

September 7, 2022

VIA Electronic Filing

Ms. A. Dunston, Chief Clerk
North Carolina Utilities Commission
Dobbs Building
430 North Salisbury Street
Raleigh, North Carolina 27603

*Re: Dominion Energy North Carolina's 2022 Fuel Charge Adjustment
Docket No. E-22, Sub 644*

Dear Ms. Dunston:

Enclosed for filing is *Dale E. Hinson's Exhibit DEH 2* which was inadvertently omitted with the filing of the Application for a Change in Fuel Component of Electric Rates ("Application") of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina (the "Company"), filed on August 9, 2022 with the North Carolina Utilities Commission in the above-captioned docket.

Thank you for your assistance with this matter. Please call me if additional information is required.

Very truly yours,

/s/Mary Lynne Grigg

MLG:sjg

Enclosures

cc: Zeke Creech, Public Staff – NC Utilities Commission
William S.F. Freeman, Public Staff – NC Utilities Commission
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Sep 07 2022

January 31, 2022

BY ELECTRONIC DELIVERY

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State Corporation Commission
c/o Document Control Center
Tyler Building – First Floor
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Richmond, Virginia 23219

*Application of Virginia Electric and Power Company to revise its fuel factor
pursuant to Va. Code § 56-249.6*

Case No. PUR-2021-00097

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding, Virginia Electric and Power Company's *Fuel Procurement Strategy Report*.

Please do not hesitate to contact me if you have any questions in regard to this filing.

Sincerely,

/s/ Elaine S. Ryan

Elaine S. Ryan

Enclosures

cc: Lauren W. Biskie, Esq.
Lisa R. Crabtree, Esq.
Service List

Fuel Procurement Strategy

January 31, 2022

**Virginia Electric and Power Company
d/b/a Dominion Energy Virginia**

Case No: PUR-2021-00097

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Introduction

Pursuant to the State Corporation Commission of Virginia's (the "Commission") directives in its August 21, 2015 Order Establishing 2015-2016 Fuel Factor in Case No. PUE-2015-00022,¹ Virginia Electric and Power Company (the "Company") submits this report ("Report") to describe its current fuel procurement strategy ("Fuel Procurement Strategy"), including an update of actual procurement and fuel price hedge details over the prior fuel year; an explanation of the Company's current risk management program, as well as any changes under consideration; and cost/benefit analyses of its financial and physical price hedge programs for each fuel type for at least the past five years.

This Report describes in detail the Company's historical and current fuel procurement and hedging practices. Section 1 describes the three types of risk management tools used by the Company. Section 2 presents the Company's current fuel procurement and hedging strategy. Section 3 details the Company's Fuel Procurement and Hedging Results for the current July 1, 2021 – June 30, 2022 Fuel Year (the "2021-2022 Fuel Year") and the last 5 Fuel Years (the 2016-2017 Fuel Year through the 2020-2021 Fuel Year). Section 4 addresses proposed changes to commodity procurement and hedging practices for the upcoming 2022-2023 Fuel Year. Section 5, discusses and analyzes the Company's Fuel Procurement and Hedging Programs, including a cost/benefit analysis and details of monetization transactions associated with its natural gas pipeline capacity portfolio, as directed by the Commission in Case No. PUR-2019-00070.² A glossary is included at the end of this Report to provide further explanation of terms used in this document.

¹ *Application of Virginia Electric and Power Company To revise its fuel factor pursuant to § 56-249.6 of the Code of Virginia*, Case No. PUE-2015-00022, Order Establishing 2015-2016 Fuel Factor, 2015 S.C.C. Ann. Rept. 296-298 (Aug. 21, 2015).

² *Application of Virginia Electric and Power Company To revise its fuel factor pursuant to § 56-249.6 of the Code of Virginia*, Case No. PUR-2019-00070, Order Establishing 2019-2020 Fuel Factor at 9 (Aug. 15, 2019).

1 Risk Management Program

The Company's Fuel Procurement Strategy emphasizes reasonableness and prudence of costs consistent with Va. Code § 56-249.6, fuel diversity, security of supply, and a balanced approach to hedging. The Company utilizes the following types of risk management tools (as depicted in Figure 1 below) to protect customers from the impacts of significant fuel rate volatility: the availability of a diverse generation portfolio (Section 1.1 below); access to reliable fuel supply, inclusive of transportation and storage assets (procurement) (Section 1.2); and an effective commodity price hedging program incorporating physical and financial transactions (Section 1.3).

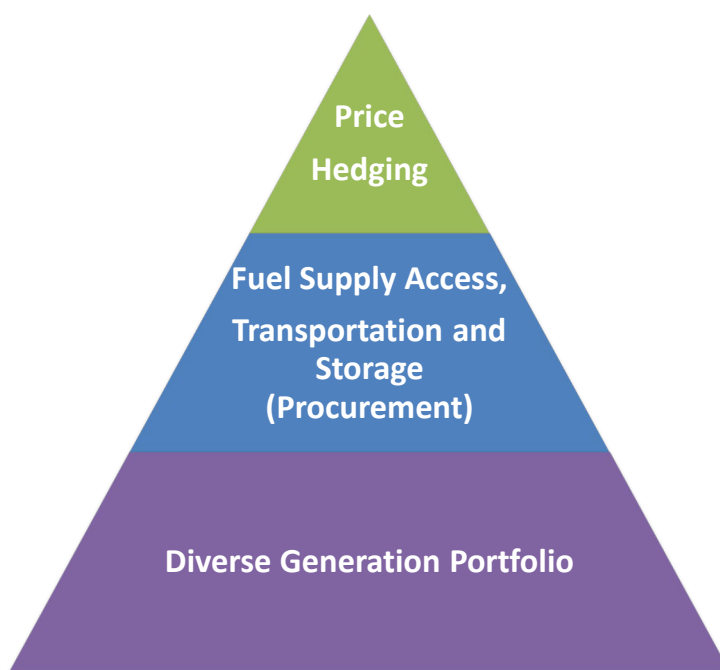


Figure 1 – Risk Management Tools

1.1 Diverse Generation Portfolio

The Company's diverse fleet of generation assets, which uses a variety of fuels and technologies, is a primary tool in protecting customers from the effects of commodity price volatility, commodity delivery disruptions, and other potential impacts related to changing regulatory requirements and real-time operating conditions.

The Company manages a diverse portfolio of assets covering a balanced mix of fuels as shown below in Figure 2. The Company's generation fleet includes units fueled by natural gas, coal, uranium, pumped storage, petroleum, and renewable sources (e.g., biomass, hydro, and solar). As commodity prices fluctuate, the Company's fleet is dispatched in the most economical manner, using and leveraging these different energy supply sources to respond to dynamic market conditions and reduce cost while maintaining reliability for the benefit of customers.

