Part 1

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December 21, 2021

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State Corporation Commission
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Application of Virginia Natural Gas, Inc. for approval of a new rate schedule and tariff, designated Schedule 17, Renewable Natural Gas Receipt Service; implementation of a Renewable Natural Gas Pilot Program; and approval to modify Terms and Conditions, pursuant to § 56-234 of the Code of Virginia
Case No. PUR-2021-00298

Dear Mr. Logan:

Please find attached for electronic filing in the above-referenced matter the *Application of Virginia Natural Gas, Inc. for approval of a new rate schedule and tariff, designated Schedule 17, Renewable Natural Gas Receipt Service; implementation of a Renewable Natural Gas Pilot Program; and approval to modify Terms and Conditions, pursuant to § 56-234 of the Code of Virginia.*

Please do not hesitate to contact me if you have any questions in regard to the enclosed.

Highest regards,

/s/ Elaine S. Ryan

Elaine S. Ryan

Enclosure

cc: William H. Chambliss, Esq.
Elizabeth B. Wade, Esq.
Mr. Tyler Lake
Timothy D. Patterson, Esq.

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA NATURAL GAS, INC.	)	
	)	Case No. PUR-2021-00298
For approval of a new rate schedule and tariff, designated Schedule 17, Renewable Natural Gas Receipt Service; implementation of a Renewable Natural Gas Pilot Program; and approval to modify Terms and Conditions, pursuant to § 56-234 of the Code of Virginia	)	

VIRGINIA NATURAL GAS, INC.'S
APPLICATION FOR APPROVAL OF SUSTAINABLE GAS PROGRAM

Pursuant to §§ 56-234 A and B of the Code of Virginia ("Va. Code" or "Code") and Rule 80 of the Rules of Practice and Procedure of the State Corporation Commission of Virginia (the "Commission"), Virginia Natural Gas, Inc. ("VNG" or the "Company"), by counsel, respectfully requests Commission approval of its comprehensive program to promote sustainable natural gas development and production throughout the Commonwealth of Virginia ("Sustainable Gas Program"). Specifically, as part of its Sustainable Gas Program, the Company seeks Commission approval through this Application to (i) establish a new rate schedule and tariff designated Rate Schedule 17, Renewable Natural Gas Receipt Service ("Schedule 17" or "RNG Schedule"), designed to allow renewable natural gas ("RNG") suppliers to interconnect production facilities with the Company's pipeline system, pursuant to Va. Code § 56-234 A; (ii) implement a Renewable Natural Gas pilot offering under Va. Code § 56-234 B that will provide an interconnection allowance to be applicable to the capital costs necessary for interconnection ("RNG Interconnection Allowance Pilot" or "Pilot"); and (iii) modify section XX of the Company's Terms and Conditions to facilitate use of RNG and next generation natural gas

("NextGen Gas") for use in the Company's natural gas supply portfolio. In support of this Application, the Company respectfully states as follows:

GENERAL INFORMATION

1. VNG is a public service company organized and existing under the laws of the Commonwealth of Virginia that provides natural gas service to approximately 300,000 customers in its service territory in Virginia. This includes the communities of Norfolk, Virginia Beach, Chesapeake and Suffolk in southside Hampton Roads, and Hampton, Newport News, Poquoson, York, James City, Williamsburg, New Kent, Charles City, King William, and Hanover on the Peninsula.

2. Virginia Natural Gas, Inc. is a direct wholly-owned subsidiary of Southern Company Gas ("GAS") (formerly AGL Resources Inc. ("AGLR")),[1] and an indirect wholly-owned subsidiary of Southern Company ("Southern") pursuant to the Commission's February 23, 2016 Merger Order issued in Case No. PUE-2015-00113 and the July 1, 2016 closing of the Merger. VNG's corporate address is:

Virginia Natural Gas, Inc.
544 S. Independence Blvd.
Virginia Beach, Virginia 23452

3. The addresses and telephone numbers of the attorneys for the Company are:

Elizabeth B. Wade
Southern Company Gas
Ten Peachtree Place, NE
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[1] Subsequent to the July 1, 2016 closing of the Merger, AGLR changed its name to Southern Company Gas.

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BACKGROUND

4. The combustion of natural gas produces the lowest greenhouse gas ("GHG") emissions per MMBtu of any fossil fuel and has played a major role in reducing U.S. GHG emissions, particularly by displacing higher-emitting coal in the power sector. Nevertheless, the combustion of natural gas does produce CO_2, and the main constituent of natural gas—methane—is a GHG. As such, there is a continued focus by many stakeholders on opportunities to reduce climate impacts across the entire natural gas value chain.

