and Markets

Piedmont provides natural gas sales and distribution service to the Nashville, Tennessee metropolitan area. Piedmont purchased firm services from five interstate pipelines during the review period: Columbia Gas Transmission (Columbia Gas), Columbia Gulf Transmission (Columbia Gulf), Midwestern Gas Transmission (MGT or Midwestern), Tennessee Gas Pipeline (TGP or Tennessee), and Texas Eastern Transmission (Texas Eastern). Of these five interstate pipelines, Piedmont is interconnected to three: Columbia Gulf, TGP, and Texas Eastern. Piedmont is also interconnected with East Tennessee Natural Gas (ETNG); however, the Company does not purchase firm services directly from ETNG. Figure 1 presents a map of the Company's service territory and the interstate pipelines serving Piedmont. The interstate pipeline services purchased by Piedmont during the review period are described in Sections 2.1 and 2.2. Section 2.3 discusses Piedmont's review period AMAs. Section 2.4 describes Piedmont's review period citygate-delivered gas supply arrangements, which serve as both capacity and gas supply resources, and the Company's upstream receipt point gas supply contracts. Section 2.5 identifies the markets served by Piedmont. The information included in these sections is provided to assist in understanding the various components of the Plan, evaluating Piedmont's compliance with the Plan, and evaluating the reasonableness of Piedmont's capacity and gas supply resources.

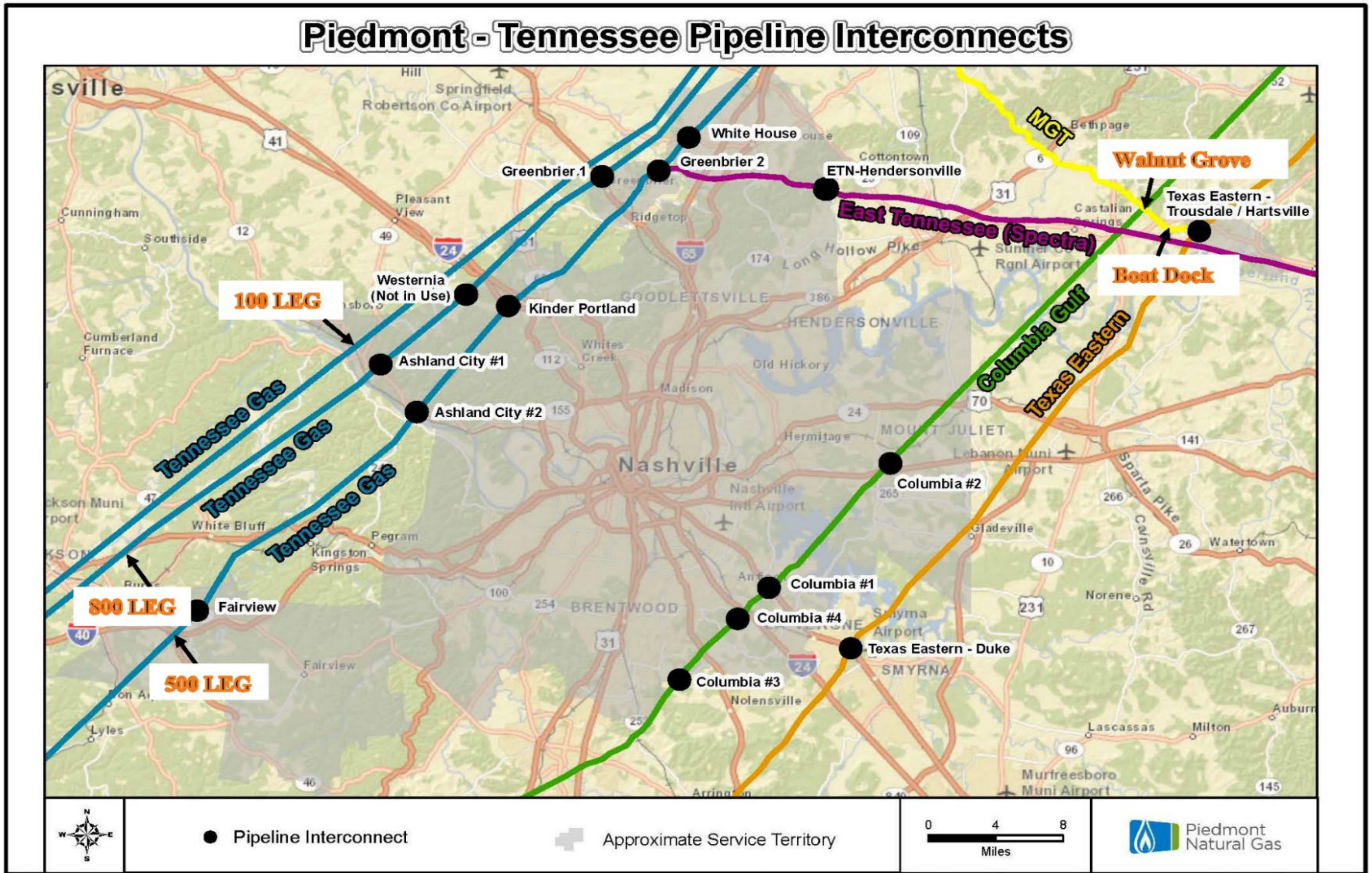
2.1. Interstate Pipeline Transportation Services

Piedmont's transportation arrangements with Columbia Gulf, TGP, and Texas Eastern provide for the delivery of gas supplies directly to Piedmont's system. Each of these pipelines was initially designed to transport gas from the Gulf Coast natural gas production region to markets in the U.S. Northeast. Today, the Marcellus and Utica Shale production region (collectively, "Marcellus Shale"), located in Pennsylvania, Ohio, and West Virginia, is now the most prolific natural gas production region in the U.S. As a result, the historical south to north gas flows on these pipelines have been altered. The physical flow of gas on Columbia Gulf, TGP, and Texas Eastern is now bi-directional, with gas supplies being transported north to south from the Marcellus Shale production region and south to north from the Gulf Coast production region. The current physical flow of gas on each of these pipelines in Piedmont's service territory is generally north to south.

The pipeline facilities of Columbia Gas are generally located in the Appalachian region. As subsequently explained, although Piedmont is not directly interconnected with Columbia Gas, the Company's storage transportation arrangement with Columbia Gas is operated as though Columbia Gas provides for the delivery of gas supplies directly to Piedmont's system. Piedmont's transportation arrangement with MGT provides for the delivery of gas from the Chicago market area to TGP, ETNG, and Columbia Gulf, but not directly to Piedmont's system. MGT-sourced gas supplies can be delivered to the western side of Piedmont's system by TGP, to the northern portion of Piedmont's system by ETNG, and to the eastern side of Piedmont's system by Columbia Gulf and Texas Eastern. The Company's MGT-sourced delivery arrangements are discussed in greater detail in Section 2.1.4 of the Report. Although Piedmont's distribution system is directly supplied by Columbia Gulf, TGP, Texas Eastern, and ETNG, the distribution systems "behind the meters" served by each pipeline are generally operated as independent systems. Customers located on the western side of Piedmont's distribution system are generally supplied with gas delivered by TGP; customers located on the eastern and southern portions of the system are generally served with gas delivered by Columbia Gulf and Texas Eastern; and customers located on the northern portion of the system are generally served by ETNG.[1] Piedmont's interstate pipeline interconnects are summarized in Table 1. Table 1 also identifies the location of each interconnect on the map presented in Figure 1. Table 2 summarizes the capacity contracts and resources available to meet customer demands during the winter of 2019-2020, the last winter of the review period.

[1] Typically, during the months of May through October, the valve at the ETNG interconnect is closed, and the requirements of the northern portion of Piedmont's system are met by TGP.

Figure 1. Piedmont Service Territory and Pipeline Interconnects



Piedmont's gas facility maps are considered confidential (OM-1095). This map is current only through the latest revised date stated thereon. This map should not be relied upon by anyone digging or drilling underground and that any such person should not undertake any such digging or drilling until he or she has had all underground utility facilities in the immediate area located by calling 811. To ensure there is no risk of inappropriate disclosure, all previously dated copies of this map must be destroyed in accordance with Records and Information Management (RIM) Policy 1001. Supplier line locations are approximate.
02/12/2015

Table 1. Summary of Piedmont Interstate Pipeline Interconnects

	Pipeline	Percent of Peak Day	Meter Number(s)	Meter Type	Area Served	County	City	Pipeline Interconnect in Figure 1 Map
1.	Texas Eastern	[redacted]	70316	[redacted]	[redacted]	Trousdale	Hartsville	Texas Eastern Trousdale / Hartsville
2.	Texas Eastern	[redacted]	73423	[redacted]	[redacted]	Rutherford	Nashville	Texas Eastern – Duke
3.	Tennessee Gas	[redacted]	020280-01	[redacted]	[redacted]	Robertson	City of Greenbrier	Greenbrier 1
4.	Tennessee Gas	[redacted]	020309-01	[redacted]	[redacted]	Cheatham	Ashland City	Ashland City #1
5.	Tennessee Gas	[redacted]	020312-0, 020312-A	[redacted]	[redacted]	Davidson	Nashville	Kinder Portland
6.	Tennessee Gas	[redacted]	020600-01	[redacted]	[redacted]	Robertson	White House	White House
7.	Tennessee Gas	[redacted]	020610-0	[redacted]	[redacted]	Dickson	Fairview	Fairview
8.	Tennessee Gas	[redacted]	020846-0	[redacted]	[redacted]	Cheatham	Cheatham Co Industrial Park	Ashland City #2
9.	Tennessee Gas	[redacted]	20753-0	[redacted]	[redacted]	Robertson	Outside Greenbrier City Limits	Greenbrier 2
10.	Columbia Gulf	[redacted]	4016	[redacted]	[redacted]	Davidson	Nashville	Columbia #1
11.	Columbia Gulf	[redacted]	4088	[redacted]	[redacted]	Wilson	Nashville	Columbia #2
12.	Columbia Gulf	[redacted]	4183	[redacted]	[redacted]	Williamson	Nashville	Columbia #3
13.	Columbia Gulf	[redacted]	4241	[redacted]	[redacted]	Davidson	Nashville	Columbia #4
14.	East Tennessee Natural Gas	[redacted]	59218	[redacted]	[redacted]	Sumner	Sumner	ETN – Hendersonville

Table 2. Summary of Design Day Capacity Contracts and Resources, 2019-2020 Winter Season

Pipeline – Service	Contract No.	MDQ (Dth) Winter	MDQ (Dth) Summer	Available Quantity (Dth) Winter	Available Quantity (Dth) Annual	Contract Expiration
Columbia Gas Transmission[1]						
Storage Service (FSS/SST)	53017/38017	10,000	5,000	611,870	611,870	3/31/2024
Columbia Gulf Transmission[1]						
Firm Transportation (FTS-1)	43462	10,000	9,202	1,510,000	3,479,228	10/31/2022
Firm Transportation (FTS-1)	14252	31,000	11,755	4,681,000	7,196,570	10/31/2022
Firm Transportation (FTS-1)	194490	155,193	64,263	23,434,143	37,186,425	10/31/2022
Midwestern Gas Transmission						
Firm Transportation (FT-A)[2]	FA0342	25,000	25,000	3,775,000	9,125,000	1/6/2023
Firm Transportation (FT-B)[1],[2],[3]	FB0006	25,000	25,000	3,775,000	9,125,000	1/6/2023
Tennessee Gas Pipeline[1]						
Firm Transportation (FT-A)	237	51,500	51,500	7,776,500	18,797,500	10/31/2024
Storage Service (FS-MA/FT-A)	6815/301244	49,828	0	2,901,943	2,901,943	10/31/2024
Storage Service (FS-PA/FT-A)	2400/301244	6,072	0	672,091	672,091	10/31/2024
Texas Eastern Transmission[1]						
Firm Transportation (FT-1)	910473	10,000	0	1,510,000	1,510,000	3/31/2025
Firm Transportation (SCT)	800059	1,677	1,677	84,409	204,035	10/31/2023
Citygate-Delivered Gas Supply[1]						
[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	2/29/2020
Piedmont LNG[1]		[redacted]	[redacted]	[redacted]	[redacted]	
Total Citygate Capacity Resources:		[redacted]	[redacted]	[redacted]	[redacted]	

Note: MDQ = maximum daily delivery quantity; Dth = dekatherms; LNG = liquefied natural gas.
[1] Citygate capacity resources.
[2] Winter and summer contract MDQ is [redacted] Indicated MDQ reflects design day deliverability.
[3] Piedmont also entered into a contract to purchase [redacted] of ETNG citygate-delivered supply at Hendersonville, Tennessee from the [redacted]

2.1.1. Columbia Gas Transmission

Piedmont purchased unbundled firm storage transportation service from Columbia Gas under Rate Schedule SST during the review period. Piedmont purchases unbundled firm storage service from Columbia Gas under Rate Schedule FSS. Storage transportation service under Rate SST is utilized to transport gas to and from the storage facilities of Columbia Gas and Piedmont's system. The maximum daily delivery quantity (MDQ) under Piedmont's SST arrangement with Columbia Gas is 10,000 dekatherms (Dth) per day during the months of October through March, and 5,000 Dth/day during the months of April through September. Gas deliveries to and from Columbia Gas are handled through a combination of facilities jointly owned and operated by Columbia Gas and Columbia Gulf pursuant to a lease agreement between the two pipelines.[2] The gas delivered to Columbia Gas storage for injection was generally purchased by Piedmont in the [redacted] region during the review period.

2.1.2. Columbia Gulf Transmission

The pipeline facilities of Columbia Gulf extend from the Gulf Coast production region in Louisiana to Leach, Kentucky, at which point Columbia Gulf interconnects with Columbia Gas. Piedmont purchased firm transportation service from Columbia Gulf under Rate Schedule FTS-1 during the review period that provided for the delivery of Gulf Coast-sourced gas supplies directly to Piedmont's system. Contract No. 43462 provided for the delivery of 10,000 Dth/day during the winter period (November – March) and 9,202 Dth/day during the summer period (April – October). Contract No. 14252 provided for the delivery of 31,000 Dth/day during the winter period and the delivery of 11,755 Dth/day during the summer period.

Prior to the winter of 2014-2015, the capacity under Piedmont's Columbia Gulf FTS-1 arrangements could be reliably segmented to deliver Gulf Coast production area sourced supplies and, at the same time by backhaul, gas supplies sourced on Columbia Gas. As such, Contract Nos. 43462 and 14252, with a total MDQ of 41,000 Dth/day, provided Piedmont with 82,000 Dth/day of design day capacity prior to the winter of 2014-2015. However, as a result of the availability of abundant supplies from the Marcellus Shale production region, pipelines like Columbia Gulf began taking receipt of reduced quantities of traditional Gulf Coast production. Piedmont believed that this resulted in a risk to the reliability of backhaul deliveries. In response to this risk, beginning in the winter of 2014-2015, Piedmont no longer considered backhaul deliveries by Columbia Gulf to be a reliable design day capacity resource, reducing its design day capacity resources by 41,000 Dth/day.

As explained in greater detail in Section 2.1.4, for reasons similar to reducing its reliance on Columbia Gulf backhaul deliveries to meet design day requirements, Piedmont reduced its reliance on MGT to meet design day requirements from 100,000 Dth/day to 25,000 Dth/day for the winter of 2014-2015. As explained in Section 2.2.3, Piedmont also reduced reliance on its liquefied natural gas (LNG) facility by [redacted] Dth/day after the winter of 2014-2015. Thus, in total, the Company experienced a reduction in design day capacity resources of 116,000 Dth/day for the winter of 2014-2015 and 146,000 Dth/day for the winter of 2015-2016. To address these reductions, Piedmont acquired delivered-to-citygate supply services until the Company was able to secure alternative interstate pipeline capacity resources and return the deliverability of its LNG facility to full capacity. The Company referred to these delivered supply contracts as "bridging delivered supply," as they were intended to be temporary solutions until the Company could acquire firm interstate pipeline capacity to address its capacity deficiency.

[2] Federal Energy Regulatory Commission (FERC) Docket No. CP13-480.

Piedmont was able to secure incremental firm transportation capacity from Columbia Gulf beginning in November 2017 under a five-year arrangement (Contract No. 194490) to address its design day capacity deficiency. The MDQ under Contract No. 194490 increased each year as, indicated in Table 3 below.

Table 3. Columbia Gas Contract No. 194490 Entitlements

	MDQ	
Annual Period	**Winter**	**Summer**
November 2017 – October 2018	140,193	58,052
November 2018 – October 2019	150,193	62,193
November 2019 – October 2020	155,193	64,263
November 2020 – October 2021	162,193	67,162
November 2021 – October 2022	169,193	70,060

The Company elected to secure Columbia Gulf firm transportation capacity in lieu of contracting for delivered supply arrangements because the Columbia Gulf capacity provided for long-term security of service, while the delivered supply services did not provide this security of service.

2.1.3. Tennessee Gas Pipeline

The TGP system originates in the Texas and Louisiana Gulf Coast natural gas production region and extends to New England. In the production region, the TGP system consists of three primary transmission lines, referred to as the 100, 500, and 800 Legs.[3] The TGP system is also divided into eight zones for rate purposes (Zones 0, L, and 1-6). The State of Texas is designated as Zone 0, Zone L consists largely of the State of Louisiana, and Zone 1 extends from the Texas border with Louisiana to the Kentucky/Tennessee border. Piedmont purchased firm transportation service from TGP under Contract No. 237 (Rate Schedule FT-A) during the review period, which provided for the south-to-north delivery of gas from the Gulf Coast production region to Piedmont. Piedmont's receipt point capacity under Contract No. 237 was subdivided by leg and zone, as follows, during the review period:

Tennessee Gas Pipeline Capacity
Contract No. 237

Zone – Leg	MDQ (Dth)
Zone L – 500 Leg	25,750
Zone L – 800 Leg	25,750
TOTAL:	51,500

[3] The TGP Legs are identified in Figure 1, shown previously.

When Piedmont's LNG facility operates at its maximum rated capacity of [redacted], only 37,000 Dth/day of the Company's 51,500 Dth/day of TGP capacity under Contract No. 237 is operationally available to meet design day demands. This is because the same markets are served by the LNG facility and TGP, and the total LNG and TGP deliverability exceeds the demands of those markets. However, as explained in greater detail in Section 2.2.3 of the Report, operation of the Company's LNG facility was limited to [redacted] during the review period. Therefore, the full 51,500 Dth/day of TGP capacity under Contract No. 237 was required to meet design day demands during the review period. Piedmont purchased the 51,500 Dth/day of TGP capacity under Contract No. 237 at a discounted rate equivalent to the cost of 37,000 Dth/day.

Piedmont also purchased firm transportation service from TGP under Contract No. 301244 (Rate Schedule FT-A). This contract provides for the delivery of up to 55,900 Dth/day from Piedmont's TGP Market Area (FS-MA) and Production Area (FS-PA) storage accounts. Contract No. 301244 is a forward-haul arrangement that provides for the north-to-south delivery of gas in TGP Zone 1.

2.1.4. Midwestern Gas Transmission

Effective November 2007, Piedmont contracted for 20,000 Dth/day of capacity with MGT. This arrangement provided for the upstream delivery of gas from the Chicago market area to MGT's TGP interconnect at Portland, Tennessee, with final delivery effectuated to the western side of Piedmont's system by TGP. This arrangement expired effective with the completion of MGT's Eastern Expansion Project.