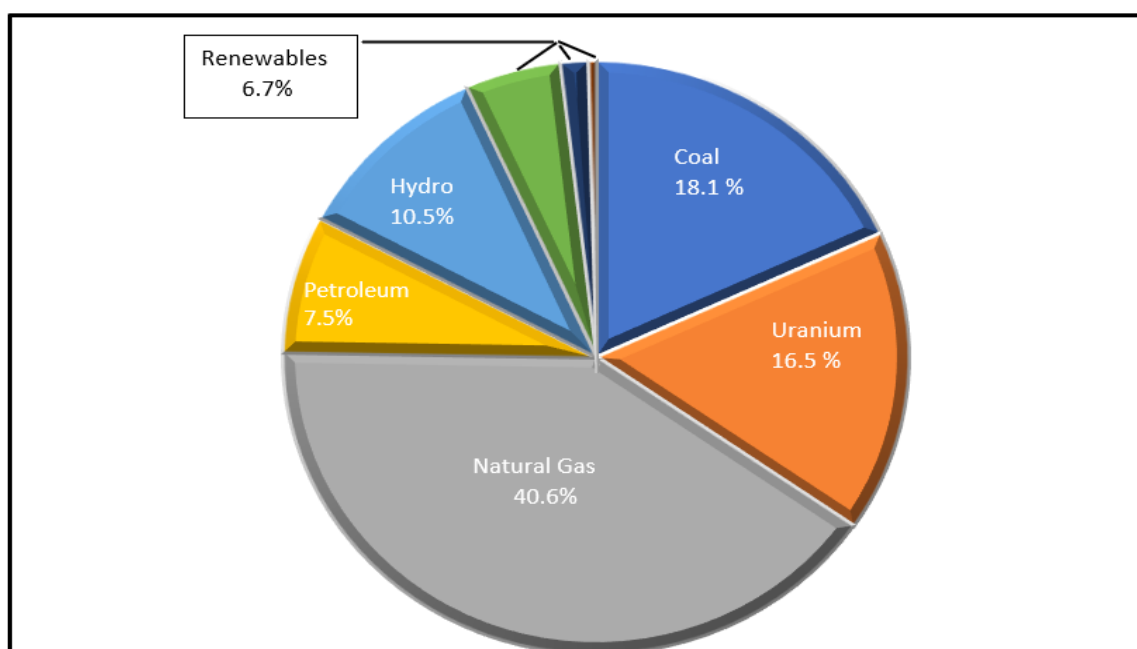


Figure 2 – Company fleet summer capacity (in MW) by fuel type (as of Jan. 1, 2021)

The Company remains committed to developing a balanced mix of resources that meets the growing needs of customers, at the lowest reasonable cost and furthers the Commonwealth's clean energy policy goals and objectives, while also providing fuel diversity for minimizing the risks of changing market conditions, industry regulations, and other factors.

1.2 **Fuel Supply Access, Transportation and Storage (Procurement)**

The Company's risk management strategy focuses on ensuring reliable and sufficient access to fuel supply at the lowest reasonable cost. Each fuel type's unique characteristics require different procurement strategies based on required volumes, potential price volatility, availability, transportation and storage constraints, and other specific supply concerns. The Company regularly evaluates the requirements for each commodity as markets and operational needs change.

The Company follows a disciplined protocol for procuring fuel from diverse suppliers and supply regions, with various contract terms and prices. This protocol accomplishes two key objectives for the benefit of customers: (1) security of supply and (2) price volatility mitigation. The Company procures fuel for its wholly, or partly-owned generation assets, through a combination of long- and short-term purchases and daily spot-market transactions. The approach varies, depending on the nature of the fuel, the required volumes, and the associated generating unit type(s). This enables the Company to respond effectively and proactively to generation requirements and commodity price fluctuations.

A key part of ensuring a reliable supply of fuel is securing the transportation of that fuel. Either seasonally or under certain daily or intraday circumstances, the Company may have fuel or capacity that is not needed to support the bidding of units into PJM Interconnection, LLC ("PJM"). At these times, the Company can release the transportation capacity or sell the fuel and return the revenue to the customer in the fuel factor.

1.3 **Price Hedging**

Uncertainty in future commodity prices exposes the Company and its customers to unpredictable changes in fuel costs. Accordingly, to mitigate the effects of such volatility, the Company enters into physical and/or financial transactions in the marketplace that hedge against potential future fuel price changes. For purposes of this Report, a hedge, also referred to as a price hedge, is any transaction, physical or financial, that locks in or fixes some component of the fuel price. Commodity-specific procurement and hedging strategies will be addressed below in Section 2 of this Report.

The objective of the Company's price hedging activity is to mitigate price volatility (i.e., minimize

abrupt changes in fuel costs) and provide rate stability, consistent with the Company's public service obligation to provide reliable electric service at the lowest reasonable cost to customers.

Fuel Procurement and Price Hedging Strategy

Overview

The Company is the Commonwealth's largest electric utility, serving approximately 2.6 million customers in Virginia. Reliable service and reasonable rates are critical to the convenience, comfort, and security of these customers, and to the economic well-being of the Commonwealth as a whole.

The objective of the Company's Fuel Procurement Strategy is to provide a framework for implementing a disciplined and prudent procurement and hedging program. The Company uses target ranges for its physical procurement and price hedges, providing for reliability of supply and price risk mitigation while allowing the flexibility needed to adapt to changing market conditions.

Through competitive fuel supply solicitations and other market purchases, the Company maintains a reliable supply of fuel specifically designed for combustion in the Company's generation stations. The terms of these physical procurement agreements are layered (i.e., executed over time). These agreements may or may not include a fixed price; the inclusion of a fixed price creates a price hedge.

Managing price volatility is further supported, as needed, using financial transactions as discussed in Section 5 of this Report. These transactions provide price certainty for commodities whose prices fluctuate based on market conditions. Financial hedge transactions also help guard against commodity price fluctuations resulting from infrastructure limitations or other physical constraints, such as pipeline restrictions due to maintenance or extreme weather conditions (e.g., a polar vortex event).

Prudently incurred fuel procurement and hedging costs are recovered annually subject to Commission Staff audit through a fuel factor filing that estimates a forward-looking fuel factor for the upcoming fuel year (July 1 to June 30) and are adjusted for any under- or over-recovery from the preceding fuel year. The potential variance in fuel costs is a function of weather, the underlying fuel price volatility and the Company's ability to adjust its fleet dispatch to maximize use of the least expensive fuel available to these generation resources.