5. In the face of increasing recognition of the effects of climate change and the potential and actual development of policy and regulatory initiatives dedicated to combatting these challenges, Southern Company, the parent company of Southern Company Gas and VNG, has set GHG emissions reduction goals across all electric and gas operations. In addition to considering investments to reduce direct emissions in support of that goal and broader sustainability efforts to reduce indirect emissions, Southern Company Gas is exploring CO_2-neutral gaseous fuels, such as RNG and the future potential for hydrogen, and is focused on opportunities to reduce GHG emissions associated with the use of natural gas even further through smart innovation, energy efficiency, new and modernized infrastructure, and advanced technologies that provide reliable, resilient, and affordable energy service choices for consumers. As these measures reduce VNG's direct and indirect emissions, they also have the potential to reduce VNG's customers' exposure to increased GHG policy costs as their direct and indirect GHG footprints are reduced.

6. Accordingly, VNG is proposing a comprehensive Sustainable Gas Program to allow and encourage the production and delivery of RNG into VNG's pipeline system, to support the procurement of RNG and NextGen Gas for VNG customers, and to acquire information to analyze whether, and to what extent, the interconnection of RNG production facilities with VNG's existing system delivers benefits to customers, the Company, the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward. The Program includes the following components:

i. A new rate schedule and tariff designed to allow RNG suppliers to interconnect production facilities with the Company's pipeline system, designated Rate Schedule 17, Renewable Natural Gas Receipt Service;

ii. A five-year Interconnection Allowance Pilot offering an interconnection allowance to offset the cost of the interconnection, subject to annual and overall spending limits to begin upon the commencement of VNG's first RNG interconnection project; and

iii. A proposal to modify the tariff to permit recovery of incremental costs associated with purchases of RNG and NextGen Gas through the purchased gas adjustment to further support the reduction of greenhouse gas emissions.

7. There are currently no operating RNG production facilities interconnected to the natural gas infrastructure in the Commonwealth, and VNG is proposing this tariff to facilitate and incentivize the development of such facilities. By offering a standardized and clear set of services, terms, and conditions to RNG producers, interconnection offerings can encourage and facilitate the interconnection of RNG while also providing additional sustainable gas supply options for the pipeline system and existing customers. In addition, the proposed interconnection

allowance for RNG producers will create an incentive to develop projects and keep the supply in the Commonwealth of Virginia.

RNG SCHEDULE

8. Schedule 17 sets forth the general requirements necessary to serve RNG suppliers and a rate calculation methodology that will establish a unique facilities fee for each supplier served under the rate schedule. Company Witness John M. Cogburn addresses the RNG Schedule and facilities fee in detail.

9. Any RNG production facility located within the VNG service territory, or that can otherwise transport gas and interconnect with the VNG service territory, that contracts with the Company for an interconnection to deliver RNG to the Company's system would be eligible to subscribe to Schedule 17. Suppliers would be required to agree to strict provisions and system requirements to ensure the RNG supplied meets the same standards as VNG's flowing gas supply.

10. A Commission-approved tariff would provide VNG the authority to build interconnection facilities for RNG suppliers and to calculate and charge a rate that fully recovers the costs to operate and maintain the interconnection between the RNG supplier and VNG's distribution system, as well as costs such as depreciation expense and a reasonable return on any capital invested pursuant to the tariff provision.

11. RNG suppliers would subscribe to the new service by executing an interconnection agreement that includes the rate, term, and operational specifics for the project.

12. RNG suppliers will be charged a facilities fee that accounts for all operations and maintenance ("O&M") expenses for the associated interconnection facilities and for all capital costs not recovered through other aspects of the Sustainable Gas Program.

13. Schedule 17 is just, reasonable, and in the public interest as it provides a way for RNG suppliers to connect to VNG's distribution system to provide RNG without placing any undue burden on VNG's existing customers. It also entails a variety of environmental and economic benefits associated with the construction, operation, and use of RNG and RNG facilities.

RNG INTERCONNECTION ALLOWANCE PILOT

14. As part of its Sustainable Gas Program, the Company is proposing a pilot program whereby it would provide an interconnection allowance for RNG producers to develop projects and keep the supply in the Commonwealth of Virginia. The Pilot is designed to attract potential RNG suppliers and incentivize them to interconnect with VNG's system while also providing VNG and its customers an opportunity to immediately begin realizing the benefits of RNG.