Through its participation in MGT's Eastern Expansion Project, Piedmont increased its contractual capacity to 100,000 Dth/day effective with the completion of the project on January 7, 2008. The Eastern Expansion Project also allowed MGT to interconnect with Columbia Gulf at Walnut Grove, Tennessee and ETNG at Boat Dock in Sumner, Tennessee. MGT-sourced gas supplies can be delivered to the western side of Piedmont's distribution system by TGP ("MGT West via TGP"), to the northern portion of Piedmont's distribution system by ETNG ("MGT East via ETNG"), and to the eastern side of Piedmont's distribution system by Columbia Gulf ("MGT East via Gulf"). Piedmont currently maintains two firm transportation arrangements with MGT. MGT Contract No. FA0342 under Rate Schedule FT-A provides for the firm upstream transportation of up to 100,000 Dth/day from an interconnect with ANR Pipeline in Joliet, Illinois near the Chicago area to an interconnect with TGP at Portland, Tennessee. MGT Contract No. FB0006 under Rate Schedule FT-B provides for the firm upstream transportation of up to 75,000 Dth/day from Portland, Tennessee to an interconnect with Columbia Gulf at Walnut Grove, Tennessee, and up to 25,000 Dth/day to an interconnect with ETNG at Boat Dock in Sumner, Tennessee. Deliveries by MGT under Contract No. FA0342 to TGP can be delivered to Piedmont under TGP FT-A Contract No. 301244 when that capacity is not required to deliver gas from the Company's FS-MA and FS-PA storage accounts with TGP. Deliveries by MGT to Walnut Grove under Contract No. FB0006 are delivered to Piedmont under interruptible transportation arrangements with

Columbia Gulf, and deliveries by MGT to Boat Dock under Contract No. FB0006 are delivered to Piedmont by backhaul, utilizing an ETNG interruptible transportation contract. [redacted]

2.1.5. Texas Eastern Transmission

Piedmont purchased firm transportation service from Texas Eastern under two different rate schedules during the review period. The Company purchased 10,000 Dth/day of winter season firm transportation service under Rate Schedule FT-1. Piedmont also purchased small customer firm transportation service under Rate Schedule SCT. Service under Rate Schedule SCT is a no-notice, firm transportation service. Piedmont utilizes both of these Texas Eastern transportation arrangements to acquire Gulf Coast-sourced gas supplies. Rate Schedule SCT capacity, used to serve the City of Hartsville, Tennessee, is excluded from the Plan.

2.2. Interstate Pipeline and On-System Storage

Piedmont purchased contract storage service from Columbia Gas and TGP during the review period. These arrangements are further described below. Piedmont also operates an on-system LNG facility.

2.2.1. Columbia Gas Transmission

Piedmont purchased firm storage from Columbia Gas under Rate Schedule FSS during the review period. Gas is delivered to and from Columbia Gas storage under Piedmont's SST arrangement with Columbia Gas. The maximum daily withdrawal quantity (MDWQ) under Piedmont's FSS arrangement is 10,000 Dth/day and the maximum seasonal storage quantity (MSQ) is 611,870 Dth.

2.2.2. Tennessee Gas Pipeline

During the review period, Piedmont purchased unbundled, market-area firm storage service from TGP under Rate Schedule FS-MA and unbundled, production-area firm storage service under Rate Schedule FS-PA. Gas delivered to both market- and production-area storage is primarily sourced on TGP and purchased in the Gulf Coast production region. Deliveries to Piedmont's system from market- and production-area storage are nominated at TGP's Portland, Tennessee station. Gas from storage is delivered to Piedmont by TGP under FT-A Contract No. 301244. The MDWQs under the FS-MA and FS-PA arrangements are 49,828 Dth/day and 6,072 Dth/day, respectively. The MSQs are 2,901,943 Dth and 672,091 Dth, respectively.

2.2.3. Liquefied Natural Gas

Piedmont operates an on-system LNG facility. The LNG facility can produce at maximum levels for approximately [redacted] days. The maximum rated capacity of the Piedmont's LNG facility is [redacted] Dth/day. Due to a pressure reduction on one of the pipelines delivering gas from the LNG facility to Piedmont's distribution system, the capacity of the LNG facility has been reduced to [redacted] Dth/day since the winter of 2014-2015. The pressure of the pipeline was reduced because the pipeline was reclassified from transmission to distribution in accordance with Piedmont's pipeline integrity plan. It was initially anticipated that improvements to the line would subsequently return the deliverability of the LNG facility to [redacted] Dth/day for the winter of 2018-2019. However, the return of the deliverability of the LNG facility to [redacted] Dth/day is now anticipated for the winter of 2021-2022.

2.3. Asset Management Agreements

Piedmont operated under AMAs during the entire review period. Each AMA was awarded through an RFP process. Under the AMAs, Piedmont released all of its interstate pipeline transportation and storage capacity assets to the AMA service provider, or Asset Manager. Piedmont was paid a fee under each AMA, but remained responsible for all pipeline demand charges associated with the released capacity. Table 4 summarizes Piedmont's review period AMA arrangements.

Table 4. Review Period Asset Management Agreements

Manager	Annual Term	Annual Fee
Tenaska Marketing Ventures	November 2016 – October 2017	[redacted]
Emera Energy Services	November 2017 – October 2018	[redacted]
Tenaska Marketing Ventures	November 2018 – October 2019	[redacted]
Tenaska Marketing Ventures	November 2019 – October 2020	[redacted]

With the exception of the citygate-delivered supplies and the upstream receipt point contract discussed in Section 2.4, and certain supplies delivered by MGT discussed below, the Asset Manager generally arranged for all of the gas supplies delivered to Piedmont under the firm transportation agreements released to the Asset Manager, and Piedmont did not generally enter into its own separate gas supply arrangements. Piedmont occasionally purchased delivered-to-citygate gas directly from the Asset Manager and from suppliers on an interruptible basis.

Under the review period AMAs, each day, Piedmont would determine the quantity of gas required under the released capacity assets to meet its customers' requirements (by delivering pipeline) and its daily storage injection and withdrawal activity, and would convey this information, referred to as "virtual dispatch," to the Asset Manager. The Asset Manager was then entitled to use the capacity and gas supply assets available under the AMA, or any other assets available to the Asset Manager, to meet Piedmont's daily requirements. The Asset Manager was entitled to utilize the assigned capacity that was not required to serve Piedmont to pursue the Asset Manager's own business interests (i.e., optimization strategies). Piedmont paid the applicable fuel and pipeline variable charges to the Asset Manager based on virtual dispatch.

The RFPs that Piedmont issued for its review period AMAs included various limits on the total daily quantity of gas that an Asset Manager would be required to provide utilizing the released capacity assets and/or the daily quantity of gas to provide under the released MGT firm transportation capacity. The AMA RFP issued for the period November 2018 – October 2019 also included a limit on winter period Texas Eastern supplies. These limits were included in the AMA contract awarded by Piedmont. Exceeding these limits would have resulted in charges to Piedmont in excess of [redacted]. Piedmont believed that including these limits in its RFPs increased the fees that it received under the AMAs. Those limits are identified in Table 5.

Table 5. Summary of Asset Management Agreement Daily Supply Limits (Dth/day)

AMA Term	November – March	April & October	May – September
November 2016 – October 2017	[redacted]	[redacted] [redacted]	[redacted] [redacted]
November 2017 – October 2018	[redacted]	[redacted]	[redacted]
November 2018 – October 2019	[redacted] [redacted]	[redacted]	[redacted]
November 2019 – October 2020	[redacted]	[redacted]	[redacted] [redacted]

2.4. Gas Supply Contracts

As discussed in Section 2.3, the Asset Manager generally arranged for the purchase of the gas supplies delivered to Piedmont during the review period under the firm transportation capacity that was assigned to the Asset Manager. However, as subsequently discussed, Piedmont entered into several firm citygate-delivered supply arrangements during the review period and purchased gas under a firm upstream receipt point contract for a portion of the audit period. In addition to purchases under these firm gas supply contracts, Piedmont also purchased citygate-delivered supplies in the spot market during the review period.

2.4.1. Citygate-Delivered Supply Services

The acquisition of incremental Columbia Gulf firm transportation capacity discussed in Section 2.1.2 did not completely address Piedmont's design day capacity resource deficiencies during the review period. To address these remaining deficiencies, Piedmont acquired firm TGP Nashville citygate-delivered supplies. In addition, Piedmont entered into firm contracts to purchase ETNG citygate-delivered supply at Hendersonville, Tennessee during the audit period. Piedmont's firm citygate-delivered supply arrangements are identified in Table 6.

Table 6. Summary of Review Period Citygate-Delivered Supply Contracts (Dth)

Supplier	Period	MDQ	Delivery Point
[redacted]	November 2017 – March 2018	[redacted]	Nashville
[redacted]	December 2018 – February 2019	[redacted]	Nashville
[redacted]	December 2018 – February 2019		Nashville
[redacted]	December 2019 – February 2020		Nashville
[redacted]	November 2017 – March 2018		Hendersonville
[redacted]	November 2018 – March 2019		Hendersonville
[redacted]	November 2019 – March 2020		Hendersonville

The contract with [redacted] provided for the delivery of citygate supplies by TGP and required a demand charge equal to $[redacted] times the MDQ, times the number of days in the month. The commodity charge was equal to the applicable daily [redacted]

The citygate contract with [redacted] for the winter of 2018-2019 provided for the delivery of supplies by TGP. The demand and commodity charges were identical to those under Piedmont's arrangement with [redacted] with the exception [redacted] The contract with [redacted] for [redacted] Dth/day was sufficient to meet Piedmont's projected design day delivery deficiency for the winter of 2018-2019. Piedmont also elected to contract with [redacted] for [redacted] Dth/day for the winter of 2018-2019 [redacted]. The contract with [redacted] provided for the delivery of gas supplies by TGP and a commodity charge equal to the applicable [redacted] Piedmont made no purchases under the contract with [redacted]

The citygate contract with [redacted] for the winter of 2019-2020 also provided for the delivery of gas supplies by TGP. The demand charge was $[redacted] and the commodity pricing for this contract reflected a [redacted].

The contract with [redacted] for citygate-delivered supply to Piedmont's interconnect with ETNG in Hendersonville was a [redacted] agreement for the winters of [redacted].

The contract with the [redacted] for citygate-delivered supply to Piedmont's interconnect with ETNG in Hendersonville for the winter of 2019-2020 [redacted]

[4] Index prices are discussed in greater detail in Section 3.1.1 of the Report.

[redacted]. The contract provided for a commodity price equal to the [redacted]

2.4.2. Upstream Receipt Point Gas Supply Contracts

In addition to the citygate-delivered gas supply contracts discussed in Section 2.4.1, Piedmont also maintained several upstream receipt point gas supply contracts during the review period. Piedmont maintained an upstream baseload contract with [redacted] for the period [redacted]. The contract provided for the delivery of [redacted] Dth/day during the period [redacted]; [redacted] Dth/day for the months of [redacted]; and [redacted] Dth/day for the period [redacted]. The contract with [redacted] provided for the receipt of supply at the [redacted]. The [redacted] supplies were purchased by Piedmont and subsequently sold to the Asset Manager at the receipt point at [redacted]. This was done to ensure compliance with the Federal Energy Regulatory Commission's (FERC's) "shipper-must-have-title" policy since Piedmont had released its MGT capacity to the Asset Manager. This FERC policy requires an entity transporting gas on an interstate pipeline to have title to the gas it is transporting. The [redacted] supplies were subsequently delivered and sold to Piedmont at its citygate, with Piedmont being responsible for the [redacted]. The contract with [redacted].

Piedmont also maintained upstream receipt point contracts for the delivery of gas supplies under its Texas Eastern SCT contract for [redacted] Dth/day. As previously indicated in Section 2.1.5, the SCT contract is excluded from the Plan, as are the purchases delivered under the SCT contract.

2.5. Markets Served by Piedmont

Piedmont provided firm, bundled utility sales service during the review period, and also provided transportation service from its citygates to a customer's premises for those customers that acquire their own gas supplies in the interstate markets and separately arrange for the delivery of those supplies to Piedmont's citygates. Table 7 summarizes the number of customers served and annual throughput, by service class, for the 12 months ended June 2018, June 2019, and June 2020.

Table 7. Annual Customers and Volumes, by Class (12 Months Ended June)

Customers, by Class	**2018**	**2019**	**2020**
Residential Sales	[redacted]	[redacted]	[redacted]
Small General Sales	[redacted]	[redacted]	[redacted]
Medium General Sales	[redacted]	[redacted]	[redacted]
Firm Industrial Sales	[redacted]	[redacted]	[redacted]
Interruptible Industrial Sales	[redacted]	[redacted]	[redacted]
Resale Service	[redacted]	[redacted]	[redacted]
Subtotal Sales Classes:	[redacted]	[redacted]	[redacted]
Firm Transportation	[redacted]	[redacted]	[redacted]
Interruptible Transportation	[redacted]	[redacted]	[redacted]
Special Contract Transportation	[redacted]	[redacted]	[redacted]
Subtotal Transportation Classes:	[redacted]	[redacted]	[redacted]
Total Customers:	[redacted]	[redacted]	[redacted]
Volumes, by Class (therms)	**2018**	**2019**	**2020**
Residential Sales	[redacted]	[redacted]	[redacted]
Small General Sales	[redacted]	[redacted]	[redacted]
Medium General Sales	[redacted]	[redacted]	[redacted]
Firm Industrial Sales	[redacted]	[redacted]	[redacted]
Interruptible Industrial Sales	[redacted]	[redacted]	[redacted]
Resale Service	[redacted]	[redacted]	[redacted]
Subtotal Sales Classes:	[redacted]	[redacted]	[redacted]
Firm Transportation	[redacted]	[redacted]	[redacted]
Interruptible Transportation	[redacted]	[redacted]	[redacted]
Special Contract Transportation	[redacted]	[redacted]	[redacted]
Subtotal Transportation Classes:	[redacted]	[redacted]	[redacted]
Total Volumes:	[redacted]	[redacted]	[redacted]

Note: Excludes off-system sales.

3. Performance Incentive Plan

This section of Exeter's Report summarizes and evaluates Piedmont's activities under the Performance Incentive Plan by component. These components include: (a) commodity procurement costs; (b) supplier reservation fees; and (c) capacity management. The Plan is included as Service Schedule No. 316 of Piedmont's tariff. There were no changes to the Plan during the audit period. However, effective March 1, 2021, minor updates and corrections were made to the Plan description, including changing the name of the Tennessee Regulatory Authority to the Tennessee Public Service Commission and the elimination of the Gas Supply Incentive Compensation Program. Elimination of the Incentive Compensation Program is addressed in Section 7.3 of the Report. A redline version of the Plan reflecting the updates and corrections is included as Appendix A of the Report. Piedmont files an Annual Performance Incentive Plan Report (Annual Plan Report) with the TPUC for each Plan Year. TPUC Staff audits each Annual Plan Report and presents its findings in an Annual Compliance Audit Report (Audit Report). TPUC Staff's Audit Reports for the review period identified no material findings. Table 8 summarizes Piedmont's performance under the Plan during the review period. Additional detail concerning Piedmont's activities and performance under the Plan is subsequently presented in this section.

Table 8. Performance Incentive Plan – Summary of Review Period Results

	Total Gains		
Plan Year	**Ratepayers**	**Company**	**Total Savings**
July 2017 – June 2018	[redacted]	[redacted]	[redacted]
July 2018 – June 2019	[redacted]	[redacted]	[redacted]
July 2019 – June 2020	[redacted]	[redacted]	[redacted]
Total:	[redacted]	[redacted]	[redacted]

3.1. Commodity Procurement Cost Component

3.1.1. Background and Description

In the natural gas industry, there are generally two types of physical gas supply purchase arrangements: first-of-the-month (FOM) baseload (monthly) purchases and daily purchases. Monthly purchases are generally arranged several days prior to the month of delivery during a period referred to as "bid week," commence flow on the first day of the month, and provide for the delivery of the same quantity of gas on each day during the month. Daily purchases are arranged on the business day prior to delivery. While daily purchases typically flow for one day, these purchases may also be arranged for multiple consecutive days.

Shippers on interstate pipelines such as Piedmont must place nominations with a pipeline in order to schedule service. There are currently five nomination opportunities (cycles) for each gas day. The standard time for the gas day is 9 AM Central Clock Time (CCT) to 9 AM CCT the next gas day/ (10 AM Eastern Time to 10 AM Eastern Time the next gas day). The current nomination cycle timelines for the gas day are as follows:

Nomination Cycle Timelines (CCT)

Cycle	Nomination Deadline	Start of Gas Flow
Timely	1 PM prior to gas day	9 AM on gas day
Evening	6 PM prior to gas day	9 AM on gas day
Intraday 1	10 AM on gas day	2 PM on gas day
Intraday 2	2:30 PM on gas day	6 PM on gas day
Intraday 3	7 PM on gas day	10 PM on gas day

Most of the next-day trading for the purchase of daily gas supplies typically takes place between 7 AM and 11 AM CCT with nominations made for the timely cycle. This is the normal gas trading and nomination cycle followed in the natural gas industry. Very little trading occurs after the timely nomination cycle deadline. Trading for weekends and holidays generally occurs on a ratable basis. For example, the quantity of gas purchased from a supplier for the Saturday gas day would also be purchased for the following Sunday and Monday gas days. If Monday is a holiday, the same quantity purchased for the Saturday gas day would also be purchased for the Monday holiday gas day.

There are various natural gas industry publications that identify, after the fact, the average price paid for monthly and daily gas purchases at major natural gas trading locations. These average, or market, prices are referred to as "index prices." Monthly index prices are published in Platts *Inside FERC Gas Market Report* (*Inside FERC*) and by *Natural Gas Intelligence* (*NGI*). Daily index prices are published in Platts *Gas Daily (Gas Daily*) and by *NGI*. Trading locations at which Piedmont purchased gas with published index prices during the review period included the following:

Columbia Gas Transmission

- Appalachia

Columbia Gulf Transmission

- Rayne (Louisiana) or Mainline

Midwestern Gas Transmission

- Chicago Citygate

Tennessee Gas Pipeline

- Zone L – 500 Leg (Louisiana)
- Zone L – 800 Leg (Louisiana)

Texas Eastern

- East Louisiana (ELA)

Under the commodity procurement cost component of the Plan, Piedmont's actual total monthly citygate (delivered) commodity cost of gas is compared to a monthly benchmark cost. The actual total citygate commodity cost of gas includes the amount paid for gas supply commodity purchases, plus the applicable pipeline fuel and variable transportation charges associated with delivering gas from the purchase (receipt) point to Piedmont's system. Gas supplies may be delivered to Piedmont's system under firm or interruptible transportation arrangements or purchased on a delivered-to-citygate basis. If Piedmont's actual monthly costs exceed benchmark costs, 25% of the difference is assessed to Piedmont, and sales customers' gas costs are reduced by the amount assessed to Piedmont. If benchmark costs exceed actual monthly costs, 25% of the difference is retained by Piedmont, and sales customers' gas costs are increased by the amount retained by Piedmont.