The following Figure 3 presents the Company's Fuel Procurement and Price Hedging Strategy by fuel type.

Figure 3 - Fuel Procurement and Price Hedging Strategy

	Uranium	Natural Gas	Coal	Purchased Power	Biomass	Petroleum	PPAs
Energy • Forecast Volume Portfolio share ¹	27,617 GWh 30.7%	38,754 GWh 43.1%	8,310 GWh 9.2%	10,404 GWh 11.6%	1,068 GWh 1.2%	113 GWh <1%	3,663 GWh 4%
Procurement (Physical Supply) Time Period ²	up to 10 years	up to 3 years	up to 3 years	up to 1 year	up to 3 years		
Target Volume ³	25-100%	25-100%	60-90%	0-5%	80-90%	100%	100%
Price hedge – Year 1	95-98%	20-50%	60-90%	0-5%	40-70%	100%	80-100%
Physical Transaction Types • Price Hedge ⁴	• Fixed price • Inventory on- and off-site	• Fixed price • Fixed basis price • Storage • Transportation • Asset Management Agreement (“AMA”)	• Fixed price • Inventory on- and off-site		• Fixed price • Inventory on- and off-site	• Fixed price • Inventory on- and off-site	• Fixed price
• Floating Price	• Index Price	• Index price			• Cost-based • Spot market price	• Index price	• Index price
Financial Transaction Types	• Currency Forwards	• Fixed-price Futures • Basis Futures • Swing Swap Futures • Price Caps and Collars		• Fixed-price Futures • Fixed-price Swap			

Notes:

1. Forecast for July 1, 2021 through June 30, 2022 as of March 31, 2021 (SCC Case No. PUR-2021-00097). The total sum of “Energy Portfolio Share” may not equal 100% due to rounding and the exclusion of hydro and solar resources, which do not require fuel procurement.
2. Under certain circumstances, the Company may choose to enter into a transaction that extends beyond these limits – e.g., if there are specific fuel quality requirements.
3. Based on forecasted volumes as of the May 13, 2021 fuel factor filing in Case No. PUR-2021-00097, except for oil and natural gas, which have procurement targets that may be based on daily peak usage requirements during certain months.
4. These are physical procurement transaction types that have an inherent price hedge through a fixed purchase price.

2.1 Uranium

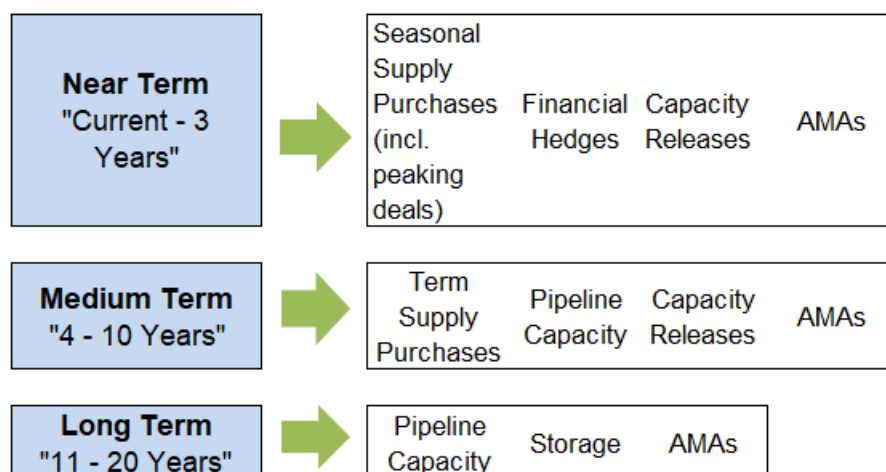
For purposes of this Report, the nuclear fuel cycle components referenced as “uranium” fuel include uranium (U_3O_8), and conversion, enrichment, and fabrication services. Due to the long lead times involved in the nuclear fuel supply chain, the limited number of suppliers and processing facilities, and the complex nature of the global supply chain, the Company obtains the majority of its supply under a diverse set of long-term supply contracts that are layered over time. The Company also maintains a significant natural uranium inventory and some enriched uranium inventory, when appropriate, to mitigate supply risk. Supply diversity necessitates a balanced set of suppliers, global supply regions, processing facilities and contract terms, and price structures. Components of nuclear fuel may be procured for durations up to the expiration of a unit’s operating license, but that would be unusual; the typical term is five (5)-to-ten (10) years. With the exception of fabrication services that are unit- or plant-specific, the Company structures its nuclear fuel contracts to provide supply for any unit in its nuclear fleet. This fleet structure provides the Company greater scale in the market and greater security of supply across the fleet for the benefit of customers.

The Company covers a high percentage of its five-year uranium requirements through inventory and forward contracting. Uranium feed components of nuclear fuel batch costs (U_3O_8 and conversion) are included in the calculation of average inventory accounting, and nuclear fuel batches are amortized consistent with their consumption rates, or “burn-up,” across multiple fuel cycles. Additionally, on a typical eighteen (18)-month cycle, the Company replaces one-third of the fuel assemblies in the core. As a result, nuclear fuel expense rates change very gradually over time and are not immediately sensitive to short-term fluctuations in market prices.

Some of the Company’s uranium procurement contracts may require payment in foreign currencies. If so, the Company may, at times, use financial transactions to mitigate the impact of changes in the exchange rate between the U.S. Dollar and the applicable foreign currencies.

2.2 Natural Gas

To fuel its natural gas-fired generation stations, the Company procures natural gas supplies, storage, and transportation subject to approved affiliate fuel procurement structures as illustrated in the chart in Figure 4 below.

Figure 4 – Natural Gas Supply, Storage & Transportation Transaction Types

The Company uses a combination of near- and medium-term supply agreements and near-, medium-, and long-term pipeline capacity agreements to physically secure natural gas supply for its generation stations. Long-term pipeline capacity and storage agreements, and AMAs provide firm deliveries to the Company's generation stations in addition to broadening access to diverse product locations. The Company issues biannual solicitations for fixed-price or index-based physical supplies of natural gas for the upcoming winter (November to March) or summer (April to October) season and subsequent seasons for up to three (3) years. Depending on market conditions and the current transportation and supply portfolio, the Company may issue additional solicitations for physical supply.

To ensure firm gas supply delivery, these near-to-medium-term transactions with suppliers are paired with the Company's pipeline transportation and firm capacity releases. Capacity releases and acquisitions are used to supplement or align with generation and market needs.