15. The proposed Pilot is structured such that the Company will spend no more than $4 million annually ($20 million over the proposed five-year enrollment period) in capital investment. Pursuant to the terms of the Pilot, a single RNG production facility will have an interconnection allowance that will cap at $2 million. Each participating RNG producer will be responsible for the annual O&M expenses associated with the facilities needed to interconnect with the Company's existing facilities, an administration fee, and any interconnection-related capital investment in excess of $2 million.

16. Any RNG producer that is eligible to subscribe to the proposed Schedule 17 would also be eligible to receive an interconnection allowance under the Pilot. This eligibility would be limited to the active term of the Pilot and would include the per-project cap of $2 million.

17. The Company proposes to recover this investment, up to $4 million annually ($20 million in total), through base rates. All other costs are directly assigned to, and recovered from, each RNG producer. The facilities fee is a fixed charge and is not linked to production. It will include the annual O&M costs and administrative costs associated with that specific facility, and will be calculated on an annual basis and charged monthly. If the capital cost requirement for the interconnection service exceeds the interconnection allowance, the RNG producer will be responsible for that cost as well.

18. The ultimate rate impact of these investments will be determined by the types of projects and the mix of capital investment deployed through this initiative. Assuming that VNG invests the entire $20 million available under the RNG Interconnection Allowance Pilot, an average residential customer would experience an increase of less than $0.50 per month.

19. For RNG projects that receive an interconnection allowance as part of the RNG Interconnection Allowance Pilot, VNG will receive a level of environmental attributes from participating facilities commensurate with the Company's capital investment. The Company will negotiate a set number of environmental attributes to be assigned to VNG on an annual basis. The environmental attributes will be negotiated on a per-project basis and a schedule to receive those attributes will be included in the Renewable Natural Gas Interconnection Agreement.

20. Given the development timeline for RNG projects, the Company proposes to synchronize the start date of the Pilot with the execution of the first interconnection agreement under the program. This synchronization would ensure the maximum impact of the Pilot by eliminating idle years at the beginning of the Pilot while projects are being proposed but not yet ready to move forward. One the Pilot commences, VNG proposes an enrollment term of five years.

21. Through the Pilot, VNG will acquire information to analyze whether, and to what extent, the interconnection of RNG production facilities with VNG's existing system delivers benefits to customers, the Company, the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward.

TARIFF MODIFICATION TO INCLUDE RNG AND NEXTGEN GAS IN VNG GAS SUPPLY

22. Under the Sustainable Gas Program, VNG proposes to purchase both RNG and NextGen Gas for delivery and use on VNG's system. VNG proposes to recover the commodity costs and any potential incremental costs associated with RNG and/or NextGen Gas through VNG's traditional gas cost recovery mechanism as outlined in Section XX of VNG's tariff. The recovery of any incremental costs would be limited to 15% of the total annual projected comparable gas cost for traditional geologic production. Company Witness Cogburn discusses the tariff language as well as the cost cap in detail.

23. Specifically, the Company proposes to insert RNG and NextGen Gas into the list of supply sources found in the Definitions paragraph of the Quarter Billing Adjustments section of Terms and Conditions found in section XX, paragraph A, subparagraph 6. These additional supply sources, and any associated incremental costs, would then be included for recovery.

24. The Company proposes to participate in both the conventional natural gas market as well as the RNG and NextGen Gas markets, but will limit the total annual incremental cost associated with RNG and NextGen Gas purchases to 15% of the total annual projected comparable gas cost that would have been included in the Purchased Gas Adjustment component of the Quarterly Billing Adjustment had the RNG and NextGen Gas purchases not been made.

25. The ability to include RNG and NextGen Gas in the gas supply portfolio, when combined with the 15% limitation on total gas cost expense, represent a just and reasonable entry

into the reduced carbon and carbon free natural gas supply chain. It is in the public interest because it is limited in scope while still ensuring that the Company has an opportunity to procure lower carbon natural gas for its customers.

CONCLUSION

WHEREFORE, VNG respectfully requests that the Commission issue an order approving the Sustainable Gas Program, including: (i) establishing new Rate Schedule 17, Renewable Natural Gas Receipt Service; (ii) implementing the proposed five-year RNG Interconnection Allowance Pilot program; (iii) modifying section XX of VNG's Terms and Conditions to facilitate inclusion of RNG and NextGen Gas in the Company's gas supply as proposed; and (iv) granting such further relief as may be necessary or appropriate.