The monthly benchmark cost is calculated by multiplying the actual quantity of gas delivered to Piedmont's citygate during a month by a Monthly Benchmark Index Price (MBIP). The MBIP includes different benchmarking procedures for monthly and daily purchases delivered under Piedmont's firm interstate pipeline transportation arrangements, purchases delivered under interruptible transportation arrangements, and purchases made at the citygate. Citygate purchases are also referred to by Piedmont as purchases using transportation other than firm transportation. Piedmont made no purchases upstream of its citygate during the review period that were delivered under interruptible transportation arrangements, although some of its citygate purchases may have been delivered to the citygate by the supplier under interruptible transportation arrangements. The benchmark price for each type of purchase (i.e., monthly purchases delivered under firm transportation arrangements, daily purchases delivered under firm transportation arrangements, and citygate purchases) is weighted by the actual monthly purchase quantity percentage to derive the MBIP.

For the benchmarking of monthly purchases, a delivered-to-citygate price is first calculated for each geographic receipt point location accessed by Piedmont's firm transportation arrangements based on the applicable monthly index price, plus the applicable firm fuel and variable transportation charges. A weighted average delivered-to-citygate price is then calculated based on the daily capacity entitlements Piedmont has determined to be available at each receipt point location and serves as the benchmark for monthly purchases. As subsequently discussed in Section 3.1.3, Exeter found that Piedmont did not use a consistent method for determining the daily capacity entitlements at each receipt point location and that the method used by Piedmont was inconsistent with Plan requirements. Table 9 presents a monthly summary of the daily capacity entitlements included in Piedmont's benchmark calculation for monthly purchases during the review period.

Table 9. Capacity Entitlements Included in the Benchmark Calculation for Monthly Purchases (Dth/Day)

Month/ Year	Tennessee Gas Pipeline Zone L		Columbia Gulf Mainline	Texas Eastern ELA	Midwestern Chicago Citygate		Total Entitlements
	500 Leg	800 Leg			West Side[1]	East Side[2]	
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[1] Delivered to the citygate by TGP.
[2] Delivered to the citygate by ETNG.

For the benchmarking of daily purchases made under firm transportation arrangements, each of Piedmont's actual daily purchases is priced at the applicable daily index price, plus the applicable firm fuel and variable charges. The delivered costs for each purchase are totaled and divided by the actual quantity of daily purchases delivered under firm transportation arrangements to derive the daily purchase benchmark included in the MBIP.

Piedmont purchased citygate supplies delivered by TGP, Columbia Gulf, and ETNG during the review period. All citygate purchases during the review period were daily purchases. Piedmont maintained firm transportation contracts with both TGP and Columbia Gulf during the review period. Piedmont used two different methods to benchmark TGP citygate purchases. If Piedmont's TGP firm transportation capacity was not being fully utilized on the day a citygate purchase was made, that is, open capacity was available, the benchmark was determined based on the applicable daily index price, plus the applicable firm fuel and variable charges. If Piedmont's TGP firm transportation capacity was being fully utilized, the benchmark was determined based on the applicable daily index price, plus the applicable interruptible transportation fuel and variable charges. TGP citygate purchases were also benchmarked using interruptible fuel and variable charges when the purchases were made outside of the normal gas trading and nomination schedule. Purchases made outside the normal gas trading and nomination schedule are not considered deliveries under the firm transportation capacity released to the Asset Manager under Piedmont's AMAs. This is because under Piedmont's AMAs and consistent with industry practice, the AMAs were structured to allow the Asset Manager to optimize the released capacity assets when not required to serve Piedmont. If the Asset Manager were required to serve Piedmont with supplies purchased outside the normal trading and nomination cycle (i.e., a purchase initially nominated outside the timely cycle or not made on a ratable basis over the weekend), the AMA would have less value to the Asset Manager because the Asset Manager would be required to have capacity available to accommodate a purchase not initially nominated for delivery within the timely cycle or on a ratable basis.

For citygate purchases delivered by Columbia Gulf, the benchmark was determined based on the applicable daily index price, plus the applicable interruptible fuel and variable charges. Piedmont used this method for citygate purchases delivered by Columbia Gulf for two reasons. First, the purchases were lower in cost than if the Company had purchased the supplies from the Asset Manager and, therefore, the Columbia Gulf firm transportation capacity released to the Asset Manager was not utilized to deliver the citygate supplies, or the purchases were made outside the normal gas trading and nomination schedule.

All of Piedmont's review period ETNG-delivered citygate purchases were made to the Company's interconnect with ETNG in Hendersonville. Piedmont benchmarked these purchases as if they were delivered from the Chicago citygate utilizing the Company's MGT firm transportation capacity to ETNG at Boat Dock, and subsequently delivered utilizing ETNG's interruptible transportation service. That is, the benchmark was determined based on the applicable Chicago citygate index price, plus the applicable MGT firm transportation and variable and fuel charges, plus the applicable ETNG interruptible transportation variable and fuel charges. The benchmark costs for each purchase delivered using transportation other than firm transportation service were totaled and divided by the actual quantity of these purchases to derive the other purchase benchmark reflected in the MBIP.

Shown in Table 10, for illustrative purposes, is the calculation of the MBIP for December 2019. Also shown are the commodity procurement cost gains and losses. Section I of Table 10 shows the calculation of the monthly purchase benchmark included in the MBIP. Column C of Section I identifies Piedmont daily capacity entitlements by purchase location. Column D of Section I identifies the percentage share of total capacity for each purchase location. Column E identifies the delivered cost of gas sourced under each transportation arrangement based on the applicable published monthly index price. Column F calculates the monthly component of the MBIP. As shown there, the benchmark price against which Piedmont's monthly purchases were compared under the Plan was [redacted]/Dth (Section I, line 6, Column F) in December 2019.

Section II shows the calculation of the combined MBIP based on the individual monthly, daily, and citygate purchase benchmarks. Due to the extensive detail, calculations of the daily and citygate benchmarks included in the MBIP are only summarized in Table 10 (Section II, lines 2 and 3). As shown in Section II, lines 2 and 3, Column C, the daily and citygate purchase benchmarks were [redacted] and [redacted], respectively. Also shown in Section II, line 4, Column D, the total MBIP was [redacted]. Under the Plan, Piedmont's total purchases during December 2019 of [redacted] Dth were multiplied by the MBIP of [redacted] to calculate total benchmark costs of [redacted] (Section II, line 4, Column E). As shown in Section II, line 5, Column E, the actual costs associated with Piedmont's purchases of [redacted]Dth were [redacted], resulting in incentive Plan savings of [redacted] (Section II, line 6, Column E).

Section III of Table 10 "unbundles" the MBIP and identifies incentive Plan savings by type of purchase. As shown, monthly purchase incentive Plan savings were [redacted] (Section III, line 1, Column E), and citygate purchase incentive Plan savings were [redacted](Section III, line 3, Column E). No daily purchase incentive Plan savings were realized in December 2019 (Section III, line 2, Column E). The calculated unbundled savings total [redacted] Actual savings for the month of December 2019 were [redacted] and vary from the amounts calculated in Sections II and III due to rounding.

Table 10. Summary of Monthly Benchmark Index Price Calculation and Commodity Procurement Incentive Gains/(Losses) (December 2019)

Monthly Benchmark	Actual FOM Purchases		Pipeline Capacity		Price ($/Dth)	
I. Purchase Location – Contractual Capacity	**(Dth/Day) (A)**	**Percent (B)**	**(Dth/Day) (C)**	**Percent (D)**	**Delivered (E)**	**Weighted (F)**
1. TGP Zone L – 500 Leg	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2. TGP Zone L – 800 Leg	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3. Columbia Gulf FTS-1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4. Texas Eastern FT-1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
5. MGT East via ETNG – Hendersonville	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
6. Total:	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]

	Actual Purchases				
II. Components of MBIP	**Dth (A)**	**Percent (B)**	**Component Benchmark ($/Dth) (C)**	**Weighted Component Benchmark ($/Dth) (D)**	**Monthly Benchmark (E)**
1. Monthly Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2. Daily Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3. Citygate Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4. Purchases/MBIP	[redacted]	[redacted]		[redacted]	[redacted]
5. Actual Costs					[redacted]
6. Gain/(Loss) Based on MBIP:					[redacted] [1]

III. Commodity Procurement Gain/(Losses) by Component	**Actual Purchases (Dth) (A)**	**Component Benchmark ($/Dth) (B)**	**Actual Cost ($/Dth) (C)**	**Unit Gain/ (Loss) ($/Dth) (D)**	**Total Savings/ (Loss) (E)**
1. Monthly Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2. Daily Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3. Citygate Purchases	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4. Purchases Gain/(Loss):	[redacted]	[redacted]	[redacted]		[redacted]

Note: FOM = First of the month; MBIP = Monthly Benchmark Index Price.
[1] Piedmont calculated gain is [redacted] Differences are due to rounding.

3.1.2. Review Period Gas Procurement Activity

Firm Transportation Delivered Supplies. Table 11 provides a comparison of monthly benchmark prices for the locations at which Piedmont could have purchased gas using its firm transportation capacity during the review period.[5] That is, the prices in Table 11 reflect the effective delivered variable cost for purchases that would have been made at these various locations. The prices identified in Table 11 were used to calculate the monthly component of the MBIP. As indicated previously, index prices are published after trading for a location has concluded. Therefore, while market participants will have a close estimate of an index price during the trading period, the precise index price will not be known until it is published. [redacted]

[5] Under the Plan, monthly MGT purchases are benchmarked based on *NGI* index prices. All other monthly purchases are benchmarked based on *Inside FERC* index prices.

[redacted]

Table 12 identifies Piedmont's review period monthly purchases by location, and reveals that Piedmont generally maximized purchases under its firm transportation contract with [redacted] its lowest-cost source of supply. As indicated in Section 2.1 of the Report, TGP-delivered supplies are required to meet customer requirements on the western side of Piedmont's system, and Columbia Gulf-delivered supplies are required to meet customer requirements on the eastern side of Piedmont's system. Therefore, deliveries from both Columbia Gulf and TGP are required. TGP-delivered supplies serving the western side of Piedmont's system may initially be delivered to TGP by MGT. Table 12 reveals that Piedmont minimized the purchase of [redacted], which were the highest-cost Gulf Coast production region source of supply during the review period (see Table 11). As indicated previously, [redacted] were generally Piedmont's highest-cost supply overall (see Table 11). However, frequently during the summer months, [redacted] were lower-cost than [redacted] that were sourced from [redacted]. During the months in which [redacted] were anticipated to be lower-cost, Piedmont purchased [redacted] to serve the western side of its system. Exeter's review of Piedmont's purchases that were delivered under the Company's firm transportation arrangements found these purchases to be consistent with least-cost procurement.

Table 11. Summary of First-of-the-Month, Monthly Benchmark Prices (Dth)

	Tennessee Zone L		Columbia Gulf	Texas Eastern	Columbia Gas	Midwestern Chicago Citygate	
Month/Year	500 Leg	800 Leg	Mainline	ELA[1]	Appalachia[2]	West Side	East Side
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Winter Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Annual Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Winter Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Annual Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Winter Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Annual Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Review Period							
Winter Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Summer Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Annual Average:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[1] Piedmont's Texas Eastern ELA transportation arrangement is a winter-only contract; therefore, purchases during the period April-October are not available.

[2] Piedmont only purchased Columbia Gas supplies during the summer to inject into Columbia Gas FSS Storage.

Table 12. Summary of First-of-the Month Market Purchases (Dth)

Month/ Year	Tennessee Zone L		Columbia Gulf	Texas Eastern	Columbia Gas	Midwestern Chicago Citygate		
	500 Leg	800 Leg	Mainline	ELA	Appalachia	West Side	East Side	Total
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Percent:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 13 identifies Piedmont's total purchases (monthly and daily) that were delivered under firm transportation arrangements during the review period. Due to the extensive amount of data, daily delivered prices for each transportation arrangement are not provided; however, these prices exhibited the same relative relationship, by location, as the monthly delivered prices shown in Table 11.

Table 13. Summary of First-of-the Month Baseload and Daily Purchases (Dth)

Month/ Year	Tennessee Zone L		Columbia Gulf	Texas Eastern	Columbia Gas	Midwestern Chicago Citygate		Total
	500 Leg	800 Leg	Mainline	ELA	Appalachia	West Side	East Side	
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total:	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Percent:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Citygate-Delivered Supplies. Table 14 summarizes Piedmont's citygate purchase quantities during the review period. [redacted]

[redacted]

Table 14. Summary of Citygate-Delivered Purchases (Dth)

Month/Year	Tennessee	ETNG	Columbia Gulf	Total
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]
Total:	[redacted]	[redacted]	[redacted]	[redacted]
Percent:	[redacted]	[redacted]	[redacted]	[redacted]

3.1.3. Results and Conclusions

Table 15 presents a summary of Piedmont's gas commodity procurement incentive mechanism purchases and gains/losses by month and type of purchase (i.e., monthly, daily, citygate). As shown in Table 15, commodity procurement incentive mechanism gains were primarily achieved through monthly purchases during the review period and, to a lesser extent, through citygate-delivered purchasers. No gains were achieved through daily purchases.

Table 15. Summary of Review Period Purchases and Commodity Procurement Gains/(Losses)

Month/ Year	Purchases by Type (Dth)				Gain/(Loss) by Type of Purchase			
	Monthly	Daily	Citygate	Total	Monthly	Daily	Citygate	Total
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total:	[redacted]		[redacted]		[redacted]	[redacted]	[redacted]	
Percent:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Weighting the Benchmark for Monthly Purchases by Capacity Entitlements. The benchmark for monthly purchases included in the MBIP under the Plan provides an incentive to purchase gas at receipt point locations with the lowest total delivered variable cost. Consistent with the conclusions expressed in prior Plan reports, it remains Exeter's conclusion that the benchmark for monthly purchases provides rewards for performance that is not superior to that of other market participants. Gas utilities operating under traditional regulation routinely maximize the purchase of gas at receipt point locations with the lowest total delivered variable cost. Chattanooga Gas, another Tennessee gas utility that operates under a gas cost incentive mechanism, also maximizes the purchase of gas at receipt point locations with the lowest total delivered cost. Chattanooga Gas does not realize rewards for maximizing the purchase of the lowest-cost monthly supplies under its incentive mechanism. The incentive mechanism of Chattanooga Gas is further discussed in Section 7 of the Report.

In the Company's comments on previous Exeter Plan reports, Piedmont has indicated that the intended goal of the Plan was not to provide rewards only when the Company outperformed other market participants. Piedmont stated that the goal of the Plan was to align the interests of the Company and its customers with respect to procuring and selecting the lowest delivered cost of gas available. Exeter agrees that the interests of Piedmont and its customers are aligned under this aspect of the Plan. Nevertheless, it remains Exeter's conclusion that the benchmark for monthly purchases included in the MBIP results in gas cost "savings" that would have been realized without the existence of the Plan. An incentive mechanism such as Piedmont's Plan should provide rewards for improvements in performance, and not provide rewards for performance that would be experienced in absence of the incentive mechanism under traditional regulation.

MGT Capacity Entitlements Included in the Weightings Utilized to Calculate the Benchmark for Monthly Purchases. The Plan requires that the pipeline capacity weightings utilized to calculate the benchmark for monthly purchases be based on design day citygate delivery entitlements (Piedmont tariff, Service Schedule No. 316, Fourth Revised page 3 of 4, footnote 4). Footnote 3 on that same page of Piedmont's tariff provides that if capacity was released or otherwise unavailable to be used to deliver gas to Piedmont's citygate, that capacity should be excluded from the monthly purchase benchmark calculation. For its firm transportation arrangements with TGP, Columbia Gulf, and Texas Eastern, Piedmont utilized the monthly MDQ under each contract, adjusted to reflect any daily supply limitations applicable under its AMA to determine its capacity entitlements under the benchmark calculation for monthly purchases. For these three pipelines, the only supply limitation was on Texas Eastern for the winter of 2018-2019 (see Table 9). For its firm transportation arrangements with MGT, separate East Side and West Side capacity entitlements were utilized to calculate the benchmark for monthly purchases. MGT West Side supplies are delivered to Piedmont's citygate by TGP, and East Side supplies are delivered to Piedmont's citygate by ETNG from MGT's interconnect with ETNG at Boat Dock. Exeter's audit found that Piedmont did not adhere to the Plan requirements in its tariff in determining the MGT capacity entitlements to be used in the benchmark for monthly purchases and inconsistently applied these tariff provisions.

As indicated previously in Table 9, Piedmont included up to 55,900 Dth/day of MGT West Side capacity in its monthly benchmark calculation during the summer months. The 55,900 Dth/day reflected the maximum amount of TGP firm transportation capacity available to deliver gas from Piedmont's TGP FS-MA and FS-PA storage accounts. Piedmont included the MGT West Side capacity in the monthly benchmark calculation during the summer months because the 55,900 Dth/day of TGP firm transportation capacity could be used to deliver MGT supplies to Piedmont's citygate during the summer months. However, the 55,900 Dth/day was not available to be used to purchase flowing supplies on a design day because it would be utilized to deliver gas from storage and, therefore, should not have been included in the monthly benchmark calculation.

The MGT West Side capacity quantities reflected in Table 9 for certain months during the summers of 2019 and 2020 that were less than 55,900 Dth/day reflected Piedmont's estimate of the maximum quantities of MGT West Side supplies that could be used to meet operational requirements. It is uncertain how, for example, operational requirements could change from 55,900 Dth/day for the months of May to September 2018 to 26,281 Dth/day for the same months during 2019.

With respect to the summer of 2017, the MGT West Side capacity quantities identified in Table 9 reflected the maximum daily quantity of MGT gas that Piedmont could request the Asset Manager to deliver under the then effective AMA without a penalty of $50/Dth. That is, for the summer of 2017, capacity in excess of the Asset Manager's delivery obligation was considered to be released and the Company did not maintain citygate delivery rights for the released capacity. This was consistent with the method used by Piedmont during the audit period to determine the daily capacity entitlements to be utilized in the monthly benchmark calculation.

For MGT East Side daily capacity entitlements, the Company reflected no entitlements in the monthly benchmark calculation for the months of July through September 2017, and 27,900 Dth/day for the month of October 2017. Consistent with the Asset Manager's delivery obligation for MGT supplies, the daily capacity entitlement reflected in the monthly benchmark calculation for the months of July through September 2017 should have been 10,000 Dth/day, and 15,000 Dth/day for October 2017.

For the winter of 2017-2018, Piedmont's monthly benchmark calculation did not include any MGT East Side daily capacity entitlements because the delivery obligations of the Asset Manager for MGT supplies were 0 Dth/day. For the summers of 2018, 2019, and 2020, Piedmont's monthly benchmark calculation reflected MGT East Side daily capacity entitlements of 7,900 Dth/day for the months of April 2018, October 2018, April 2019, and October 2019, and 8,000 Dth/day for the month of April 2020. To be consistent with the requirements of the Plan, each month of the summers of 2018, 2019, and 2020 should have reflected 25,000 Dth/day of daily capacity entitlement since this was the amount of MGT East

Side capacity anticipated to be available to meet projected design day demands, and the daily obligations of the Asset Manager in each month exceeded 25,000 Dth/day.