Consistent with the policy objectives of the Virginia Clean Economy Act, the Company is committed to achieving net zero emissions by 2050, as part of its clean energy strategy. In the area of fuel procurement, a key aspect of that strategy is reducing emissions generated by our suppliers (Scope 3 emissions), and as such, the Company is evaluating methane-reducing natural gas, in the form of Responsibly Sourced Natural Gas ("RSG") and/or Renewable Natural Gas ("RNG"). The Company began receiving RSG offers, in 2019, as part of its biannual solicitation process. These offers are evaluated consistent with the Company's reliability, service, and cost criteria for natural gas supply.

Strong consideration will be directed to market priced, RSG offers from suppliers meeting the Company's reliability and service requirements.

Natural gas has the most potential price volatility of the fuels used for the Company's generation stations. While pricing can be impacted by a wide variety of factors, there are three primary considerations:

1. The overall price level and volatility of natural gas for the U.S. set by large-scale supply economics of drilling, imports/exports of natural gas, and demand.
2. The locational value of natural gas, also called "basis." Over the long-term, basis prices should be set by a combination of marginal transportation costs and market area storage costs that allow natural gas to move from supply regions to demand regions. However, over the short-term, basis prices are subject to significant volatility until capital investment results in infrastructure build.
3. Intra-month and daily physical natural gas markets balance the instantaneous needs of customers – the needs of which can be driven by weather or gas generation outages – and supply. Pipelines provide the linkage between supply and demand by physically moving natural gas to the market area. In real-time, pipeline constraints can limit the ability of the pipeline network to move natural gas from supply basins to the market area. These constraints, coupled with weather-driven demand, have historically resulted in significant price volatility for natural gas, as the Commission has previously recognized when approving the Company's proposed fuel factor rates subject to audit.

With this price volatility in mind, the Company set the price hedge targets illustrated in Figure 5:

Figure 5	Fuel Year		
	1	2	3
Target Price Hedged	20-50%	10-30%	0-15%

To meet the above targets, the Company calculates the percentage of fixed-price natural gas procured compared to the total projected requirement. If the Company is under the target price hedge range using physical transactions, financial transactions may be utilized to supplement the portfolio and mitigate price risk.

Financial derivative contracts are available to hedge against price volatility and include Henry Hub futures contracts, basis futures contracts, and swing swap futures contracts. These financial transactions exist only at highly liquid trading locations and are not available at all of the locations where the Company has fuel requirements. They must be paired with complementary purchases of physical supply and transportation to deliver the needed gas to the required locations for fueling the Company's generating stations. Sellers of these products are generally large financial institutions and merchant gas companies rather than producers. The use of financial derivatives may be subject to additional costs and regulations to initiate and maintain positions. See the glossary of terms at the end of this Report for definitions of available transaction types.

2.3 Coal

The Company sources coal from multiple domestic supply basins, with the majority of purchases from the Central and Northern Appalachia regions. The Company has also sourced coal internationally. Once the coal has been purchased, it is then transported by rail or truck to the Company's coal-fired electric power plants or off-site storage facilities. The Company targets a system coal inventory range of twenty (20)-to-forty (40) days of full-load operation to ensure reliability for its customers.

Coal is not a readily fungible commodity like natural gas, which has greater market liquidity. To ensure the reliability of coal supply, the Company primarily procures coal under long-term contracts through periodic competitive supply solicitations. The contract terms typically range from one (1)-to-three (3) years; however, under some circumstances, the Company may enter into a transaction that is longer than three years. As market dynamics shift generation toward natural gas, and away from coal, the Company is shortening contract lengths, trending toward shorter durations. The Company maintains a steady supply of coal through a portfolio of layered term agreements that are replaced through new market solicitations as the older agreements expire. In addition to purchases through competitive solicitations, the Company also utilizes short-term spot market purchases, prompt month purchases, and term purchases for supply directly from producers and other sellers.

This type of physical procurement strategy creates a natural price hedge, which mitigates price volatility while helping to ensure a reliable fuel supply for the benefit of the Company's customers.

2.4 **Purchased Power**

The Company purchases energy from the wholesale market when doing so is more cost-effective than operating its own units. The Company's membership in PJM Interconnection, L.L.C., a regional transmission organization or entity that coordinates the movement of wholesale electricity in all or part of thirteen states and the District of Columbia, improves the availability and procurement of economical wholesale energy due to the efficiencies of a large power pool. The volume and price of economy purchases are largely established on a day-ahead basis but may also occur on an hourly basis.

The Company may use derivative instruments to financially hedge a certain portion of these volumes, the volume and timing of which are determined in conjunction with natural gas hedging decisions.

2.5 **Biomass**

The Company's biomass units, which primarily burn waste and low-grade wood, all have access to regional wood baskets for their supply of waste wood. The majority of the Company's biomass fuel comes from in-woods chipping operations and sawmill residues.

The Company ensures diversity of supply by obtaining fuel from aggregators as well as directly from producers. Most biomass is sourced within 100 miles of the generating station that will consume it and is delivered by truck. The Company's system inventory for biomass typically ranges from five (5)-to-twelve (12) days of full load operation.

Hopewell and Southampton Power Stations continue to be served by multiple suppliers under both short and long-term agreements, enabling the Company to maintain the reliability of its biomass supply through a diversified supplier base. The Company continues to purchase long-term fuel supply primarily through one supplier at its Altavista Power Station. Procurement for the Company's biomass needs at its co-fired Virginia City Hybrid Energy Center facility continues to be conducted via short- and long-term contracts with various suppliers.

Similar to its coal strategy above and petroleum strategy below, the Company utilizes on- and off-site inventories to ensure adequate physical supply.

2.6 Petroleum

The Company sources #2 fuel oil directly from domestic refiners and producers. These suppliers utilize interstate pipelines and domestic barges from distribution points within economical reach of the Company's generation footprint. The Company may also purchase oil from local distributors for direct shipment via tanker trucks. The #2 fuel oil is stored at individual power stations and centralized off-site, third-party terminals where inventory typically ranges from three (3)-to-six (6) days of full load operation.

No. 6 fuel oil is obtained both domestically via barge and internationally via tanker shipments. The Company purchases it in bulk and stores it in tanks at the relevant generation stations. The Company's #6 fuel oil inventory typically ranges from ten (10)-to-fifteen (15) days of full load operation.

As with its coal strategy above, the Company utilizes on- and off-site oil inventories to mitigate price risk for its customers.

2.7 Power Purchase Agreements

Power purchase agreements ("PPAs") provide about 4% of the Company's annual load requirement through contracted fossil and renewable-powered generating units. The majority of the Company's PPAs are based on a fixed pricing schedule for energy; however, some of the PPAs are priced based on PJM locational marginal pricing. The current mix of PPAs is trending towards more renewables whose contract prices are primarily determined by regulatory proceedings.