Respectfully submitted,

VIRGINIA NATURAL GAS, INC.

By: */s/ Elaine S Ryan*

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December 21, 2021

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Joanne A. Mello

Title: Vice President – Corporate Sustainability

Company Witness Joanne A. Mello outlines Virginia Natural Gas, Inc.'s ("VNG" or the "Company") proposed comprehensive program to promote sustainable natural gas development and production throughout the Commonwealth of Virginia ("Sustainable Gas Program" or "Program"). She explains that this Program includes (i) a new rate schedule and tariff designed to allow renewable natural gas ("RNG") suppliers to interconnect production facilities with the Company's pipeline system, designated Rate Schedule 17, Renewable Natural Gas Receipt Service ("Schedule 17 or "RNG Schedule"); (ii) an RNG pilot program offering that will provide an interconnection allowance to be applicable to the capital costs necessary for interconnection ("RNG Interconnection Allowance Pilot" or "Pilot"); and (iii) proposed tariff changes to permit the recovery of costs for purchase of RNG and next generation natural gas ("NextGen Gas") through the purchased gas adjustment.

Ms. Mello emphasizes that sustainability—including reducing CO_2 and methane emissions—is a core tenet of the Company's policy moving forward. This approach is consistent with federal and state legislative policy, where energy-related emissions continue to be a focal point. Ms. Mello also provides background on RNG and discusses how this fuel, which is considered CO_2 neutral at the point of use, can play a substantial role in reducing greenhouse gas emissions while also providing benefits to customers, the gas pipeline system, and local economies. Specifically, she explains how RNG is harnessed and used, including how RNG utilizes methane that otherwise would be released into the atmosphere or non-beneficially flared to effectively reduce greenhouse gas emissions.

Because VNG's current tariffs are not structured to allow RNG production facilities to interconnect to the Company's natural gas pipeline system, Ms. Mello explains that the Sustainable Gas Program presents an opportunity to attract RNG suppliers to invest in the economy and communities within the Company's service territory. She explains that the RNG Schedule, as part of this plan, would offer a tariff structure to allow producers to interconnect and introduce renewable fuels in the VNG pipeline system. The RNG Interconnection Allowance Pilot would address the cost of interconnection by providing up to $4 million annually ($20 million total cap over a five-year period), with a project cap of $2 million. Assuming that VNG invests the entire $20 million available under the Pilot, an average residential customer would experience an increase of less than $0.50 per month. Through the Pilot, VNG seeks to acquire information to analyze whether, and to what extent, the interconnection of RNG production facilities with VNG's existing system delivers benefits to customers, the Company, the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward.

Ms. Mello also notes the benefits to all customers of having RNG and NextGen Gas in the Company's supply portfolio, as well as the positive environmental justice impact and advantages of the environmental attributes generated and captured as part of the proposal.

DIRECT TESTIMONY
OF
JOANNE A. MELLO
ON BEHALF OF
VIRGINIA NATURAL GAS, INC.
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00298

Q. Please state your name, position, and business address.

A. My name is Joanne A. Mello, and I am Vice President of Corporate Sustainability at Southern Company Gas. My business address is 10 Peachtree Place NE, Atlanta, Georgia 30309. A statement of my background and qualifications is attached as Appendix A.

Q. What is the purpose of your testimony in this proceeding, and how is your testimony organized?

A. I am testifying in support of VNG's proposed comprehensive program to promote sustainable natural gas development and production throughout the Commonwealth of Virginia ("Sustainable Gas Program" or "Program"), that includes (i) a new rate schedule and tariff designed to allow renewable natural gas ("RNG") suppliers to interconnect production facilities with the Company's pipeline system, designated Rate Schedule 17, Renewable Natural Gas Receipt Service ("Schedule 17" or "RNG Schedule") pursuant to § 56-234 A of the Code of Virginia ("Va. Code"); and (ii) a Renewable Natural Gas pilot offering under Va. Code § 56-234 B that will provide an interconnection allowance to be applicable to the capital costs necessary for interconnection ("RNG Interconnection Allowance Pilot" or "Pilot"). The purpose of the RNG Interconnection Allowance Pilot, together with the RNG Schedule, is to analyze whether, and to what extent, the interconnection of RNG production facilities with VNG's existing system delivers

benefits to customers, the Company, the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward. In addition, as part of VNG's commitment to reducing greenhouse gas emissions, the Company is presenting proposed tariff changes to permit the recovery of costs for purchases of RNG and next generation natural gas ("NextGen Gas") through the purchased gas adjustment, as addressed by Company Witness Cogburn. My testimony is organized as follows:

First, I provide a high-level overview of VNG's policy goals related to carbon dioxide ("CO_2") and methane emissions. I will discuss how sustainability is a core tenet of VNG's policy moving forward and address how the Sustainable Gas Program can meet those policy goals.