Table 16 summarizes the daily capacity entitlements that Exeter finds should have been utilized in the monthly benchmark calculation to be consistent with Plan requirements. However, if these daily capacity entitlements would have been utilized, the monthly purchase gains under the Plan would have been \$36,000 higher than those calculated by Piedmont. Since 25% of the gains are retained by Piedmont, the net effect on sales customers would have been an increase in audit period gas costs of \$9,000. Given the *de minimis* and insignificant impact, Exeter recommends no further adjustments or recalculation of Plan gains and rewards for the audit period.

Table 16. Capacity Entitlements That Should Have Been Reflected in the Calculation of Benchmark for Monthly Purchases (Dth/Day)

Month/ Year	Tennessee Zone L		Columbia Gulf Mainline	Texas Eastern ELA	Midwestern Chicago Citygate		Total Entitlements
	500 Leg	800 Leg			West Side[1]	East Side[2]	
Jul 2017	25,750	25,750	20,957	0	0	10,000	82,457
Aug	25,750	25,750	20,957	0	0	10,000	82,457
Sep	25,750	25,750	20,957	0	0	10,000	82,457
Oct	25,750	25,750	20,957	0	0	15,000	87,457
Nov	25,750	25,750	181,193	10,000	0	0	242,693
Dec	25,750	25,750	181,193	10,000	0	0	242,693
Jan 2018	25,750	25,750	181,193	10,000	0	0	242,693
Feb	25,750	25,750	181,193	10,000	0	0	242,693
Mar	25,750	25,750	181,193	10,000	0	0	242,693
Apr	25,750	25,750	56,600	0	0	25,000	133,100
May	25,750	25,750	36,410	0	0	25,000	112,910
Jun	25,750	25,750	36,410	0	0	25,000	112,910
Jul 2018	25,750	25,750	36,410	0	0	25,000	112,910
Aug	25,750	25,750	36,410	0	0	25,000	112,910
Sep	25,750	25,750	36,410	0	0	25,000	112,910
Oct	25,750	25,750	56,600	0	0	25,000	133,100
Nov	25,750	25,750	191,193	5,498	0	0	248,191
Dec	25,750	25,750	191,193	5,498	0	0	248,191
Jan 2019	25,750	25,750	191,193	5,498	0	0	248,191
Feb	25,750	25,750	191,193	5,498	0	0	248,191
Mar	25,750	25,750	191,193	5,498	0	0	248,191
Apr	25,750	25,750	79,000	0	0	25,000	155,500
May	25,750	25,750	35,580	0	0	25,000	112,080
Jun	25,750	25,750	35,580	0	0	25,000	112,080
Jul 2019	25,750	25,750	35,580	0	0	25,000	112,080
Aug	25,750	25,750	35,580	0	0	25,000	112,080
Sep	25,750	25,750	35,580	0	0	25,000	112,080
Oct	25,750	25,750	79,000	0	0	25,000	155,500
Nov	25,750	25,750	196,193	10,000	0	0	257,693
Dec	25,750	25,750	196,193	10,000	0	0	257,693
Jan 2020	25,750	25,750	196,193	10,000	0	0	257,693
Feb	25,750	25,750	196,193	10,000	0	0	257,693
Mar	25,750	25,750	196,193	10,000	0	0	257,693
Apr	25,750	25,750	85,220	0	0	25,000	161,720
May	25,750	25,750	38,810	0	0	25,000	115,310
Jun	25,750	25,750	38,810	0	0	25,000	115,310

[1] Delivered to the citygate by TGP.
[2] Delivered to the citygate by ETNG.

As noted previously in this conclusions section on the commodity procurement cost component, regarding the MGT capacity entitlements to be included in the calculation benchmark for monthly purchases, Piedmont did not use a consistent definition to determine whether capacity was released for a month. In certain months, Piedmont considered capacity in excess of an Asset Manager's delivery obligation without penalty to be released, and in other months it did not. In Exeter's view, capacity in excess of an Asset Manager's delivery obligation that cannot be purchased without penalty should be considered released capacity. Exeter recommends that the Plan be clarified accordingly.

Hendersonville ETNG Citygate Purchases. All review period ETNG-delivered citygate supplies were benchmarked based on Chicago citygate index prices, plus the MGT firm variable and fuel charges associated with the delivery of gas to ETNG at Boat Dock, plus the ETNG interruptible variable and fuel charges associated with the delivery of gas from Boat Dock to Piedmont. Piedmont used this method to benchmark ETNG-delivered supplies because it claims that the Plan states: "The commodity index prices will be adjusted to include the appropriate pipeline firm transportation (FT) and interruptible (IT) commodity transportation charges and fuel retention to the citygate under the Company's FT, negotiated FT, and IT service agreements." (Per response to Exeter discovery request 3.8.) During each month that Piedmont made ETNG citygate purchases, the Company had released its MGT capacity to the Asset Manager, and the Asset Manager's delivery obligation to Piedmont without a penalty to Piedmont was 0 Dth/day. The Company made no ETNG citygate purchases from its review period Asset Managers that would have potentially utilized the Company's released MGT capacity. As such, benchmarking ETNG citygate purchases as if they were delivered utilizing the Company's released MGT capacity is inconsistent with the FERC's shipper-must-have-title policy. Therefore, Exeter finds it inappropriate to benchmark ETNG citygate purchases based on Chicago citygate prices to evaluate the reasonableness of the Company's gas procurement performance.

The inappropriateness of utilizing Chicago citygate index prices to benchmark ETNG citygate purchases is best exemplified by the gains realized under the Plan for such purchases. During the review period, on January 30, 2019, Piedmont made two ETNG citygate purchases, one for 8,760 Dth and the other for 11,000 Dth. Under the Plan, the gain realized by Piedmont under the Plan for these two purchases was $[redacted], or an average of [redacted] Dth. On this day, the Chicago citygate index price was $[redacted]Dth, and the average price paid by Piedmont for ETNG citygate purchases was $[redacted]Dth. On March 4, 2019, Piedmont made an ETNG citygate purchase of 7,000 Dth at a price of $[redacted]Dth. Under the Plan, the benchmark price was calculated to be [redacted]Dth, and a gain of [redacted]was realized. The ETNG supplies purchased by Piedmont on these two days were made in the spot market at market prices and, clearly, the Chicago citygate index price-based benchmark was not reflective of market prices on these two days. The purchases on these two days represented less than 1% of Piedmont's total citygate purchases but accounted for nearly 25% of the gains associated with citygate purchases during the review period.

The inappropriateness of benchmarking ETNG citygate purchases based on Chicago citygate index prices is even more evident based on Plan results for the month of February 2021. The Annual Plan Report filed by Piedmont for the period July 2020 through June 2021 indicates that a gas procurement incentive mechanism gain of over $8 million for the month of February 2021 was realized. This is more than 100 times the typical monthly gain experienced during the July 2020 through June 2021 period. During the period February 13-16, 2021, the daily Chicago citygate index price was [redacted]Dth. During this period, Piedmont purchased 62,000 Dth of ETNG citygate-delivered supplies at an average cost of [redacted]/Dth. The gain realized under the Plan for the ETNG citygate purchases for these four days was [redacted], or [redacted]. The gain for the entire month of February 2021 from ETNG citygate purchases was [redacted].

Benchmarks under a gas cost incentive mechanism such as the Plan should be based on market prices, and rewards should be based on performance which exceeds that of other market participants. Based on the evidence presented, the benchmarking of ETNG purchases based on Chicago citygate index prices does not achieve these results. Therefore, the benchmark for ETNG citygate purchases should be modified to reflect market prices, or these purchases should be eliminated from the Plan.

Based on current interstate pipeline gas flows, Piedmont's ETNG citygate purchases were likely delivered to ETNG on TGP's 500 Leg at the interconnect of TGP and ETNG in Greenbrier, Tennessee. Therefore, a benchmark based on TGP 500 Leg index prices, plus the applicable TGP firm transportation variable and fuel charges and the ETNG interruptible transportation variable and fuel charges, would be appropriate. Piedmont currently maintains the transportation arrangements that would provide for the delivery of gas supplies to its citygate utilizing this delivery path. As part of its review in this proceeding, Exeter analyzed the Plan impact of using a benchmark based on the TGP 500 Leg to ETNG delivery path for the month of February 2021. That analysis indicated an average daily benchmark price of $5.54/Dth for the TGP 500 Leg to ETNG delivery path. The daily benchmark price for the MGT to ETNG delivery path currently used to benchmark ETNG citygate purchases averaged approximately $28/Dth during February 2021. The average price Piedmont paid for ETNG citygate purchases during February 2021 was $5.32/Dth. Utilizing the TGP 500 Leg to ETNG delivery path benchmark for February 2021 would have resulted in a gain of $64,700 rather than the $7.99 million calculated using the MGT to ETNG delivery path benchmark. As part of Exeter's assistance in this proceeding, Exeter is willing to conduct a limited evaluation of other proposals to benchmark ETNG citygate purchases.

3.2. Supplier Reservation Fees Component

3.2.1. Background and Description

The Plan allows Piedmont to recover 100% of its gas supplier reservation fees with no profit or loss potential. Piedmont entered into several citygate gas supply contracts with reservation fees during the review period. These fees generally ranged from [redacted]/Dth to $[redacted]/Dth, per day, of the contracted MDQ. A summary of Piedmont's review period supplier reservation fees is presented in Table 17. Piedmont significantly reduced its supplier reservation fees during the review period.

Table 17. Supplier Reservation Fees	
Winter	**Fees**
2017-2018	$[redacted]
2018-2019	[redacted]
2019-2020	[redacted]
Total:	**$**[redacted]

Piedmont maintained eight gas supply contracts subject to the Plan during the review period. Of those contracts, seven were for citygate supplies and one was for an upstream receipt point contract. The demand and commodity pricing provisions of those contracts were previously discussed in Sections 2.4.1 and 2.4.2 of this Report.

3.2.2. Results and Conclusions

Gas supply contracts can be arranged to provide for a discount on commodity index prices in exchange for higher demand charge supplier reservation fees. The Plan requires modifications to the applicable index price to reflect such discounts. Gas supply contracts can also be arranged that provide for the ability to purchase gas at FOM index prices after the first of the month, when daily market gas prices are higher (FOM call option) in exchange for higher supplier reservation fees. With 100% recovery of supplier reservation fees, monthly call option contracts could improperly reward Piedmont. All of the Company's contracts with supplier reservation fees during the review period included index commodity pricing, with no FOM price purchase rights. Therefore, Exeter found no concerns with Piedmont's administration of supplier reservation fees under the commodity procurement cost component of the Plan during the review period.

3.3. Capacity Management Component

3.3.1. Background and Description

Piedmont realized revenues under the capacity management component of the Plan through AMAs and off-system sales during the review period. Table 18 summarizes the capacity management revenues realized by Piedmont during the review period.

Table 18. Summary of Capacity Management Revenues

		Off-System Sales			Revenues	
Month/ Year	Asset Management	Volume (Dth)	Margin	Total	Company 25%	Ratepayers 75%
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	$ [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	$ [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total:	$ [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Piedmont is entitled to retain 25% of capacity management revenues, up to a cap of $1.6 million, including gains under the commodity procurement cost component of the Plan. The 25% Company sharing for AMA revenues is at the high end of the sharing procedures adopted in other jurisdictions, and the 25% Company sharing for off-system sales margin is consistent with Exeter's experience in other jurisdictions.

Piedmont's review period AMAs were previously summarized in Table 6 in Section 2.4 of the Report. As shown there, the annual AMA fees received increased during the review period. The business activities and records of Piedmont's Asset Manager are not available for review, and Piedmont was uncertain as to why AMA fees increased during the review period. It is Exeter's opinion that the AMA fees may have increased due to the acquisition of incremental Columbia Gulf firm transportation capacity which replaced bridging-delivered supplies, as previously discussed in Section 2.1.2 of the Report. This incremental Columbia Gulf capacity was released to the Asset Manager under Piedmont's AMAs and could be utilized by the Asset Manager to optimize revenues when not required to meet Piedmont's requirements.

Capacity release revenues are also subject to sharing under the capacity management component of the Plan. However, Piedmont released all of its interstate pipeline capacity to the AMA Asset Manager and, therefore, Piedmont did not engage in capacity release activities during the review period.[6]

The release of all of Piedmont's capacity to the Asset Manager also limited Piedmont's ability to engage in off-system sales activities during the review period. Under Piedmont's AMA, Piedmont had the option to sell to the Asset Manager, at daily index prices, monthly baseload purchases that were in excess of Piedmont's requirements. Piedmont's off-system activities during the review period were limited to such sales back to the Asset Manager. These sales are included in Table 18 above.

During the period July through October 2017, Piedmont sold the gas purchased under its baseload contract with [redacted] interconnect to the Asset Manager. These supplies were subsequently delivered to Piedmont's citygate by the Asset Manager and resold back to Piedmont at the same cost initially paid for the gas when it was sold to the Asset Manager. These off-system sales were made to comply with the FERC's shipper-must-have-title policy, generated no margin, and are not reflected in Table 18.

3.3.2. Results and Conclusions

Exeter's two most recent prior triennial reviews of Piedmont's Plan identified a general concern with Piedmont's off-system sales activities in that the supplies being sold off-system were frequently later being replaced with higher-cost supplies, adversely impacting the gas costs of sales customers. This concern has also surfaced during the current review period; however, significantly less frequently than was observed during the two prior audits, and the adverse impact was relatively insignificant.

[6] The release of all of a gas utility's interstate pipeline capacity under an AMA is standard industry practice.

Piedmont released all of its review period interstate pipeline capacity under its AMAs and, therefore, the Company was generally unable to use its interstate pipeline capacity to engage in off-system sales activity. Piedmont's review period off-system sales profit opportunities were largely limited to the sale of baseload supplies back to the Asset Manager. When Piedmont engaged in these off-system sales, the sales were often made at the end of the month, and the Company frequently purchased supplies at the same location at the beginning of the next month at higher prices. Had Piedmont not sold monthly baseload supplies off-system, and instead injected those supplies into storage, the Company could have potentially reduced the following month's higher-priced monthly baseload purchases. Exeter's audit noted three instances where this occurred during the review period: (1) the sale of gas at the end of June 2018 with an average cost of [redacted] Dth, and the purchase of supplies at [redacted] Dth the following month (July 2018); (2) the sale of gas at the end of September 2018 with an average cost of [redacted] Dth, and the purchase of supplies at [redacted]/Dth the following month (October 2018); and (3) the sale of gas at the end of May 2019 with an average cost of [redacted] Dth, and the purchase of supplies at [redacted] Dth the following month (June 2019).

In conclusion, off-system sales activities contributed relatively little to Piedmont's capacity management revenues, totaling approximately [redacted] over the three-year review period. The three instances noted above where Piedmont sold gas to the Asset Manager and subsequently purchased supplies at higher prices generated approximately 25% of Piedmont's off-system sales margins. These sales to the Asset Manager appear to have had an adverse impact on the gas costs of sales customers of approximately [redacted] while generating a reward for Piedmont under the Plan. Although this adverse impact was relatively insignificant during the review period, the potential exists for the adverse impact to be significantly greater in the future. Therefore, except for potentially operational reasons and those off-system sales made to comply with the FERC's shipper-must-have-title policy, Exeter concludes, as it did in the most recent prior audit, that it would be in the best interests of ratepayers if Piedmont did not engage in off-system sales when all of the Company's capacity is assigned under an AMA.

4. Storage Activity

The Statement of Work for this audit, as identified in the RFP, requires the review of Piedmont's gas procurement, capacity management, and off-system sales activities and transactions. These transactions and activities were reviewed in detail in Section 3 of the Report. Also required for review are Piedmont's storage activities, which are described in this section of the Report.

4.1. Storage Arrangements and Activity

As discussed in greater detail in Section 2 of the Report, Piedmont purchased unbundled storage service from TGP under Rate Schedules FS-MA and FS-PA, and from Columbia Gas under Rate Schedule FSS. Piedmont also owns and operates an LNG storage facility. The Company's storage arrangements during the review period are summarized in Table 19.

Table 19. Summary of Review Period Storage Service Arrangements

Service	Rate Schedule	Maximum Withdrawal Quantity (Dth) Daily	Seasonal
Tennessee Gas Pipeline	FS-MA	49,828	2,901,943
Tennessee Gas Pipeline	FS-PA	6,072	672,091
Columbia Gas Transmission	FSS	10,000	611,870
Piedmont LNG	-	[redacted]	[redacted]
Total:		[redacted]	[redacted]

Table 20 identifies the monthly storage activity (injections/withdrawals) and the inventory balances under each of Piedmont's storage arrangements at the conclusion of each month of the review period. Also shown are storage inventory balances as a percent of the Company's maximum seasonal contract quantity. The storage activity presented in Table 20 reflects Piedmont's virtual dispatch use of storage, not the actual physical use of storage by its Asset Manager during the review period.

Table 20. Summary of Review Period Storage Activity (Dth)

	Tennessee Gas Pipeline (FS-MA)			Tennessee Gas Pipeline (FS-PA)			Columbia Gas Transmission (FSS)			Piedmont (LNG)		
Month/ Year	Activity (Inject/ With-drawals)	Ending Inven-tory	% Capacity 2,901,943	Activity (Inject./ With-drawals	Ending Inven-tory	% Capacity 672,091	Activity (Inject./ With-drawals	Ending Inven-tory	% Capacity 611,870	Activity (Inject./ With-drawals	Ending Inven-tory	% Capacity 1,000,000
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

4.2. Storage Planning Guidelines

Piedmont has established general storage planning guidelines that identify the inventory balances the Company plans to maintain. Piedmont targets to fill TGP FS-MA and FS-PA storage to 90% of capacity by December 1, and to fill Columbia Gas storage and the Company's LNG storage to [redacted] of capacity by November 1. [redacted]. Piedmont plans to reduce the storage inventory balances under each of its interstate pipeline storage services to [redacted] by the conclusion of the storage withdrawal season (March 31). Columbia Gas' FERC tariff for FSS includes storage inventory cycling requirements that Piedmont is required to follow. No cycling requirements exist under TGP's tariff for FS-MA or FS-PA storage. LNG storage is used when needed to meet customer demands and/or meet the operational requirements of the facility to cycle gas (e.g., if the British thermal unit [Btu] value is high, the gas may need to be cycled). Piedmont's actual and planned interstate pipeline inventory balances during the review period are summarized in Table 21. As shown, actual beginning-of-storage season inventory balances were generally consistent with planned balances. However, end-of-storage season inventory balances, and specifically TGP inventory balances, [redacted]

Table 21. Review Period Planned and Actual Storage Inventory

	March 31		November 1		December 1	
Year	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
			Tennessee Gas Pipeline (FS-MA/FS-PA)			
2017	[redacted]					
2018						
2019						
2020						
			Columbia Gas Transmission (FSS)			
2017	[redacted]					
2018						
2019						
2020						

Piedmont's TGP and Columbia Gas storage inventory balances at the conclusion of the 2017-2018 winter season were at [redacted] and [redacted] of capacity, respectively, which were in excess of the [redacted] planned balances. Storage balances exceeded Piedmont's planning criteria largely due to winter period gas prices that were generally less than the cost of gas in storage inventory that was injected the previous summer (see Table 11). As a result of these low prices, there was little price benefit to sales customers associated with withdrawing gas from storage. Weather during the 2017-2018 winter season was 10% warmer than normal, which also contributed to the higher-than-planned storage balances.