3 Historical Fuel Procurement and Hedging Strategy Results

See Figures 6 through 9 below for detail on the Company's hedging and fuel procurement practices from the 2015-2016 Fuel Year through the current 2021-2022 Fuel Year, including (i) the percentage of fuel volumes whose prices were hedged physically and financially by fuel type (Figure 6); (ii) the gains and losses associated with financial hedging activity (Figure 7); (iii) natural gas physical and financial price hedges by type by month (Figure 8); and (iv) an itemized list of costs associated with these financial hedges (Figure 9).

Figure 6 - Fuel Volumes Price Hedged by Fuel Type

Fuel Year Generation Forecast																			
(MWh)	16-17 FY		17-18 FY		18-19 FY		19-20 FY		20-21 FY		21-22 FY								
Coal	20,959,316		19,794,471		12,708,432		13,869,471		7,967,160		8,309,590								
Natural Gas	31,296,150		29,574,515		36,722,026		38,757,594		39,492,290		38,753,820								
Oil	451,777		438,451		420,803		228,043		202,900		113,290								
Nuclear	27,763,413		27,520,944		27,782,557		27,491,525		27,578,300		27,616,940								
PPA	9,012,315		4,793,571		4,174,990		3,085,057		3,201,770		3,662,770								
Purchase	1,990,770		6,081,537		8,270,225		4,060,508		6,262,690		10,403,540								
Biomass	1,308,162		1,036,367		1,020,742		900,880		935,460		1,067,950								
Hydro	109,083		7,517		(101,058)		41,364		40,400		(3,670)								
Total	92,890,986		89,247,373		90,998,717		88,434,441		85,680,970		89,924,230								
MWh Price Hedged																			
Coal	18,653,791		89%		19,596,526		99%		12,454,263		98%		11,637,653	84%	5,205,545	65%	8,309,590	100%	Physical
Natural Gas	-		0%		-		0%		-		0%		-	0%	-	0%	-	0%	Financial
Natural Gas	7,198,115		23%		6,506,393		22%		5,398,138		15%		6,472,518	17%	6,595,212	17%	8,525,840	22%	Physical
Oil	451,777		100%		438,451		100%		420,803		100%		228,043	100%	202,900	100%	113,290	100%	Physical
Nuclear	27,208,145		98%		26,970,525		98%		27,226,906		98%		26,941,694	98%	27,026,734	98%	27,064,601	98%	Physical
PPA	1,622,217		18%		2,636,464		55%		3,214,742		77%		2,385,781	77%	2,476,039	77%	2,887,025	79%	Physical
Purchase	-		0%		-		0%		-		0%		-	0%	-	0%	-	0%	Financial
Biomass	327,041		25%		611,457		59%		561,408		55%		414,405	46%	430,312	46%	982,514	92%	Physical
Hydro	109,083		100%		7,517		100%		(101,058)		100%		41,364	100%	40,400	100%	(3,670)	100%	Physical
Total	55,570,168				56,767,334				49,175,202				48,121,457		41,977,142		47,879,191		
% hedged	60%				64%				54%				54%		49%		53%		
Price Hedge Definition: Quantity price hedged at the time of the fuel factor filing for the specified upcoming fuel year (July 1 to June 30). Percent price hedged is MWh price hedged as a portion of the fuel year forecast.																			

Prudently incurred gains or losses resulting from financial hedges are included in the Company's total fuel cost, thus ensuring that all of the costs or benefits associated with the transactions in the Company's price hedging strategy are captured (see Figure 7). Physical fixed-price hedges, by their nature, are procurement transactions and do not have gains or losses. Physical transactions rarely have associated hedging costs, such as broker fees; therefore, there are no material costs to customers.

Figure 7 - Financial Hedging Activity - Settlements/Quantification of Gains and Losses

(A negative value indicates a help to the customer)

	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Total
Natural Gas Hedge	\$0	\$0	\$0	\$0	\$0	\$0							\$0
Foreign Exchange Hedge	\$0	\$0	\$0	\$0	\$0	\$0							\$0
Purchased Power Hedge	\$0	\$0	\$0	\$0	\$0	\$0							\$0
Total in Fuel Expense	\$0	\$0	\$0	\$0	\$0	\$0							\$0

Notes:

Includes amounts recognized in fuel expense related to ineffectiveness. Beginning in May 2015, ineffectiveness is deferred as a regulatory asset or liability. Beginning in January 2019, ineffectiveness is no longer recorded.

Purchased Power Hedges include option premiums where appropriate.

Natural Gas Hedges do not include transaction costs, which are recovered through base rates and are not recognized in fuel expense.

Figure 8 summarizes the Company's physical and financial natural gas price hedge volumes, by month.

Figure 8 - Natural Gas Price Hedges by Type by Month														
Physical Price Hedges by Type														
		Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	19-20 FY Total
Fixed Basis	Weighted Average Price	\$0.95	\$1.30	\$2.03	\$1.55	\$2.45	\$2.35	\$1.92	\$2.21	\$2.30	\$2.04	\$2.38	\$2.43	\$1.99
	Volume	2,790,000	2,790,000	2,700,000	2,790,000	2,700,000	2,790,000	2,790,000	2,520,000	2,790,000	2,700,000	2,790,000	2,700,000	32,850,000
Fixed Price	Weighted Average Price	\$2.43	\$2.43	\$0.00	\$0.00	\$4.13	\$4.13	\$4.38	\$4.89	\$3.54	\$2.23	\$2.20	\$2.23	\$3.36
	Volume	3,100,000	3,100,000	-	-	3,000,000	3,100,000	5,991,160	6,359,971	7,063,908	2,827,588	5,716,905	5,256,400	45,515,932
Total Physical Hedged Volume		5,890,000	5,890,000	2,700,000	2,790,000	5,700,000	5,890,000	8,781,160	8,879,971	9,853,908	5,527,588	8,506,905	7,956,400	78,365,932
		Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	20-21 FY Total
Fixed Basis	Weighted Average Price	\$3.07	\$3.49	\$3.82	\$5.29	\$5.65	\$4.90							\$4.37
	Volume	2,790,000	2,790,000	2,700,000	2,790,000	2,700,000	2,790,000							16,560,000
Fixed Price	Weighted Average Price	\$2.32	\$2.34	\$2.53	\$3.24	\$4.23	\$5.70							\$3.40
	Volume	5,439,999	5,161,037	5,014,500	2,514,248	2,968,400	5,934,286							27,032,470
Total Physical Hedged Volume		8,229,999	7,951,037	7,714,500	5,304,248	5,668,400	8,724,286	-	-	-	-	-	-	43,592,470
Financial Price Hedges by Type														
		Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	19-20 FY Total
Basis Swap	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		-	-	-	-	-	-	-	-	-	-	-	-	-
Fixed Price	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		-	-	-	-	-	-	-	-	-	-	-	-	-
Swing Swap	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Financial Hedged Volume		-	-	-	-	-	-	-	-	-	-	-	-	-
		Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	20-21 FY Total
Basis Swap	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0							\$0
		-	-	-	-	-	-							-
Fixed Price	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0							\$0
		-	-	-	-	-	-							-
Swing Swap	Settlement Volume	\$0	\$0	\$0	\$0	\$0	\$0							\$0
		-	-	-	-	-	-							-
Total Financial Hedged Volume		-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 9 shows actual broker fees and other fees associated with financial price hedges through December 31, 2021.