At the conclusion of the winter of 2018-2019, TGP storage inventory balances were at [redacted] of capacity, while the Columbia Gas inventory balance was at [redacted] of capacity. Weather during the winter of 2018-2019 was nearly 25% warmer than normal, which contributed to the TGP and Columbia Gas storage inventory balances exceeding planned balances.

Piedmont's TGP storage inventory balances at the conclusion of the winter of 2019-2020 were at [redacted] of capacity, and the Columbia Gas storage inventory balance was at [redacted] of capacity. Gas prices during the winter of 2019-2020 were generally lower than those observed during the 2019 summer injection period, which limited the price benefit to sales customers associated with withdrawing gas from storage. The winter of 2019-2020 was also 20% warmer than normal. [redacted]

In conclusion, Exeter's review finds that Piedmont's storage inventory planning criteria were generally reasonable, and were consistent with the criteria used by other gas distribution companies. Piedmont generally adhered to those criteria unless market conditions or operational requirements indicated that deviations were appropriate. Therefore, Piedmont's review period storage activity appears reasonable.

5. Evaluation of Capacity Portfolio and Identification of Variable Charges

5.1. Design Day Forecast and Criteria

Piedmont secures sufficient capacity resources to meet the forecasted design day requirements of its sales customers and those transportation customers that select standby service. Piedmont currently utilizes a day with an average daily temperature of -5°F, or 70 heating degree days (HDDs), as its design day criteria. This reflects the coldest average daily temperature experienced in the Company's service territory over the last 40 years (which occurred on January 20, 1985). During the triennial review conducted by Exeter for the period July 1, 2011 through June 30, 2014, Piedmont had initially utilized a design day temperature criteria of 67 HDDs, but revised its criteria to 70 HDDs in response to the Polar Vortex experienced during the winter of 2013-2014. It is common industry practice for natural gas utilities to utilize the coldest day experienced in the last 30 years for their design day criteria. Therefore, Piedmont's use of temperatures experienced in 1985 is slightly conservative.

To assess the reasonableness of Piedmont's design day forecast methods and procedures, Exeter evaluated the Company's forecast for the winter of 2020-2021. Piedmont's design day forecast for the winter of 2020-2021 was based on an analysis of daily firm sales and firm transportation sendout for the period November 2015 through March 2020. Through this analysis, Piedmont determined baseload usage and usage-per-HDD factors, and utilized these usage factors to determine forecasted firm design day demands at 70 HDDs. Baseload usage was determined through a regression analysis of usage on days with ten or fewer HDDs. The usage-per-HDD factor was determined through a regression analysis of usage on days with greater than ten HDDs. Included in the Company's forecast of design day demands is a 5% reserve margin. Customer growth is also reflected in the Company's forecasts. The demands of firm transportation customers electing not to purchase standby service are subtracted from the Company's firm design day forecast to determine the capacity resources to be acquired by Piedmont. A comparison of the Company's firm design day forecasts and available capacity resources for the review period and the winter of 2020-2021 is presented in Table 22.

Table 22. Comparison of Estimated Design Day Demands and Capacity Resources (Dth)

Winter Season	Firm Demand[1]	Capacity Resource	Surplus (Deficit)
2017-2018	399,968	399,968	0
2018-2019	396,218	395,270	(948)
2019-2020	404,718	400,270	(4,448)
2020-2021	404,153	407,270	3,117

[1] Excludes transportation customers electing not to purchase standby service. [redacted]

Exeter's evaluation of Piedmont's design day forecasting model revealed several concerns. First, Piedmont used separate regression analyses to determine baseload usage and the usage-per-HDD factors. Such an approach is statistically invalid. In addition, Piedmont relied on usage data that dated back to the winter of 2015-2016, and incorporated usage on days with relatively low heating load. Relying on data for the winter of 2015-2016 would fail to account for customer conservation efforts. Relying on usage data on days with relatively low heating load usage would underestimate usage on days with higher heating loads because the relationship between usage per HDD and HDD is not linear, and usage per HDD is typically greater on days with higher HDDs. Exeter noted in a prior triennial review that Piedmont found that variables other than HDDs such as wind speed and prior-day HDDs had an impact on daily customer usage. These other variables were not included in Piedmont's design day forecast model. Piedmont has indicated that it adopted its revised design day criteria to 70 HDDs from 67 HDDs partially to account for the impact of these other variables rather than to include these variables in its model.

Given Exeter's concerns with Piedmont's design day forecast model, Exeter independently assessed the results of Piedmont's model. Exeter evaluated a regression model projecting firm daily usage that included independent variables for wind speed and prior-day temperature, and accounted for usage on weekends which is typically lower than usage during the week. The model also limited the usage data included in the analysis to days during the winter with temperatures at or below 32°F, and to usage data from the last three heating seasons. Exeter's evaluation indicated that the independent variables for wind speed, prior-day temperatures, and weekend usage were not statistically significant. Exeter subsequently evaluated a regression model utilizing HDDs as the only independent variable and usage data from the three most recent December through February winter periods on days with temperatures at or below 32°F. This alternative design day model estimated the design day demands of Piedmont's firm sales and firm transportation customers at 70 HDDs to be 391,686 Dth for the 2020-2021 winter season, prior to accounting for customer growth and Piedmont's reserve margin. Under these same conditions, the design day projection of Piedmont's model was 388,778 Dth, which reflects a difference of less than 1%. Therefore, despite the concerns with Piedmont's design day model, there appear to have not been adverse consequences resulting from utilization of the model for capacity planning purposes. Nevertheless, Exeter recommends that Piedmont continue to explore improvements to its model by including wind speed, prior-day HDDs, and weekend independent variables, including only those days with a relatively high heating load, such as those days with temperatures at or below freezing, and generally limiting usage data to the most recent three-year period.

The Statement of Work for this audit requires an assessment of the extent to which Piedmont's design peak day forecasting approach considered customer conservation efforts. As noted previously in this section, customer conservation efforts are not explicitly considered by the Company, and could overstate Piedmont's design day demands. As indicated above, Exeter has recommended that Piedmont limit the daily usage data included in its design day forecasting model to the most recent three years. This should adequately account for the impact of customer conservation efforts on the Company's design day forecast.

5.2. Actual Peak Day and Design Day Model Forecasting Accuracy

A comparison of actual peak day firm requirements and forecasted requirements under actual peak weather conditions using Piedmont's design day forecasting model can provide an indication of the predictive capability of the Company's design day forecasting model. To assess the predictive capability of the forecasting approach and model used by the Company, Exeter compared actual firm sendout with the forecasted firm sendout under actual peak weather conditions. This comparison is presented in Table 23. As shown, Piedmont's forecasting model generally did not produce forecasts that were unreasonable. Exeter also compared actual firm sendout with forecasted sendout under actual weather conditions using the model developed by Exeter discussed in Section 5.1 of this Report. As shown in Table 23, the predictive capability of both models was similar. It should be noted that both models under-projected actual sendout on January 21, 2020, which was Martin Luther King Day, a federal holiday, and this may have contributed to actual sendout exceeding projected sendout.

Table 23. Comparison of Actual Projected Firm Demand Piedmont and Exeter Models (Dth)

		Piedmont Model			Exeter Model		
Peak Day	**Actual**	**Projected**	**Variation**	**%**	**Projected**	**Variation**	**%**
January 16, 2018 (54 HDDs)	[redacted]	307,549	[redacted]		299,334	[redacted]	[redacted]
January 30, 2019 (45 HDDs)	[redacted]	262,081	[redacted]		247,639	[redacted]	[redacted]
January 20, 2020 (41 HDDs)	[redacted]	240,624	[redacted]		223,244	[redacted]	[redacted]

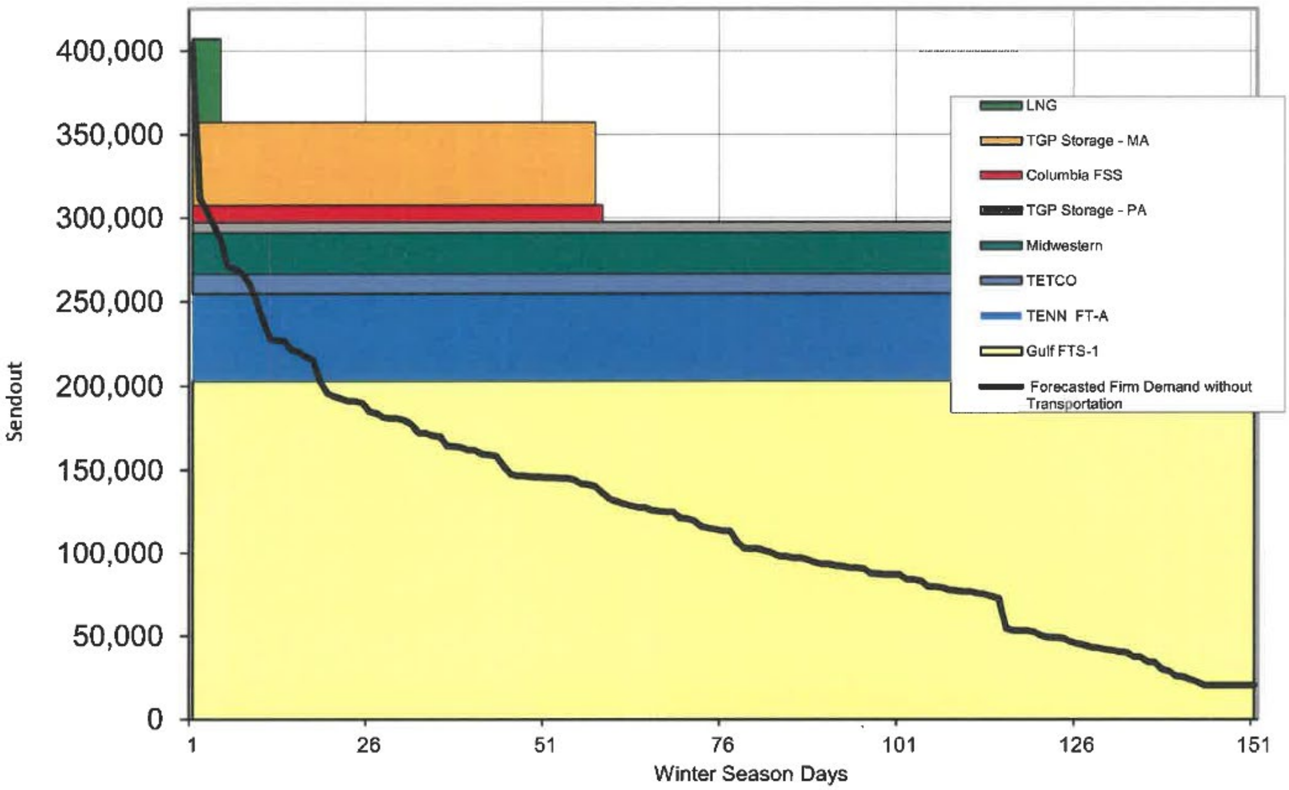
5.3. Balance of Capacity Resources and Design Day Requirements

A comparison of Piedmont's estimated design day demands and the capacity resources available to meet those demands for the review period and the winter of 2020-2021 was previously presented in Table 22. As shown there, Piedmont's estimated design day demands and capacity resources were in relative balance during the review period and for the winter of 2020-2021. Details concerning the specific design day capacity resources available during the last winter season of the review period are presented in Table 2 of the Report.

5.4. Winter Season Capacity Resources and Requirements

For winter season capacity resource planning, Piedmont historically used a design winter in which the HDDs experienced each day were equal to the highest HDDs experienced on that day during the previous five years. Effective for the winter of 2017-2018, the Company modified its design winter planning criteria to reflect the coldest winter in the last five years. The Company claims that this modification results in a more reasonable design winter criteria. The coldest winter during the last five years was the winter of 2017-2018, with 2,944 HDDs. Normal winter HDDs for the Company's service territory is 3,261 HDDs. Therefore, the coldest winter in the last five years was actually nearly 10% warmer than normal. For the winter of 2020-2021, Piedmont used 2,944 HDDs for winter capacity resource planning. The projected demands of firm sales customers under a design winter for the winter of 2020-2021 were 18,400,000 Dth. The capacity resources available to meet the winter season requirements of Piedmont's sales customers totaled 48,700,000 Dth. This indicates that from a planning perspective, Piedmont's winter season capacity resources [redacted]
Thus, Piedmont maintained winter period capacity resources sufficient to meet firm sales customers' requirements under the most extreme weather conditions, and the Company's use of a warmer-than-normal winter for capacity planning purpose does not raise reliability concerns. Nevertheless, Exeter recommends that Piedmont consider an alternative winter planning criteria such as a winter that is 10% colder than normal. Piedmont attempts to obtain value for its unutilized firm transportation capacity by releasing that capacity under an AMA. Piedmont's load duration curve for the winter of 2020-2021 is presented in Figure 2. This demand curve illustrates the extent to which Piedmont maintained winter capacity [redacted] The Company's 2019-2020 winter demand curve is comparable to its 2020-2021 winter demand curve, with the exception that the Company's Columbia Gulf FTS-1 firm transportation capacity was increased by 7,000 Dth/day for the winter of 2020-2021.

Figure 2. 2020-2021 Load Duration Curve (Design Winter)



5.5. Annual Capacity Resources and Requirements

The estimated requirements of Piedmont's sales customers during a year in which a design winter season is experienced are approximately [redacted]. As shown previously in Table 2, the capacity resources available to meet Piedmont's annual requirements totaled [redacted] at the conclusion of the review period. Approximately [redacted] of this capacity is used to fill storage during the summer period. Based on annual requirements of [redacted] and summer storage injections of [redacted], Piedmont maintained an annual deliverability surplus of approximately [redacted]. Piedmont's annual capacity resource and requirements balance is further discussed in Section 5.6 below.

5.6. Capacity Portfolio Utilization and Potential Modifications

The Statement of Work for Exeter's review includes examination and identification of: (a) the cost of year-round firm transportation and seasonal firm transportation utilized by Piedmont during the review period to meet peak demand; (b) the potential cost of meeting peak demand with more seasonal firm transportation and less year-round firm transportation; and (c) the potential cost of meeting peak demand with more year-round firm transportation and less seasonal firm transportation. Exeter interprets this aspect of the Statement of Work as requiring Exeter to evaluate whether Piedmont's annual interstate pipeline demand charges can be reduced by modifying the Company's current capacity portfolio.

The charges associated with each non-storage-related interstate pipeline firm transportation service purchased by Piedmont during the final year of the review period are summarized in Table 24. In order to provide a current assessment of Piedmont's future demand charges, Columbia Gulf Contract No. 194490 is reflected in Table 24 at the contract quantities for the period November 2020 – October 2021.

Table 24. Summary of Interstate Pipeline Firm Transportation Charges

Pipeline/ (Contract No.)	MDQ (Dth) Winter	MDQ (Dth) Summer	Annual Commodity (Dth)	Monthly Demand Charge ($/Dth)	Annual Demand Cost
Columbia Gulf Transmission					
FTS-1 (43462)	10,000	9,202	3,479,228	[redacted]	[redacted]
FTS-1 (14252)	31,000	11,755	7,196,570	$4.1700	$989,478
FTS-1 (194490)	162,193	67,162	38,863,811	$4.1700	$5,342,183
Midwestern Gas Transmission					
FT-A (FA0342)	100,000	100,000	36,500,000	[redacted]	[redacted]
FT-B (FB0006)	100,000	100,000	36,500,000	[redacted]	[redacted]
Tennessee Gas Pipeline					
FT-A (237)	51,500	51,500	18,797,500	[redacted]	[redacted]
Texas Eastern Transmission					
FT-1 (910473)	10,000	0	1,510,000	[redacted]	[redacted]
SCT (800059)	1,677	1,677	204,035	$2.3389	$47,068
Total:					[redacted]

Actual review period utilization of the Company's firm transportation capacity for the final year of the review period is presented in Table 25. The utilization load factor for TGP includes the use of TGP capacity to deliver MGT-sourced supplies from Portland, Tennessee to the west side of Piedmont's system. As shown, the Company's firm transportation arrangements were utilized [redacted]. The Columbia Gulf and TGP capacity were utilized [redacted] respectively. The Company's MGT capacity was utilized [redacted] The Texas Eastern capacity load factor [redacted]

Table 25. Summary of Firm Transportation Contract Utilization (July 2019 – June 2020 Plan Year)

Pipeline/Rate Schedule	Annual Quantity (Dth) Maximum	Actual	Load Factor
Columbia Gulf Transmission			
FTS-1 (43462/14252/194490)	47,862,223	[redacted]	[redacted]
Midwestern Gas Transmission			
FT-A / FT-B (FA0342/FB0006)	36,500,000	[redacted]	[redacted]
Tennessee Gas Pipeline			
FT-A (237)	18,797,500	[redacted]	
Texas Eastern Transmission			
FT-1 (910473)	1,510,000	[redacted]	
Total:	**104,669,723**	[redacted]	[redacted]
Total Excluding MGT:	**68,169,723**	[redacted]	[redacted]

Rather than assess the potential for Piedmont to reduce its demand charges by decreasing the year-round capacity included in a winter 2019-2020 capacity portfolio that has since changed, Exeter has assessed this potential based on the capacity portfolio that will exist for the winter of 2021-2022. Table 26 summarizes Piedmont's design day, winter season, and annual capacity entitlements based on the Company's currently projected winter of 2021-2022 capacity portfolio.

Table 26. Summary of Design Day Capacity Contracts and Resources (2021-2022 Winter Season)

Pipeline – Service	Contract No.	MDQ (Dth)		Available Quantity (Dth)		Contract Expiration
		Winter	Summer	Winter	Annual	
Columbia Gas Transmission[1]						
Storage Service (FSS/SST)	38017/ 38052	10,000	5,000	611,870	611,870	3/31/2024
Columbia Gulf Transmission[1]						
Firm Transportation (FTS-1)	43462	10,000	9,202	1,510,000	3,479,228	10/31/2022
Firm Transportation (FTS-1)	14252	31,000	11,755	4,681,000	7,196,570	10/31/2022
Firm Transportation (FTS-1)	194490	169,193	70,060	25,548,143	40,540,983	10/31/2022
Midwestern Gas Transmission						
Firm Transportation (FT-A)[2]	FA0342	100,000	100,000	3,775,000	9,125,000	1/6/2023
Firm Transportation (FT-B)[1],[2]	FB0006	100,000	100,000	3,775,000	9,125,000	1/6/2023
Tennessee Gas Pipeline[1]						
Firm Transportation (FT-A)	237	51,500	51,500	7,776,500	18,797,500	10/31/2024
Storage Service (FS-MA/FT-A)	6815/ 301244	49,828	0	2,901,943	2,901,943	10/31/2024
Storage Service (FS-PA/FT-A)	2400/ 301244	6,072	0	672,091	672,091	10/31/2024
Texas Eastern Transmission[1]						
Firm Transportation (FT-1)	910473	10,000	0	1,510,000	1,510,000	3/31/2025
Firm Transportation (SCT)	800059	1,677	1,677	84,409	204,035	10/31/2023
Piedmont LNG[1]		[redacted]	[redacted]	[redacted]	[redacted]	
[redacted]		[redacted]		[redacted]		

[1] [redacted]

Piedmont's projected design day demand for the winter of 2021-2022, inclusive of its reserve margin, is [redacted] Dth. As shown above in Table 26, Piedmont will maintain [redacted] Dth of design day capacity, or [redacted]. This excess is due to the restoration of the deliverability of Piedmont's LNG facility to [redacted] Dth/day from [redacted] Dth/day. Compared to the winter of 2019-2020, Piedmont's winter season capacity entitlements increased from 48.4 million Dth to 50.1 million Dth, indicating that winter season capacity resources exceeded requirements of 23.6 million Dth by 26.5 million Dth. Annual capacity entitlements increased from 83.1 million Dth to 86 million Dth, indicating that annual capacity resources, including summer storage fill requirements, exceeded requirements of 27.8 million Dth by 58.2 million Dth.

A significant portion of Piedmont's 2021-2022 winter season capacity portfolio will consist of either winter season capacity or will be seasonally sculpted, with winter season entitlements being higher than summer season entitlements. The Company's firm transportation contract with Texas Eastern is a winter-only contract. The capacity entitlements under the Company's three firm transportation contracts with Columbia Gulf are seasonally sculpted. In total, the Company's summer capacity entitlements will be 60% less than its winter capacity entitlements. Piedmont has indicated, and it is consistent with Exeter's experience in reviewing interstate pipeline contracting practices, that interstate pipelines are not willing to enter into winter-only capacity contracts. Therefore, the potential for Piedmont to rely more on winter season capacity and reduce year-round capacity is limited. Finally, as noted in other sections of the Report, Piedmont has reduced the MGT capacity determined to be available to meet design day demands by 75,000 Dth/day. This 75,000 Dth/day has been excluded from Exeter's comparison of the Company's 2021-2022 winter season capacity entitlements and requirements. However, Piedmont will be required to pay for this 75,000 Dth of MGT capacity until 2023. Piedmont has indicated that when its current MGT firm transportation contracts expire on January 6, 2023, it will reduce its contractual entitlements under those contracts to 25,000 Dth/day.

5.7. Commodity, Fuel, and Storage Charges

In addition to requiring the payment of demand charges, which are fixed and not based on actual usage, the firm transportation services Piedmont purchases from its interstate pipelines require the payment of variable charges that are based on actual usage. Piedmont is also assessed in-kind fuel charges based on actual purchase quantities. Under its pipeline storage arrangements, Piedmont is assessed volumetric injection and withdrawal charges, and is also assessed storage injection fuel charges.

A requirement included in the Statement of Work of Exeter's review is to identify the various commodity costs charged to Piedmont under each of the Company's interstate pipeline service arrangements as well as those billed to Piedmont's Tennessee customers. During the course of Exeter's review, Piedmont indicated that it did not maintain information in a manner that would enable Exeter to identify the specific charges by type. However, Piedmont was assessed [redacted] Piedmont recovers the interstate pipeline commodity charges it is assessed for the services used to serve its Tennessee customers on a dollar-for-dollar basis. The various interstate pipeline commodity rates in effect at the conclusion of the review period are identified in Table 27.

Table 27. Interstate Pipeline Variable Charges

Transportation Services		
Pipeline/Rate Schedule (Contract)	**Commodity Charge ($/Dth)**	**Fuel Charge**
Columbia Gas Transmission		
SST (38052) to Storage	$0.0192	1.686%
SST (38052) from Storage	$0.0179	0.000%
Columbia Gulf Transmission		
FTS-1 (43462/14252/194490)	$0.0122	0.241%
Midwestern Gas Transmission		
FT-A (FA0342)	$0.0022	1.000%
FT-B (FB0006)	$0.0013	0.000%
Tennessee Gas Pipeline		
FT-A (237)	$0.0155	1.08%
FT-A (301244)	$0.0155	1.08%
Texas Eastern Transmission		
FT-1 (910473)	$0.0013	0.26%

Storage Services			
Pipeline/Rate Schedule (Contract)	**Variable Charge ($/Dth)**		**Injection Fuel Charge**
	Injection	**Withdrawal**	
Columbia Gas Transmission			
FSS (38017)	$0.0153	$0.0153	0.49%
Tennessee Gas Pipeline			
FS-MA (6815)	$0.0087	$0.0087	1.36%
FS-PA (2400)	$0.0073	$0.0073	1.36%

Note: Rates as of July 2020.

6. Hedging Activity

6.1. Background and Description

The 2007 Settlement provided for the recovery of hedging costs as a purchased gas cost, and defined hedging transactions to include futures contracts, financial derivative products, storage swap arrangements, or other private agreements to hedge, manage, or reduce gas costs. Piedmont's allowable hedging costs are limited to 1% of annual gas costs.[7] All hedging gains and losses are reflected in the Company's purchased gas cost rates, and the gains and losses are excluded from the 1% cost limit. Piedmont's hedging program is designed to mitigate the impact of significant price spikes for up to 45% of normalized purchases. Hedges are limited to the purchase and sale of call options. Options are purchased on the New York Mercantile Exchange (NYMEX), and there are no over-the-counter (OTC) transactions. Piedmont's hedging activities during the review period are summarized in Table 28.

The Company's forward-hedging horizon is one year. Piedmont hedges for both the winter and summer seasons, and the annual budget for hedging set by the 1% cost limit is allocated between months based on anticipated normalized purchases, including purchases for injection into storage. Purchases under the Company's hedging program are guided by price- and time-driven parameters. Piedmont's hedging activities are overseen by the Gas Market Risk Committee.

Price-dependent hedging purchases are determined as follows: Piedmont will utilize a portion of its pre-established hedging budget to purchase call options any time the futures price for any month in the 12-month, forward-hedging horizon reaches specific seasonal threshold levels compared with historical prices. The Company collects historical daily prompt-month settlement prices over the most recent four years, applies an inflation adjustment, and weights data for the most recent 12 months more heavily.[8] This adjusted historical price database is then segmented into deciles, which are presented in a matrix. Current futures prices are compared against the matrix by season when making hedging decisions. Piedmont has established the first hedging threshold level at the point when futures prices for any month in the hedging horizon close at or below the 50th seasonal decile price point of the matrix. When this occurs, Piedmont will spend 20% of its monthly hedging budget on call options for that month's contract. Piedmont will continue to spend an additional 20% of its monthly hedging budget for any month's contract any time futures prices fall into the next-lowest decile price point. For example, if futures prices for any month in the hedging horizon fall below the 40th decile price point, Piedmont will spend an additional 20% of its monthly hedging budget on call options. If prices were to fall below the 10th decile price point and into the first decile, then Piedmont will have exhausted its monthly hedging budget when it utilizes

[7] The recovery cap is computed from the most current audited and approved gas costs for the Company in a TRA docket as of the first day of the month, 12 months prior to the first day of the period under audit.

[8] This information is provided to the Company by Stone X, an external party.

Table 28. Summary of Call Option Hedging Activity

Hedge Month	Quantity (Dth)	Average Strike Price ($/Dth)	Average Call (Price)/ Gain ($/Dth)	Call Gain/(Loss)	Fee	Total Cost
Call Purchases						
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jul 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Sep	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Oct	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2020	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Feb	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mar	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Apr	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Call Purchases:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Call Sales						
Jul 2017	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
May 2018	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jun	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nov	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Jan 2019	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Call Sales:	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Net Hedging Impact:				[redacted]		

the last 20% of that budget to purchase additional call options. A sample matrix for June 2020 is presented below:

June 2020 Expiration ($/Dth)

Decile	Annual	Summer	Winter
90% - MAX	[redacted]	[redacted]	[redacted]
80% - 90%	[redacted]	[redacted]	[redacted]
70% - 80%	[redacted]	[redacted]	[redacted]
60% - 70%	[redacted]	[redacted]	[redacted]
50% - 60%	[redacted]	[redacted]	[redacted]
40% - 50%	[redacted]	[redacted]	[redacted]
30% - 40%	[redacted]	[redacted]	[redacted]
20% - 30%	[redacted]	[redacted]	[redacted]
10% - 20%	[redacted]	[redacted]	[redacted]
MIN - 10%	[redacted]	[redacted]	[redacted]
Mean:	[redacted]	[redacted]	[redacted]
Median:	[redacted]	[redacted]	[redacted]

As a general rule, Piedmont will spend 4% of the decile price and spend up to 20% of the allowed dollars for that month. For example, if the 50th decile is $5.00, Piedmont will spend $0.20/Dth ($5.00 x 4%), and purchase calls with a strike price of $0.20/Dth. If 20% of the allowed dollars for a given month is $50,000, that number is divided by $0.20 to arrive at a volume of 250,000 Dth to hedge. If spending 20% of the available dollars in any one month purchases call volumes that exceed 20% of the anticipated normalized purchase volume, the volume will be limited to 20% of the anticipated monthly purchase volume. If 20% of the available dollars does not purchase 20% of the normalized purchase volume (45% of normalized purchase volumes in total), the Company does not make up the volumes later even if additional funds at lower decile strike prices are available. No purchases will be made under the price-driven component of the hedging program if the 50th or lower decile price point is not breached during the one-year hedging horizon.

If all of the price-dependent hedging thresholds are not reached during the planning horizon, Piedmont will purchase calls under the time-dependent component of its hedging program. These time-dependent purchases are made until Piedmont's hedging volume target is reached, as long as NYMEX futures prices are at or below the 50th decile price point. No price- or time-dependent purchases are made above the 50th decile. Under the time-dependent component of Piedmont's hedging program, if futures prices for a contract month in the forward-hedging horizon remain below the 60th decile price point, Piedmont will spend 20% of its seasonal hedging budget on call options when the date reaches five months before the start of the season. Piedmont will continue to spend an additional 20% of its seasonal hedging budget on call options each subsequent month, ultimately spending up to 100% of its seasonal hedging budget prior to the start of a season.

For example, if NYMEX prices for a winter month are at the 50th decile price point, Piedmont will have already hedged 20% of its hedging target volume. If NYMEX prices are still at the 50th decile on July 1, the Company will hedge an additional 20% of normalized sales. The Company will continue to purchase additional time-dependent hedges until October 1 for the winter months, as long as monthly NYMEX prices remain at or below the 50th decile.

As indicated previously, hedging cost recovery is limited to 1% of the Company's total annual gas cost. As shown in Table 29, Exeter's review found that Piedmont's hedging costs were less than 1% for each Plan year. Exeter's review also found that Piedmont hedged approximately 30% of normalized purchase volumes.

Table 29. Summary of Annual Hedging Costs and Limits

Plan Year	1% Hedging Limit	Actual Hedging Costs
July 2017 – June 2018	[redacted]	[redacted]
July 2018 – June 2019	[redacted]	[redacted]
July 2019 – June 2020	[redacted]	[redacted]
Total:	$[redacted]	$[redacted]

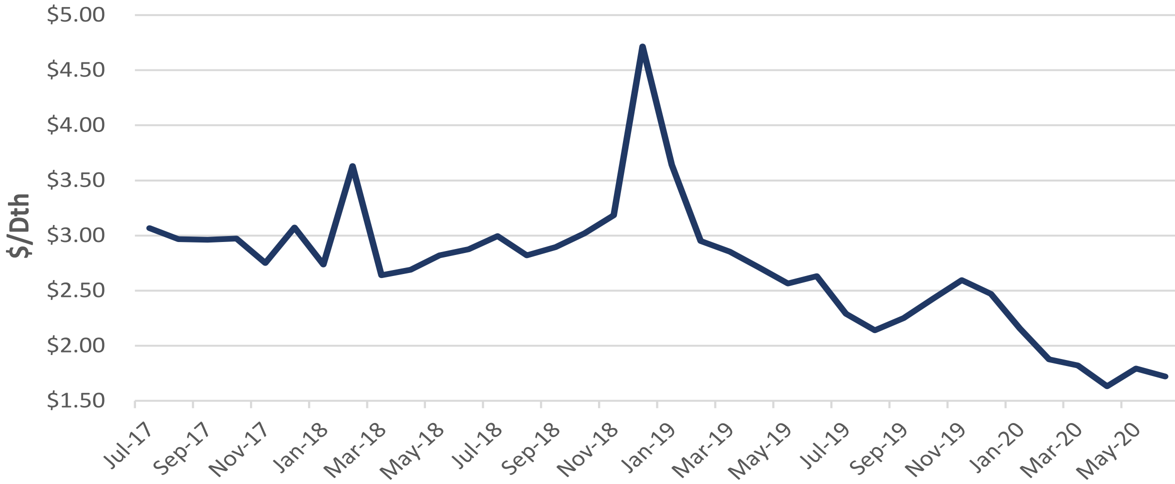
6.2. RFP Statement of Work Requirements

The RFP for the review of Piedmont's performance under the Plan identified, for review and assessment, specific aspects of Piedmont's hedging program. These review requirements are addressed in this section of the Report.

- *What were the market conditions during the review period and did Piedmont perform a cost-benefit analysis to support the hedging program?*

  Natural gas prices were relatively stable during the period July 2017 through November 2018, with monthly NYMEX settlement prices averaging approximately \$3.00/Dth. Prices increased to \$4.715/Dth and \$3.642/Dth in December 2018 and January 2019, respectively. Prices declined thereafter and averaged approximately \$2.50/Dth for the period February 2019 through January 2020. Prices declined further for the remainder of the review period, largely due to the effects of the COVID-19 pandemic, averaging \$1.77/Dth. Figure 3 presents a graph of NYMEX monthly settlement prices during the review period. Piedmont did not perform a cost-benefit analysis to support its hedging program.

Figure 3. Natural Gas Futures – NYMEX Settlement (July 2017 – June 2020)



Source: Direct Energy Business, NYMEX Natural Gas Futures Settlement History, https://business.directenergy.com/market-insights/nymex-settlement-history.

- *What hedging tools did Piedmont consider and what criteria were used to select hedging tools?*

  After sustaining substantial losses caused by a market decline and the sale of puts, North Carolina Utilities Commission (NCUC) Staff indicated their preference for a hedging policy that provided for all upside market protection from established hedges, all market participation at lower prices in a falling market, and no additional cost associated with a falling market after hedges are established. The Company subsequently chose to eliminate the sale of puts from its hedging program and to hedge exclusively by purchasing calls. This caps hedging losses to the cost of the call options and achieves unlimited price protection above the strike price of the call options purchased, while allowing full downside market participation.

- *What costs were associated with the different hedging tools used and the potential of losses for Piedmont?*

  As shown previously in Table 28, Piedmont purchased [redacted] Dth of calls during the review period at a cost of [redacted], or an average price of [redacted]/Dth. To purchase those calls, Piedmont also incurred transaction fees of $[redacted] Of those calls purchased, Piedmont sold [redacted] Dth just prior to expiration, which had value, or were "in the money." Piedmont realized a gain of [redacted] on the sale of those calls, and incurred [redacted] in transaction costs. The net impact of Piedmont's hedging program during the review period was a net loss of $[redacted], or an average of approximately [redacted] sold. The only potential for losses is the costs associated with purchasing call options, including transaction fees.

- *What was Piedmont's budget for hedging during the review period and were hedges staggered over a predefined period?*

  Piedmont's allowable hedging costs are limited to 1% of annual gas costs. During the review period, Piedmont's maximum allowable spending limit was $[redacted]. Piedmont's actual review period hedging expenditures were $[redacted], including transaction fees (see Table 29). Piedmont's hedges were staggered over time pursuant to the procedures discussed in Section 6.1 of the Report.

- *Were there price triggers for determining hedging volumes and timing?*

  The price triggers for hedging volumes and timing are described in Section 6.1 of the Report.

- *Identify benefits and costs of the hedging program during the review period, including costs and benefits to customers (both tangible and intangible). Compare costs to customers with estimated costs in the absence of a hedging program.*

  Piedmont's total hedging costs for the review period, including transaction fees, were [redacted]. A gain of $[redacted] was realized by Piedmont as a result of its review period hedging activities, resulting in a net cost of [redacted], or [redacted]. In addition to these tangible costs and benefits, Piedmont's hedging program provided for price mitigation in the event of a significant increase in nationwide gas prices.

- *Review and assess Piedmont's hedging documentation process.*

  Piedmont maintains a copy of all monthly Stone X price matrices; time-stamped deal tickets; price matrices used in evaluation of call purchases; minutes of the meetings of the Gas Market Risk Committee, which oversees the Company's hedging program; and daily positions and market-to-market reports. Exeter's review found Piedmont's documentation process satisfactory.

- *Review hedging losses during the period and assess the cause(s).*

  The losses experienced by Piedmont under its hedging program during the review period were minimal, averaging [redacted] Dth sold. The losses were the result of purchasing call options for periods during which market prices were declining and did not generally increase above call option strike prices.

- *How do losses incurred compare to losses of comparable utilities and to losses incurred in Piedmont's hedging plans in other states?*

  Piedmont employs nearly identical hedging strategies and programs in its Tennessee, North Carolina, and South Carolina service territories. The hedging programs in all three service territories provide for the purchase of calls, and price protection for between 22.5% and 45% of normalized purchase volumes. The cost of Piedmont's hedging activities was lower in Tennessee than in the Carolinas due to normalized sales in Tennessee being lower than in the Carolina service territories. In addition, an annual gas cost limit of 1% is also applicable in Tennessee, which is not applicable in the Company's Carolina service territories.

  Utilities in other states that employ hedging strategies generally rely on fixed-price purchases. Many utilities consider their hedging activities to be confidential. Utilities that utilized fixed-price purchases for hedging during the review period generally incurred losses that were greater than Piedmont's losses. For example, while Piedmont lost approximately [redacted]th on hedge volumes representing 30% of normalized annual sales volumes, a large gas utility utilizing a fixed-price purchase hedging strategy also lost approximately [redacted]th, but hedged volumes that only reflected 10% of normalized annual sales volumes.

- *Overall assessment of the operation, performance and results of Piedmont's hedging plan.*

  Exeter's overall assessment of Piedmont's hedging plan is discussed in Section 6.3 of the Report.

- *The extent to which Piedmont's financial incentives under the Plan influence its hedging strategy.*

  Piedmont had a Gas Supply Incentive Compensation Program (Incentive Program) in place which was terminated on December 31, 2017. The Incentive Program is discussed in Section 7.3 of the Report. Hedging gains and losses were not a determinant of awards under the Incentive Program. Therefore, the Incentive Program did not influence Piedmont's hedging strategy.

6.3. Results and Conclusions

Piedmont adhered to the hedging activities approved under the Plan during the review period. The use of both a price- and time-dependent approach to hedging is reasonable.

Most utilities that have adopted hedging programs rely heavily, and many exclusively, on forward, fixed-price purchases for a significant percentage of their gas supply purchases. The Company does not utilize forward, fixed-price purchases because those purchases would be reflected in the Plan. As such, if the price of the Company's forward fixed-price purchases exceeded market prices at the time of delivery, the Company would experience a loss under the Plan. Piedmont has indicated that it is unwilling to take such a risk. In other jurisdictions with incentive mechanisms similar to Piedmont's Plan, forward fixed-price purchases are excluded from the incentive mechanism.