Figure 9 - Costs of Hedging						
Purchased-Power Financial Hedge Broker Fees						
	<u>16-17 FY</u>	<u>17-18 FY</u>	<u>18-19 FY</u>	<u>19-20 FY</u>	<u>20-21 FY</u>	<u>21-22 FY</u>
Total	\$0	\$0	\$0	\$0	\$0	\$0
Natural Gas Financial Hedge Broker Fees						
	<u>16-17 FY</u>	<u>17-18 FY</u>	<u>18-19 FY</u>	<u>19-20 FY</u>	<u>20-21 FY</u>	<u>21-22 FY</u>
Total	\$27,195	\$0	\$0	\$0	\$0	\$0
Natural Gas Financial Hedge Financing Fees						
	<u>16-17 FY</u>	<u>17-18 FY</u>	<u>18-19 FY</u>	<u>19-20 FY</u>	<u>20-21 FY</u>	<u>21-22 FY</u>
Total	\$0	\$0	\$0	\$0	\$0	\$0
NOTES:						
The purchased power-related broker fees were incurred directly by the Company.						

4 Potential Commodity Procurement and Hedging Changes

Currently, the Company does not anticipate making material changes to its commodity procurement or hedging programs in the upcoming 2022-2023 Fuel Year. However, the Company may need to make modifications if market conditions change significantly and will address any such proposed modifications in its upcoming 2022-2023 fuel factor filing, to the extent needed.

5 Fuel Procurement and Hedging Analysis

5.1 Hedging Benefits

The primary benefit of a sound hedging strategy is to stabilize fuel prices, not to ensure below-market prices. This price stabilization, along with a disciplined multiyear, layered procurement program, helps stabilize the cost of fuel and minimize the potential for rate shock on customer bills. A report issued by The National Regulatory Research Institute explains the purpose and benefits of hedging as follows:

*As a general proposition, increased fuel volatility harms risk-averse customers. Following standard economic theory, the average household consumer is assumed to be risk averse. On that assumption, the average residential consumer is willing to incur an expense for purposes of avoiding volatile gas bills.*³

The report continues:

*Hedging should not be expected to reduce the average cost of gas purchases over time. Hedging can best be viewed as price insurance purchased for the purpose of avoiding the payment of high gas prices that could occur unexpectedly after the “insurance” is purchased. The intent of hedging is to stabilize prices, not to lower them. As a form of insurance, hedging protects a gas utility and its customers against financial adversity that could otherwise result from being exposed to volatile gas prices.*⁴

While the primary benefit of hedging is to stabilize fuel prices, there are additional benefits to customers. For example, regarding natural gas, the Company’s semi-annual solicitations effectively minimize or bypass the bid/ask spread by creating a competitive forum with multiple competitive offers across multiple locations. The resulting diverse set of counterparties, including producers, marketers, and financial institutions, allows the Company to choose the best set of transactions for security of supply and hedging to the benefit of its customers. Pipeline capacity to liquid supply regions assists in minimizing fuel costs by providing direct access to natural gas production basins. Physical fuel supply procured through the competitive solicitation process, therefore, incurs no additional costs to a price hedge versus an index-based physical supply purchase.

5.2 Hedging Transaction Fees and Costs

As shown in Figure 9, the Company did not incur any cost from financial hedging through December

³ Kenneth W. Costello & John Cita, Ph.D., The National Regulatory Research Institute, *Use of Hedging by Local Gas Distribution Companies: Basic Considerations and Regulatory Issues* 6-7 (2001). Risk aversion means that individuals and firms are willing to pay something (e.g., a premium) to avoid the possibility of large losses or downward variability in their wealth. *Id.* at 41 n.48.

⁴ *Id.* at 40.

31, 2021 of the 2021-2022 Fuel Year.

The availability and use of both physical and financial price hedges allow the Company to consider the cost when choosing the most appropriate transaction type. Utilizing a mix of physical and financial hedges gives the Company flexibility to efficiently manage any infrastructure or physical constraints and to take advantage of financial market benefits, resulting in a prudent and cost-effective hedging strategy for customers.