Generally, the goal of hedging is to, over time, mitigate price volatility. It is Exeter's view that regulators and utilities cannot expect hedging to lower the long-term price paid for natural gas supplies. Hedging programs take many forms and use many different tools, both physical and financial. There are no industry standards to compare hedging program results. Exeter's review of Piedmont's hedging activities did not reveal any unreasonable practices that were inconsistent with industry practices. Exeter has no recommended modifications to Piedmont's existing hedging program.

7. Assessment of Piedmont Plan Incentives and Design

Section 7 of Exeter's Report begins with a comparison of Piedmont's Performance Incentive Plan with the gas procurement incentive mechanisms of Atmos Energy Corporation and Chattanooga Gas Company. This comparison is provided for informational purposes as well as to assist in addressing the Statement of Work requirement to evaluate the balance of incentives under the Plan, which is addressed in this section. This section of the Report also addresses Piedmont's Gas Supply Incentive Compensation Program as also required in the Statement of Work.

Exeter's experience in reviewing gas incentive mechanisms in jurisdictions other than Tennessee includes a now-terminated program of Nicor Gas Company in Illinois, and the terminated programs of Vectren North, Vectren South, and Citizens Gas & Coke Utility in Indiana. Exeter continues to review, on a quarterly basis, the Gas Cost Incentive Mechanism (GCIM) of Northern Indiana Public Service Company. In multiple jurisdictions in which Exeter regularly performs gas cost procurement reviews, capacity release revenues, off-system sales margins, and AMA fees are subject to sharing with the utility. These jurisdictions include Delaware, Louisiana, Massachusetts, Ohio, and Pennsylvania.

7.1. Comparison of Piedmont Plan with Similar Incentive Mechanisms of other Tennessee Natural Gas Distribution Companies

7.1.1. Piedmont Performance Incentive Plan

Piedmont's Plan consists of three components: (1) a commodity procurement cost component; (2) a supplier reservation fee component; and (3) a capacity management component. Under the commodity procurement cost component of the Plan, Piedmont's actual total monthly citygate (delivered) commodity cost of gas is compared to costs based on a Monthly Benchmark Index Price. The actual total citygate commodity cost of gas includes the amount paid for gas supply commodity purchases, plus the applicable pipeline fuel and variable transportation charges associated with delivering gas from the purchase (receipt) point to Piedmont's system. The commodity procurement cost component provides for a 75% sales customer and 25% Company sharing of the difference between actual and benchmark costs.

Under the commodity procurement cost component of the Plan, separate benchmarking procedures are provided for in the MBIP for monthly, daily, and citygate purchases. The monthly purchase benchmark is based on a price that reflects published index prices generally weighted by the amount of firm interstate pipeline receipt point capacity that Piedmont reserves at each of its purchase locations. For example, if 60% of Piedmont's interstate pipeline capacity portfolio consisted of Columbia Gulf capacity and the remaining 40% was TGP capacity, Piedmont's benchmark for monthly purchases would be based on a 60% / 40% weighting of Columbia Gulf and TGP monthly index prices, adjusted for variable and fuel charges. Daily purchases are benchmarked against the actual daily published index prices for the purchase location, plus the applicable variable and fuel charges. Citygate purchases delivered by Columbia Gulf, TGP, and Texas Eastern are generally benchmarked based on Gulf Coast production area commodity index prices, plus the maximum applicable interruptible transportation charge, and the applicable fuel charges. Citygate purchases delivered by ETNG are benchmarked based on Chicago citygate index prices, plus the MGT firm variable and fuel charges associated with the delivery of gas to ETNG at Boat Dock, plus the ETNG interruptible transportation and fuel charges associated with the delivery of gas from Boat Dock to Piedmont. Piedmont's Plan does not provide for the sharing of avoided demand charges, as provided for under the subsequently discussed incentive mechanisms of Atmos and Chattanooga Gas. The rewards realized by Piedmont under the commodity procurement cost component of the Plan were generated solely by monthly and citygate purchases during the review period.

Under the supplier reservation fee component of the Plan, Piedmont is entitled to recover 100% of its gas supply reservation fees with no gain or loss potential. The capacity management component of Piedmont's Plan provides that the margins realized from capacity release and off-system sales activities, as well as AMA fees, be subject to the same 75% ratepayer / 25% Company sharing procedures as commodity procurement cost component savings/losses. Piedmont's Plan includes a $1.6 million sharing cap.

7.1.2. Atmos Performance Based Ratemaking Mechanism

Atmos' current Performance Based Ratemaking Mechanism (PBRM) consists of four components: (1) gas procurement incentive mechanism; (2) capacity management incentive mechanism; (3) avoided cost incentive mechanism; and (4) off-system sales revenue incentive mechanism. The gas procurement incentive mechanism establishes a predefined benchmark index to which Atmos' commodity cost of gas is compared. It also addresses the use of financial instruments or private contracts in managing gas costs. For commodity costs, on a monthly basis, Atmos' commodity cost of gas is compared to a benchmark amount. The benchmark amount is computed by multiplying actual purchase quantities for the month by the appropriate published index price. The gas procurement incentive mechanism provides for a 75% sales customer and 25% Atmos sharing of the difference between actual and benchmark costs.

Under the capacity management incentive mechanism, to the extent Atmos is able to release transportation or storage capacity, the associated revenues are shared by Atmos' sales customers and Atmos on a 75% / 25% basis, respectively. The capacity management incentive mechanism also addresses the sharing of AMA fees which are shared between sales customers and Atmos on a 75% / 25% basis, respectively.

The avoided cost incentive mechanism is designed to encourage Atmos to explore ways to reduce upstream fixed and variable capacity costs associated with the transportation of gas supplies. Avoided costs can be accomplished through delivered services, transportation discounts obtained from pipelines, the acquisition of discounted released capacity, variation from an existing transportation delivery path, or the acquisition of seasonal capacity that avoids year-round demand changes. Net savings realized under this mechanism are shared between the sales customers and the Company on an 85% / 15% basis, respectively.

The off-system sales revenue incentive mechanism is designed to encourage the Company to generate revenue from the off-system sale of gas supplies. The net margins on off-system sales are determined based on published index prices and are shared between sales customers and the Company on a 75% / 25% basis, respectively. Atmos' total share of savings under the PBRM are capped at $2.0 million per year. Atmos' current PBRM was approved in 2016 has not been reviewed by an outside independent consultant. Such a review was scheduled to begin in September 2021.

7.1.3. Chattanooga Gas Performance Based Ratemaking Mechanism

The gas cost incentive plan under which Chattanooga Gas operates is also referred to as the Performance Based Ratemaking Mechanism. Chattanooga Gas also operates under a separate Interruptible Margin Credit Rider (IMCR) that addresses the sharing of revenues (margins) generated from capacity release and off-system sales activities, as well as AMA fees.

Under Chattanooga Gas' PBRM, each month, Chattanooga Gas' actual commodity cost of gas is compared to a monthly benchmark amount. For monthly and daily purchases, the benchmark amount is based on the applicable published index price for the location at which gas is purchased. For citygate purchases, the PBRM provides for the inclusion of the avoided transportation charges that would have been paid if upstream capacity was purchased versus the demand charges paid to the supplier. If Chattanooga Gas' total actual commodity gas costs for a plan year do not exceed the total benchmark amount by 1%, its commodity gas costs are deemed prudent, and the audit required by TPUC Administrative Rule 1220-4-7-.05 is waived. If, during any month of a plan year, Chattanooga Gas' commodity gas costs exceed the benchmark amount by greater than 2%, the company is required to file a report with the TPUC fully explaining why costs exceeded the benchmark. There is no sharing of any savings or losses under the PBRM. Exeter's most recent review of Chattanooga Gas' PBRM encompassed the period July 1, 2016 through March 30, 2019. During this period, Chattanooga Gas' actual gas costs did not exceed benchmark costs by 1% during any plan year.

Chattanooga Gas' IMCR provides for a 50% ratepayer sharing of the revenues (margins) generated from capacity release and off-system sales activities, as well as AMA fees. There is no cap on the amounts eligible for sharing under the IMCR.

7.2. Balance of Plan Incentives

Piedmont is able to generate savings and realize rewards under the commodity procurement cost and capacity management components of the Plan. Rewards under the Plan are capped at $1.6 million. The Statement of Work includes the requirement to evaluate the balance of incentives between Piedmont and its sales customers under the Plan.

7.2.1. Capacity Management Component

The capacity management component of the Plan addresses the margins realized from capacity release and off-system sales activities, as well as AMA fees, and provides for a 75% sales customer / 25% Company sharing. Nearly 100% of the margins available for sharing under the capacity management component during the review period were generated from AMA fees. The remaining margins were generated from off-system sales made to the Company's Asset Manager. Piedmont did not engage in capacity release activities or other off-system sales during the review period because the capacity necessary to perform these activities was released to an Asset Manager under an AMA. It is Exeter's experience that in other jurisdictions, sharing percentages that range from 90% customer / 10% utility to 75% customer / 25% utility have been adopted for AMA fees, with the lower end of the sharing range for the utility being more prevalent. With respect to capacity release revenues and off-system sales margins, 75% customer / 25% utility sharing percentages are common in other jurisdictions. Exeter concludes that there is a relatively reasonable balance of incentives between Piedmont and customers under the capacity management component of the Plan.

7.2.2. Commodity Procurement Cost Component

The commodity procurement cost component of the Plan also provides for a 75% customer / 25% Company sharing of savings. Different benchmarking procedures are applicable for monthly purchases, daily purchases, and citygate purchases under the commodity procurement cost component of the Plan. The balance of incentives for each type of purchase is addressed separately.

As previously explained, Piedmont's monthly purchases delivered under firm transportation arrangements are evaluated based on a benchmark that reflects published index prices weighted by the amount of firm interstate pipeline receipt point capacity Piedmont reserves at each purchase location. Piedmont realizes a reward for monthly purchases if those purchases are made at the lowest-cost receipt points. The relative price relationship for Piedmont's various receipt point locations is generally known by all participants in the natural gas market. Other utilities operating under traditional regulation maximize the purchase of gas supplies at the lowest-cost receipt points, as Piedmont did during the review period. For doing so, Piedmont realized a gain under the Plan of approximately [redacted] uring the review period, of which it was entitled to retain 25% subject to a total annual cap of $1.6 million under all aspects of the Plan. Exeter's most recent review of the gas cost incentive plan of Chattanooga Gas revealed that it also maximizes the purchase of gas supplies at the lowest-cost receipt points. However, Chattanooga Gas does not realize a reward for doing so under its gas cost incentive plan. Therefore, Exeter concludes that the monthly benchmarking procedures under the commodity procurement cost component of the Plan are unbalanced in the Company's favor.

Daily purchases delivered under firm transportation arrangements are benchmarked against the actual published index prices for the actual purchase location. Piedmont did not earn rewards during the review period under the Plan for daily purchases. The 75% sales customer / 25% Company sharing procedures adopted for daily purchases under the commodity procurement cost component of the Plan are somewhat conservative in that similar incentive mechanisms in other jurisdictions have adopted 50% customer / 50% utility sharing procedures when purchases are benchmarked against actual index prices for the actual purchase location.

As previously described in Section 3.1.3 of the Report, Exeter found the procedures currently used by Piedmont to benchmark ETNG citygate procedures inappropriate and unreasonable. Like all other purchases under the commodity procurement cost component of the Plan, 75% sales customer / 25% Company sharing procedures are applicable for citygate purchases. Piedmont realized a gain of [redacted] under the Plan during the review period for citygate purchases, of which it was entitled to retain 25%, subject to a total annual cap of $1.6 million under all aspects of the Plan. Provided that the benchmarking procedures for ETNG citygate purchases are appropriately modified as discussed in Section 3.1.3 of the Report, Exeter finds that the existing sharing procedures for citygate purchases are reasonable and provide the Company with sufficient incentive to pursue such purchases when they reduce purchased gas costs. Unlike daily purchases, citygate purchases are not benchmarked against actual index prices for the actual purchase location and, therefore, Exeter finds that a higher Company share of rewards would not be warranted.

7.2.3. Plan Cap of $1.6 Million

Piedmont realizes rewards under the commodity procurement and capacity management components of the Plan. During the review period, 87% of the gains realized under the Plan were from AMA fees and 9% were gains associated with monthly purchases. [redacted] As noted previously in Section 3.3.1 of the Report, the 25% Company sharing for AMA fees is at the high end of the sharing procedures adopted in other jurisdictions. The gains associated with monthly purchases that Piedmont is able to generate, which are shared under the Plan, are achievable under traditional regulation and should not result in a reward for Piedmont. In addition, the benchmarking procedures currently utilized for ETNG citygate procedures are inappropriate and unreasonable. Finally, Exeter's review did not find that $1.6 million cap reduced Piedmont's incentive or efforts to realize rewards under the Plan. For these reasons, Exeter recommends that the $1.6 million cap be maintained.

7.3. Gas Supply Incentive Compensation Program

[redacted]

[redacted]

[redacted]

[redacted] incentive programs in place in North and South Carolina provide for a 75% customer / 25% Company share of margins from secondary marketing activities, similar to those included in the capacity management component of the Plan. The Carolina incentive programs do not include a component similar to the commodity gas cost procurement component of the Plan. There are no revenue sharing caps under the Carolina programs.

8. Findings of Fact and Areas of Concern

Findings of fact from Exeter's triennial review are as follows:

- Piedmont purchased firm transportation and storage services from five interstate pipelines during the review period.

- Piedmont released its interstate pipeline firm transportation and storage capacity to a third party under Asset Management Agreements during the review period.

- Piedmont purchased several delivered-to-citygate gas supply services during the review period.

- Piedmont served an average of 186,300 sales and transportation customers during the review period, and total annual system throughput averaged 32,328,000 Dth.

- Piedmont engaged in no transactions with affiliates during the review period.

- Performance Incentive Plan determined savings during the review period were [redacted] and Piedmont's share of savings were [redacted]

- A gain of [redacted] was realized under the commodity procurement cost component of the Plan on monthly purchases, and a gain of [redacted]as realized on citygate purchases. [redacted] ains were realized on daily purchases.

- Piedmont earned a reward of $[redacted] from its AMAs and off-system sales activities during the review period.

- The fees received by Piedmont under its AMAs increased substantially during the review period compared to those received in prior audit review periods.

- The capacity management component of the Plan provides a reasonable balance of incentives between Piedmont and its customers.

- Piedmont's review period storage activity was reasonable.

- Piedmont's review period gas supply purchases delivered under firm transportation arrangements were reasonable.

- Although there are a number of concerns with Piedmont's design day forecasting model, these were no adverse consequences resulting from the utilization of the model for capacity planning purposes during the review period. Piedmont's estimated design day demands and capacity resources were in relative balance during the review period.

- Piedmont maintains sufficient year-round and winter season firm transportation capacity, and increasing the amount of year-round capacity would only serve to increase the Company's annual pipeline demand charges.

- Piedmont anticipates reducing its Midwestern Gas Transmission firm transportation capacity entitlements from 100,000 Dth/day to 25,000 Dth/day when its current contract expires in January 2023, and this appears reasonable.

- Based on Piedmont's capacity portfolio for the winter of 2020-2021 and the availability of winter season interstate pipeline capacity, the potential for the Company to rely more on winter season capacity and reduce year-round capacity is limited.

- Piedmont's use of a partially price- and partially time-dependent hedging approach and hedging through call options is reasonable.

- Piedmont's use of a decile matrix to guide its hedging purchasing decisions and the 1% limit on hedging transaction costs are consistent with observed industry practices.

- [redacted]

Exeter's review noted the following areas of concern and potential areas of improvement under the Performance Incentive Plan:

- The current design of the monthly purchase benchmark included in the Monthly Benchmark Index Price results in gas cost savings that would have been realized without the existence of the Plan.

- The Plan requires that the pipeline capacity weightings utilized to calculate the benchmark for monthly purchases be based on design day citygate delivery entitlements. The Plan also requires that if capacity was released or otherwise unavailable to be used to deliver gas to Piedmont's citygate, that capacity should be excluded from the monthly purchase benchmark calculation. For its firm transportation arrangements with Tennessee Gas Pipeline, Columbia Gas Transmission, and Texas Eastern Transmission, Piedmont utilized its design day citygate delivery entitlements under each contract, adjusted to reflect any daily supply limitations applicable under its AMA to determine its capacity entitlements under the benchmark calculation for monthly purchases. For its firm transportation arrangements with Midwestern Gas Transmission, separate East Side and West Side capacity entitlements were utilized to calculate the benchmark for monthly purchases. As described in detail in this Report, Exeter's audit found that Piedmont did not adhere to the Plan requirements in its tariff in determining the MGT capacity entitlements to be used in the benchmark for monthly purchases and inconsistently applied these tariff provisions. However, Exeter's audit also found that if Piedmont had appropriately and consistently applied the provisions of the Plan to calculate the benchmark for monthly purchases, the gains realized under the Plan would have been [redacted] higher than those calculated by Piedmont. Since [redacted] of the gains are retained by Piedmont, the net effect on sales customers would have been an increase in audit period gas costs of [redacted]. Given the *de minimis* and the insignificant impact, Exeter recommends no further adjustment or recalculation of Plan gains and rewards for the current period.

- The use of Chicago citygate index prices to benchmark East Tennessee Gas Pipeline citygate purchases is unreasonable and inappropriate. This is best exemplified by the unreasonable and inappropriate gains realized by Piedmont under the Plan during the winter of 2018-2019, and during February 2021. Piedmont made ETNG citygate purchases on two days during the winter of 2018-2019 which represented less than 1% of total review period citygate purchases but accounted for nearly 25% of the gains associated with citygate purchases during the review period. During the period February 13-16, 2021, Piedmont purchased [redacted] Dth of ETNG citygate-delivered supplies at an average cost of [redacted]/Dth. The gain realized under the Plan for the ETNG citygate purchases for these four days was [redacted] or [redacted] The Chicago citygate index price on these four days was [redacted] Dth. The total gain for the entire month of February 2021 for ETNG citygate purchases was [redacted]

  Benchmarks under a gas cost incentive mechanism such as the Plan should be based on market prices, and rewards should be based on performance which exceeds that of other market participants. Based on the evidence presented, the benchmarking of ETNG purchases based on Chicago citygate index prices does not achieve these results. Therefore, the benchmark for ETNG citygate purchases should be modified to reflect market prices, or these purchases should be eliminated from the Plan.

  Based on current interstate pipeline gas flows, Piedmont's ETNG's citygate purchases were likely delivered to ETNG on Tennessee Gas Pipeline's 500 Leg at the interconnect of TGP and ETNG in Greenbrier, Tennessee. Therefore, a benchmark based on TGP 500 Leg index prices plus the applicable TGP firm transportation variable and fuel charges and the ETNG interruptible transportation variable and fuel charges would be appropriate. Piedmont currently maintains the transportation arrangements that would provide for the delivery of gas supplies to its citygate utilizing this delivery path. As part of its review in this proceeding, Exeter analyzed the Plan impact of using a benchmark based on the TGP 500 Leg to ETNG delivery path for the month of February 2021. That analysis indicated an average daily benchmark price of [redacted] for the TGP 500 Leg to ETNG delivery path. The daily benchmark price for the MGT to ETNG delivery path currently used to benchmark ETNG citygate purchases averaged approximately $[redacted] uring February 2021. The average price Piedmont paid for ETNG citygate purchases during February 2021 was $[redacted] Under the Plan, the gain realized for ETNG citygate purchases using the TGP 500 Leg to ETNG delivery path benchmark would have resulted in a gain of [redacted] rather than the [redacted] calculated using the MGT to ETNG delivery path benchmark. As part of Exeter's assistance in this proceeding, Exeter is willing to conduct a limited evaluation of other proposals to benchmark ETNG citygate purchases.