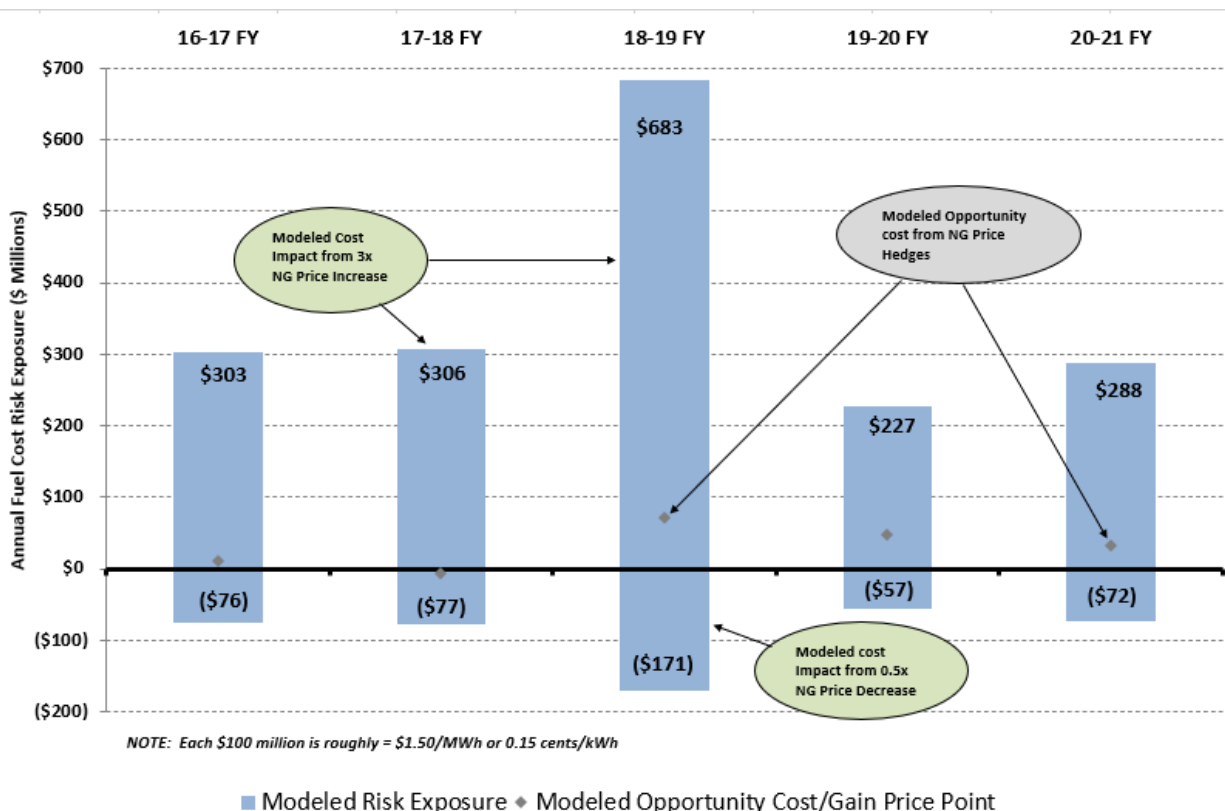
With few exceptions, physical purchase transactions can be executed without the need to post cash margins; credit support is most often satisfied using a guarantee or other non-cash alternative. Financial markets, by contrast, generally require the posting of cash margin to ensure the credit risk or market risk associated with the hedge. For example, if capital markets constrict and the cost of hedging using financial products increases, the Company can focus attention on physical markets for hedging. Conversely, when capital markets relax and the cost of financial hedge transactions decreases, at a time when the physical market is unable to provide the size, scope and/or price that the Company is seeking, the Company can take advantage of financial hedge transaction types. See Figures 7 and 9 for a complete listing of financial settlements and hedging costs, respectively, associated with financial hedges.

5.3 Historical Price Hedge Analysis

The objective of price hedging is to reduce the volatility in fuel prices, which benefits customers by stabilizing fuel costs. The Company's natural gas financial hedge settlements, physical price triggers and fixed price peaking supply have lessened the impact of natural gas price volatility on historical, total fuel rates. With respect to physical hedges (price triggers), a traditional cost/benefit analysis (as it pertains to hedging gains and losses) is not applicable. A quantification of the cost/savings "lost opportunity" cannot be applied to physical price hedges. Namely, physical purchases that are price triggered, by definition, have been excluded from the supply and demand balance used to calculate the Inside FERC and Gas Daily index or implied cost benchmark(s). However, Figure 10 below is intended to illustrate a modeled, historical hedge benefit analysis. The Company modeled its fuel rates, including any potential changes to the generation mix due to increased natural gas prices, assuming natural gas price swings of 300% (upper, 3X) and 50% (lower, 0.5X). Actual, natural gas fixed price hedges (absolute dollars) were then applied to show the dampening effect of these hedges on modeled fuel costs. Based on this natural gas price swing

assumption, over the last five fuel years, natural gas price hedging and generation mix shifts are shown to have reduced customer's fuel cost exposure to natural gas price volatility by an average of approximately \$452 million per year. It is important to note the modeled risk exposure (blue bars) are more representative of a winter season, whereas the modeled opportunity cost/gain price point(s) (represented by diamonds) reflect a fuel year.

Figure 10 – Modeled, Historical Natural Gas Hedge Benefit Analysis



5.4 Natural Gas Pipeline Capacity Monetization

Each day, the Company supports gas-fired generation offers into PJM using its firm pipeline capacity portfolio. Per PJM energy market requirements, when the Company determines there is unused firm pipeline capacity, after considering generation offers, awards, flexibility, unit outages, and system constraints, it can offer this capacity, long or short-term, either in the capacity release or third-party sales market(s). Capacity release or third-party sales decisions are based on a variety of factors including, but not limited to: risk, timing, market availability and perceived market value for the unused firm capacity. All monetization revenues are returned to the Company's customers on a dollar for dollar basis, as a fuel rate offset. See Figure 11 for details pertaining to the Company's natural gas pipeline capacity monetization transactions.

Figure 11 - Natural Gas Capacity Release and Third-Party Sales Monetization													
	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	20-21 FY Total
Capacity Release	\$ 35,013	\$ 35,013	\$ 490,883	\$ 35,013	\$ 33,883	\$ 111,600	\$ 111,600	\$ 100,800	\$ 111,600	\$ 108,000	\$ 142,344	\$ 108,000	\$ 1,423,749
Third-Party Sales*		\$ 17,664	\$ (122,788)	\$ 67,066	\$ 984,848	\$ 190,335	\$ 9,002	\$ 526,880	\$ 43,462	\$ 1,319,538	\$ 489,224	\$ 211,928	\$ 3,737,159
Total	\$ 35,013	\$ 52,677	\$ 368,095	\$ 102,079	\$ 1,018,731	\$ 301,935	\$ 120,602	\$ 627,680	\$ 155,062	\$ 1,427,538	\$ 631,568	\$ 319,928	\$ 5,160,908

5.5 Continuation and Activity of Current Hedging Programs

For commodities such as uranium, biomass, coal, and petroleum, price hedging will continue through the physical procurement process.

The natural gas market has historically been sensitive to unforeseen factors that create significant price volatility. To avoid this uncertainty, it is reasonable to price hedge two (2)-to-three (3) years into the future using a layered procurement approach. Through this layered procurement process, the year-to-year volatility in the cost of the natural gas supplies is dampened. Without such a forward-looking program, customers would be fully exposed to dramatic changes in the natural gas market as they occur.

While the Company has relied upon physical hedges for natural gas procurement for the last several fuel years, market changes, such as more liquidity at trading points where the Company procures natural gas, have increased the likelihood that the Company may resume some level of financial hedging of natural gas.

The use of combined-cycle stations as baseload/intermediate generation, along with combustion turbines as peaking generation, will continue the potential variability of the natural gas portion of customers' fuel bills. For example, actual total natural gas supply costs for 2021 exceeded \$1 billion. Given the continued evolving nature of natural gas markets, a forward-looking procurement and price hedging program is a prudent step to mitigate potential cost volatility for the benefit of customers.

The natural gas market allows procurement at an index price, permitting the Company to procure physical supply while leaving the price to float until the index is set. This provides the option to separate the price-hedge transactions from procurement of physical supply. Current market dynamics also allow physical-supply transactions inclusive of a price-hedge component, at no additional cost. The Company believes that prudently executed physical supply purchases containing a price-hedge component at no additional transaction cost reduce the variability of the fuel portion of customer bills and are in customers' best interests. The Company's current natural gas price hedge ranges are designed to hedge baseload volumes. For details and analysis

supporting the Company's price hedge targets, see the section titled "Why use a 20% to 50% range for hedged volumes" in Appendix D of the Company's 2015 Fuel Procurement Strategy Report filed on January 30, 2015 in Case No. PUE-2014-00033.

Glossary of Terms

Ask Price or Offer Price indicates a willingness to sell a commodity at a given price.

Asset Management Agreements (“AMAs”) are a common arrangement with sellers that allows for the bundling of a package of fuel supply with corresponding transportation and delivery options (including storage), resulting in both reliable supply and transport at either the then-current or index-based pricing. Terms vary from one season to multiple years. AMAs can be transacted at a fixed or capped price.

Basis Futures Contracts are financial derivatives cleared through an exchange or clearinghouse whose pricing terms represent the then-current market value of the delivery location relative to Henry Hub. Settlement gains and losses are calculated by taking the difference between the final settlement value of the delivery location relative to Henry Hub and the pricing terms. These markets are available at highly liquid points only for monthly, seasonal, or annual terms.

Bid Price is an offer to buy a specific quantity of a commodity at a stated price or the price that the market participants are willing to pay.

Bid/Ask Spread is the price difference between the Bid and Ask Prices.

Broker Fees are commissions paid per transaction to brokers for executing the Company’s orders. Brokers assist in finding a liquid and competitive price; in addition, they can be used to ensure the buyer’s anonymity during a transaction. Brokers can be used in both physical and financial transactions. Broker fees paid by the Company for each of the last five fuel years, as well as for the 2018-2019 Fuel Year through December 31, 2018, can be found in Figure 9 of this Report.

Capacity Release is the temporary release of firm transportation services.

Credit Risk is the potential non-payment and non-performance of a counterparty on a contract to buy or deliver fuel. Potential loss of a hedge would occur under a counterparty bankruptcy during which the counterparty ceases to perform on a set of transactions. Cleared and bilateral financial transactions have margining provisions to significantly mitigate any value loss from a counterparty credit event. Physical transactions do not have margining provisions. All transactions must comply with the Company’s credit policies.

Currency Forward is a financial derivative that is entered into by the Company for the purpose of price hedging a foreign currency exchange rate.

Exchange & Clearing Fees are fees paid if a transaction is conducted through an exchange or a clearinghouse, such as the Intercontinental Exchange (“ICE”) or New York Mercantile Exchange (“NYMEX”), or is cleared through a clearinghouse. Exchange and clearing fees paid by the Company for each of the last five fuel years, as well as for the 2018-2019 Fuel Year through December 31, 2018, can be found in Figure 9 of this Report.

Financial Transaction or Financial Hedge is a financial derivative that is entered into by the Company for the purpose of price hedging. Financial transactions provide a price hedge without requiring delivery of a physical commodity. Gains and losses are calculated by taking the difference

between the transaction price and a published index price for the fuel. Financial transactions include swaps, futures contracts, and price caps and collars that do not require physical delivery of fuel.

Fixed-Basis Physical Transaction is a physical fuel contract that has fixed pricing terms based on the then-current market value of the delivery location relative to the Henry Hub, as well as a floating index price based on the Henry Hub price. This basis differential is fixed while the Henry Hub price will float until the week immediately preceding the month that the gas will flow. These contracts can be arranged to allow the Company the right, at a later date, to fix the Henry Hub-based component of the price.

Fixed-Price Futures Contracts are financial transactions traded on an exchange or through a clearinghouse that are priced at the then-market price for a delivery location. Settlement gains and losses are calculated by taking the difference between the settled price at the delivery location and the transaction price. These contracts are liquid and available for monthly, seasonal, or annual terms.

Fixed-Price Physical Transaction is a procurement purchase which establishes a locked-in fixed price for the total value of the fuel at the then-current market price. This is a type of price hedge.

Fixed-Price Swaps are similar to Fixed-Price Futures Contracts except that they are not traded through an exchange or clearinghouse.

Hedge or Price Hedge is any one-month or longer transaction, physical or financial, which fixes some component of the price of the fuel for a portion or all of the period of the transaction.

Henry Hub Futures Contracts are financial transactions that are priced at the then-market price at Henry Hub, a liquid natural gas trading point. Gains and losses are calculated by taking the difference between the settled Henry Hub price, as determined by the NYMEX, and the transaction price.

Index-Priced Fuel has pricing that floats with a published market price. The final price of fuel is based on the published index, which may settle quarterly, monthly, or daily.

Margining is the posting of good-faith collateral to reduce credit risk. Margin posted may include cash, financial instruments such as Treasury bonds or letters of credit, or guarantees. Exchanges and clearinghouses generally require the posting of cash, while financial or physical transactions with non-exchange counterparties may require cash, financial instruments, or guarantees.

Natural Gas Peaking Deals are seasonal, (typically winter period) natural gas supply deals that offer supply at one or various strategic, delivered locations, where supply may be needed during peak periods. Pricing structures typically include both a fixed and variable cost component and are usually at elevated price levels, due to expected delivery during peak period(s).

Pipeline Capacity Contracts are firm capacity services on pipelines that can deliver oil or natural gas to the Company's generation or storage facilities in a reliable manner. Natural gas pipeline capacity contracts allow the Company to purchase supply in more liquid and less constrained supply basins, rather than in more often constrained and volatile market delivery areas.

Price Caps & Collars are fuel purchased with a capped price in return for a fee. A collar provides a

band within which the price will float, with a cap that the price will not exceed and a floor limiting how low the price can decline. Caps and collars can also be executed through financial transactions, puts, and calls.

Procurement is the collective purchasing of physically delivered fuel, transportation, or storage products.

Swing Swap Futures Contracts are financial transactions that have a transaction price equal to the then-current market value of locking in a fixed price every day in a month based on the settled monthly referenced basis location. Settlement gains and losses are calculated by taking the difference of the average daily market price at the referenced basis location and the fixed monthly index price at that location.

CERTIFICATE OF SERVICE

I hereby certify that on this 31st day of January 2022, a true and accurate copy of the foregoing filed in Case No. PUR-2021-00097 was delivered by hand, email or mail first class postage pre-paid to the following:

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/s/ Elaine S. Ryan

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Dale E. Hinson's Exhibit DEH 2 filed in Docket No. E-22, Sub 644, was served electronically or via U.S. Mail, first-class postage prepaid, upon all parties of record.

This, the 7th day of September, 2022.

/s/Mary Lynne Grigg

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