- Several of Piedmont's off-system sales transactions had an adverse impact on sales customers during the review period; however, the impact was not material.

- For winter period capacity planning, Piedmont utilizes the coldest winter in the last five years. For the winter of 2020-2021, the winter of 2017-2018 was utilized. The winter of 2017-2018 was 10% warmer than normal. It is not reasonable to utilize a winter that was warmer than normal for winter capacity planning. Exeter recommends that Piedmont consider alternative winter planning criteria such as a winter that is 10% colder than normal. As indicated in this Report, due to the need to contract for capacity resources sufficient to meet design day demands, Piedmont maintains winter period capacity resources sufficient to meet its customers' requirements under the most extreme weather conditions.

- Piedmont should evaluate the inclusion of wind speed, prior-day temperature, and weekend independent variables in its design day forecast model. In developing its model, Piedmont should also evaluate including only those days with a relatively high heating load, such as those days with temperatures at or below freezing, and limiting usage data to the most recent three-year period.

- Due to multiple concerns with the current structure of the Plan described in the Report, Exeter recommends that the $1.6 million Plan cap be maintained.

APPENDIX A:

PIEDMONT NATURAL GAS COMPANY

PERFORMANCE INCENTIVE PLAN

PIEDMONT NATURAL GAS COMPANY INC.
PERFORMANCE INCENTIVE PROGRAM
DOCKET NO. 05-00165
Review Period: July 1, 2017 – June 30, 2020
DATA REQUEST NO. 1, Item 01

SERVICE SCHEDULE NO. 316
Performance Incentive Plan

Applicability
The Performance Incentive Plan (the Plan) replaces the annual reasonableness or prudence review of the Company's gas purchasing activities overseen by the Tennessee Public Utility Commission ~~Regulatory Authority~~ (~~Authority~~Commission or ~~TRA~~TPUC). The Plan does not preclude the ~~Authority~~ Commission from conducting an independent investigation into or examination of any aspect of the Plan or the Company's conduct thereunder. The Plan is designed to provide incentives to the Company in a manner that will produce rewards for its customers and its stockholders and improvements in the Company's gas procurement and capacity management activities. Each plan year (Plan Year) will begin July 1st. The annual provisions and filings herein would apply to this annual period. The Plan will continue until the Plan is either (a) terminated at the end of a Plan Year by not less than 90 days notice by the Company to the ~~Authority~~ Commission or (b) the Plan is modified, amended or terminated by the ~~Authority~~ Commission on a prospective basis.

Overview of Structure
The Plan establishes a predefined benchmark index to which the Company's commodity cost of gas is compared. It also addresses the recovery of gas supply reservation fees and the treatment of off-system sales and wholesale interstate sale for resale transactions. The net incentive benefits or costs will be shared between the Company's customers and the Company on a 75%-customers / 25%- stockholders basis for the Plan Year commencing on July 1, 2006.

The Plan also is designed to encourage the Company to actively market off-peak unutilized transportation and storage capacity on pipelines in the secondary market. It also addresses the sharing of asset management fees paid by asset managers, and other forms of compensation received by the Company for the release and/or utilization of the Company's transportation and storage assets by third-parties. The Company shall notify the ~~TRA~~ TPUC Staff and the Consumer Advocate and Protection Division of the Office of the Attorney General (CAD) of all "other forms of compensation" prior to inclusion of such compensation in the Plan. The net incentive benefits or costs of such activities will be shared between the Company's customers and the Company utilizing a 75%-customers / 25%-stockholders formula commencing on July 1, 2006.

Every three years the Company's activities under the Plan will be reviewed comprehensively by an independent consultant. The first triennial review shall occur in the autumn of 2008. The scope of the review may include all transactions and activities related to the Performance Incentive Plan, including, but not limited to, natural gas procurement, capacity management, storage, hedging, reserve margins, and off-system sales.

The Company is subject to a cap on overall incentive gains or losses of $1.6 million annually. In connection with the Performance Incentive Plan, the Company shall file with the ~~Authority~~ TPUC Staff,

and supply a copy to the ~~Consumer Advocate and Protection Division of the Tennessee Attorney General (~~CAD~~)~~, and update each year, a Three Year Supply Plan. The Company will negotiate/obtain firm capacity, interruptible capacity and/or gas supply pursuant to such plan.

Commodity Costs

Each month the Company will compare its *total city gate commodity and cost of gas*[1] to a benchmark dollar amount. The benchmark gas cost will be computed by multiplying total actual purchase quantities for the month by a price index. The monthly price index is defined as:

$$I = F_f(P_0K_0 + P_1K_1 + P_cK_c + \ldots P_\alpha K_\alpha) + F_0O + F_dD; \text{ where}$$
$$F_r + F_0 + F_d = 1; \text{ and}$$

I = the monthly city gate commodity gas cost index.

F_f = the fraction of gas supplies purchased in the first-of-the-month market which are transported to the city gate under the Company's FT, negotiated FT, and IT service agreements.

P = the Inside FERC Gas Market Report price index for the first-of-the-month edition for a geographic pricing region, where subscript 0 denotes Tennessee Gas Pipeline (TGP) Rate Zone 0; subscript 1 denotes TGP Rate Zone 1; subscript C denotes Columbia Gulf Transmission (CGT) - mainline, and subscript α denotes new incremental firm services to which the Company may subscribe in the future.[2] The indices used for calculating Midwestern capacity shall be those produced by Natural Gas Intelligence for monthly purchases and Gas Daily for daily purchases. The commodity index prices will be adjusted to include the appropriate pipeline

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[1] Gas purchases associated with service provided under Texas Eastern Transmission Company Rate Schedule SCT shall be excluded from the incentive mechanism. The Company will continue to recover 100 percent of these costs through its PGA with no profit or loss potential. Extension or replacement of such contract shall be subject to the same competitive bidding procedures that will apply to other firm gas supply agreements. In addition, the Plan will measure storage gas supplies against the benchmark index during the months such quantities are purchased for injection. For purposes of comparing such gas purchase costs against the monthly city gate index price, the Company will exclude any commodity costs incurred downstream of the city gate to storage so that the Company's actual costs and the benchmark index are calculated on the same basis.

[2] To the extent that the Company renegotiates existing reservation fee supply contracts or executes new reservation fee supply contracts with commodity pricing provisions at a discount to the first-of-the-month price index, the Company shall modify the monthly commodity price index to reflect such discount.

firm transportation (FT) and interruptible transportation (IT) commodity transportation charges and fuel retention to the city gate under the Company's FT, negotiated FT, and IT service agreements.[3]

K = the fraction (relative to total maximum daily contract entitlement) of the Company's total firm, negotiated firm, and interruptible transportation capacity under contract in a geographic pricing region, where the subscripts are as above.[4]

F_o = the fraction of gas supplies purchased in the first-of-the-month spot market which are delivered to the Company's system using transportation arrangements other than the Company's FT, negotiated FT, and IT contracts.

0 = the weighted average of Inside FERC Gas Market Report first-of-the-month price indices, plus applicable IT rates and fuel retention, from the source of the gas to the city gate, where the weights are computed based on actual purchases of gas supplies purchased by the Company and delivered to the Company's system using transportation arrangements other than the Company's FT, negotiated FT, and IT contracts.

F_d = the fraction of gas supplies purchased in the daily spot market.

D = the weighted average of daily average index commodity prices taken from Gas Daily for the appropriate geographic pricing regions, where the weights are computed based on actual purchases made during the month. The commodity index prices will be adjusted to include the appropriate transportation commodity charges and fuel retention to the city gate.

Gas Supply Reservation Fees

The Company will continue to recover 100% of gas supply reservation fee costs through its PGA with no profit or loss potential. For new contracts and/or contracts subject to renegotiation during the Plan Year, the Company will solicit bids for gas supply contracts containing a reservation fee.

Off-System Sales And Sale For Resale Transactions

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3 Capacity released for a month shall be excluded from the benchmark calculation for that month, excluding capacity released under an agreement where the Company maintains city gate delivery rights for the released capacity during such month.

4 Because the aggregate maximum daily contract quantities in the Company's FT contract portfolio vary by month over the course of the year, the weights will be recalculated each month to reflect actual contract demand quantities for such month. The contract weights, and potentially the price indices used, will also vary as the Company renegotiates existing or adds new FT contracts. As new contracts are negotiated, the Company shall modify the index to reflect actual contract demand quantities and the commodity price indices appropriate for the supply regions reached by such FT agreements. Citygate benchmark calculations shall be computed utilizing the Company's Design Day delivery requirements (deliveries required on a peak day).

Margin on off-system sales and wholesale sale-for-resale transactions using the Company's firm, negotiated firm, and interruptible transportation and capacity entitlements (the costs of which are recovered from the Company's ratepayers) shall be credited to the Plan and will be shared with ratepayers. Margin on such sales will be defined as the difference between the sales proceeds and the total variable costs incurred by the Company in connection with the transaction, including transportation and gas costs, taxes, fuel, or other costs. For purposes of gas costs, the Company will impute such costs for its related
supply purchases at the benchmark first-of-the-month or daily index, as appropriate, on the pipeline and in the zone in which the sale takes place. The difference between the Company's actual costs and such index price is taken into account under the Plan. After deducting the total transaction costs from the sales proceeds, any remaining margin will be credited to commodity gas costs and shared with customers on a 75%- customer / 25%-stockholders basis.

Capacity Management
To the extent the Company is able to release transportation or storage capacity, or generate transportation or storage margin associated with off-system or wholesale sales-for-resale, the associated cost savings and/or asset management fees, or other forms of compensation associated with such activities, shall be shared by the Company and customers according to the following sharing formula: 75%-customers / 25%-stockholders. The Company shall notify the ~~TRA~~ TPUC Staff and the Consumer Advocate and Protection Division of the Office of the Attorney General (CAD) of all "other forms of compensation" prior to inclusion of such compensation in the Plan.

Hedging Activities
The Company may engage in hedging transactions[5] within the PGA/ACA mechanism. Costs related to hedging transactions may be recovered through the ACA account; provided, however, that such costs recovered through the ACA account shall not exceed one percent (1%) of total annual gas costs.[6] Costs related to hedging transactions recoverable through the ACA account shall be defined as all direct, transaction related costs arising from the Company's prudent efforts to stabilize or hedge its commodity gas costs including, without limitation, brokerage fees, and the costs of financial instruments.

All costs related to hedging transactions, in addition to all gains and losses from hedging transactions, shall be credited/debited to the ACA account in the respective month that each hedging transaction closes. Costs related to hedging transactions that are incurred prior to the month that the hedging transaction closes shall be temporarily recorded in a separate, non-interest-~~-~~bearing account for tracking purposes.

[5] Hedging transactions, as used herein, shall include but not be limited to futures contracts, financial derivative products, storage swap arrangements, or other private agreements to hedge, manage or reduce gas costs.

[6] One percent (1%) of total annual gas costs, for the purposes of establishing a recovery cap, shall be computed from the most current audited and approved gas costs for the Company in a TRA docket as of the first day of the month, 12 months prior to the first day of the period under audit.

Determination of Shared Saving

Each month during the term of the Plan, the Company will compute any gains or losses in accordance with the Plan. If the Company earns a gain, a separate Incentive Plan Account (IPA) will be debited with such gain. If the Company incurs a loss, that same IPA will be credited with such loss. During a Plan Year, the Company will be limited to overall gains or losses totaling $1.6 million. Interest shall be computed on balances in the IPA using the same interest rate and methods as used in the Company's Actual Cost Adjustment (ACA) account. The offsetting entries to IPA gains or losses will be recorded to income or expense, as appropriate. At its option, however, the Company may temporarily record any monthly gains in a non-regulatory deferred credit balance sheet account until results for the entire Plan Year are available.

Gains or losses accruing to the Company under the Plan will form the basis for a rate increment or decrement to be filed and placed into effect separate from any other rate adjustments to recover or refund such amount over a prospective twelve-month period. The Company is subject to a cap on overall incentive gains or losses of $1.6 million annually.

Each year, effective November 1, the rates for all customers, excluding transportation customers who receive no direct benefit from any gas cost reductions resulting from the Plan, will be increased or decreased by a separate rate increment or decrement designed to amortize the collection or refund of the June 30 IPA balance over the succeeding twelve-month period. The increment or decrement will be established by dividing the June 30 IPA balance by the appropriate volumetric billing determinants for the twelve months ended June 30. During the twelve-month amortization period, the amount collected or refunded each month will be computed by multiplying the billed volumetric determinants for such month by the increment or decrement, as applicable. The product will be credited or debited to the IPA, as appropriate. The balance in the IPA will be tracked as a separate collection mechanism. Subject to approval by the ~~TRA~~TPUC, the Company may also propose to refund positive IPA balances on an intra-year basis by making direct bill credits to all customers (except transportation customers) where such direct bill credit would be beneficial to customers.

Filing with the ~~Authority~~Commission

The Company will file calculations of shared savings and shared costs quarterly with the ~~Authority~~ Commission not later than 60 days after the end of each interim fiscal quarter and will file an annual report not later than 60 days following the end of each Plan Year. Unless the ~~Authority~~ Commission provides written notification to the Company within 180 days of the annual reports, the Incentive Plan Account shall be deemed in compliance with the provisions of this Service Schedule. The ~~Authority~~ TPUC Staff may expand the time for consideration of the annual reports by up to an additional sixty (60) days upon written notification to the Company or longer by mutual agreement or upon a showing of good cause.

Periodic Index Revisions

Because of changes in the natural gas marketplace, the price indices utilized by the Company, and the composition of the Company's purchased gas portfolio may change. The Company shall, within sixty (60) days of identifying a change to a significant component of the mechanism, provide notice of such change to the ~~Authority~~Commission. Unless the ~~Authority~~ Commission provides written justification to the Company within sixty (60) days of such notice, the price indices shall be deemed approved as proposed by the Company.

~~Gas Supply Incentive Compensation Program~~

~~The Company has in place a Gas Supply Incentive Compensation Program (the Program) designed to provide incentive compensation to selected Gas Supply non-executive employees involved in the implementation of the Company's Incentive Plan and Secondary Marketing Programs in a manner consistent with the benefits achieved for customers and shareholders through improvements in gas procurement and secondary marketing activities. Participants in the program receive incentive compensation as recognition for their contribution to the customers and shareholders of the Company through lower gas costs and gains related thereto. Performance measures are established for the Program each year.~~

~~During the time this tariff is in effect, the Company will continue to have in place the Gas Supply Incentive Compensation Program, as detailed to the Authority, as it relates to the Company's Incentive Plan. The Company will advise the Authority in writing of any changes to the Program, and unless the Company is advised within 60 days, said changes will become effective. The Authority may expand the time for consideration of such changes upon written notification to the Company. No filing for prior approval is required for changes in the performance measures.~~

Triennial Review

A comprehensive review of the transactions and activities related to the Performance Incentive Plan shall be conducted by an independent consultant once every three years. The initial triennial review shall be conducted in the autumn of 2008 and subsequent triennial reviews shall be conducted every third year thereafter. The ~~TRA~~ TPUC Staff, the CAD, and the Company shall make an effort to maintain a list of no less than five (5) mutually agreeable independent consultants or consulting firms qualified to conduct the aforementioned review. Any dispute concerning whether an independent consultant shall be added to the list shall be resolved by the ~~TRA~~ TPUC Staff, after consultation with the Company and the CAD. For each review, the ~~TRA~~ TPUC Staff shall select three (3) prospective independent consultants from that list. Each such consultant shall possess the expertise necessary to conduct the review. The ~~TRA~~ TPUC Staff shall provide the list of prospective independent consultants to the Company and the CAD via e-mail. The Company and the CAD shall have the right, but not the obligation, to strike one (1) of the prospective independent consultants from the list by identifying the stricken consultant in writing to the ~~TRA~~TPUC Staff within thirty (30) days from the date the list is e-mailed. The ~~TRA~~ TPUC Staff shall select the independent consultant from those remaining on the list after the Company's and the CAD's rights to strike have expired. The cost of the review shall be reasonable in relation to its scope. Any and all relationships between the independent consultant and the Company, the ~~TRA~~ TPUC Staff, and/or the CAD shall be disclosed, and the independent consultant shall have had no prior relationship with either the Company, the ~~TRA~~ TPUC Staff, or the CAD for at least the preceding five (5) years unless the Company, the ~~TRA~~ TPUC Staff and the CAD agree in writing to waive this requirement. The ~~TRA~~TPUC Staff, the CAD and the Company may consult amongst themselves during the selection process; provided, however, that all such communications between the parties shall be disclosed to any party not involved in such communication so that each party may participate fully in the selection process.

The scope of the triennial reviews may include all transactions and activities related either directly or indirectly to the Performance Incentive Plan as conducted by the Company or its affiliates, including, but not limited to, the following areas of transactions and activities: (a) natural gas procurement; (b) capacity management; (c) storage; (d) hedging; (e) reserve margins; and (f) off-system sales. The scope of each triennial review shall include a review of each of the foregoing matters as well as such additional matters as may be reasonably identified by the Company, the ~~TRA~~TPUC Staff, or the CAD relative to the operation or results of the Performance Incentive Plan.

The Company, the ~~TRA~~ TPUC Staff, or the CAD may present documents and information to the independent consultant for the independent consultant's review and consideration. Copies of all such documents and information shall be presented simultaneously to the independent consultant and all other parties.

The independent consultant shall make findings of fact, as well as identify and describe areas of concern and improvement, if any, that in the consultant's opinion warrant further consideration; however, the independent consultant shall not propose changes to the structure of the Performance Incentive Plan itself. The independent consultant shall complete and issue a written report of its findings and conclusions by July 1 of the year immediately following the triennial review. The report deadline may be waived by the written consent of the ~~TRA~~ TPUC Staff, the Company, and the CAD.

The independent consultant shall not propose changes to the structure of the Performance Incentive Plan itself; however, the ~~TRA~~TPUC Staff, the Company, or the CAD may use the report of the independent consultant as grounds for making recommendations or proposed changes to the ~~Authority~~Commission, and the ~~TRA~~ TPUC Staff, the Company, or the CAD may support or oppose such recommendations or proposed changes. Any proposed changes to the structure of the Performance Incentive Plan resulting from the initial triennial review or subsequent triennial reviews, whether adopted by agreement or pursuant to a ruling of the ~~Authority~~Commission, shall be implemented on a prospective basis only beginning with the incentive Plan Year immediately following such agreement or ruling.

The cost of the triennial reviews shall be paid initially by the Company and recovered through the ACA account. The ~~TRA~~ TPUC Staff may continue its annual audits of the IPA and the ACA account, and the triennial reviews shall not in any way limit the scope of such annual audits.

The CAD retains all of its statutory rights, and the triennial reviews shall not in any way affect such rights.