Second, I provide background regarding RNG and discuss how this fuel, which is considered CO_2 neutral at the point of use,[1] can play a substantial role in reducing greenhouse gas emissions while also providing benefits to customers, the gas pipeline system, and local economies. In particular, I discuss how RNG utilizes methane that otherwise would be released into the atmosphere or non-beneficially flared to effectively reduce greenhouse gas emissions. I also provide background on NextGen Gas and explain the differences between traditional geologic natural gas, RNG, and NextGen Gas.

[1] Intergovernmental Panel on Climate Change Guidelines do not include biogenic emissions of CO_2 from RNG. *See* https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_1_Ch1_Introduction.pdf [ipccnggip.iges.or.jp] (p. 1.6, 5th paragraph).

Third, I address the importance of this filing given that VNG's current tariffs are not structured to allow RNG production facilities to interconnect to VNG's natural gas pipeline system. I explain that VNG has the opportunity to attract RNG suppliers to invest in the economy and communities within the Company's service territory in order to construct and operate RNG production facilities that convert waste feedstock and associated methane gas into RNG. Thus, as part of its comprehensive Sustainable Gas Program, the Company is proposing its RNG Schedule to offer a tariff structure to allow producers to interconnect and introduce renewable fuels in the VNG pipeline system, as well as the RNG Interconnection Allowance Pilot to address the cost of interconnection.

Fourth, I detail how VNG's ability to purchase RNG and NextGen Gas as part of the Company's supply portfolio will benefit all customers. As part of this discussion, I introduce the proposed Sustainable Gas Program initiatives that include both supply and demand growth opportunities to harness RNG growth in the Commonwealth of Virginia and NextGen Gas opportunities from geologic production through this proposed Program.

Finally, I discuss the various customer and environmental justice benefits that would result from the implementation of VNG's Sustainable Gas Program. I also describe the advantages of the environmental attributes that will be generated and captured as part of the proposal and ultimately why the proposal is in the public interest.

Q. Are you sponsoring any exhibits with your direct testimony?

A. Yes, Company Exhibit No.__, JAM, consisting of Schedules 1-3, which were prepared under my direction and supervision and are accurate and complete to the best of my

knowledge and belief. Schedule 1 contains the tariff language for Schedule 17. Schedule 2 is a list compiled by the American Gas Association ("AGA") showing the utilities across the United States that have some form of RNG tariff schedule. Schedule 3 is a copy of the proposed framework of the RNG Interconnection Agreement.

I. VNG SUSTAINABILITY GOALS OVERVIEW

Q. Please provide an overview of VNG's sustainability goals.

A. The combustion of natural gas produces the lowest greenhouse gas ("GHG") emissions per MMBtu of any fossil fuel and has played a major role in reducing U.S. GHG emissions, particularly by displacing higher-emitting coal in the power sector. Nevertheless, the combustion of natural gas does produce CO_2 and the main constituent of natural gas—methane—is a GHG. As such, there is continued focus by many stakeholders on opportunities to reduce climate impacts across the entire natural gas value chain.

Energy-related emissions continue to be a focal point in the policy and legislative arenas. This focus has been renewed at the federal level in part as a result of the United States' renewed commitment to the Paris Climate Agreement. As part of the United States' nationally determined contribution (NDC), which is required under that agreement and represents a country's emission reduction commitment, the Biden administration has announced that the U.S. will target a 50-52% reduction in economy-wide GHG emissions by 2030 versus 2004 levels.[2] Separately, the U.S. Environmental Protection Agency

[2] "The United States of America Nationally Determined Contribution," April 21, 2021. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

("EPA") recently proposed first-time methane limits on existing oil and gas infrastructure (Reg. 2060-AV15), a companion rule to the methane rule for new oil and gas sources that Congress has revived via the Congressional Review Act.[3] The Biden Administration also released the U.S. Methane Emissions Reduction Action Plan in November of 2021, outlining strategies to reduce methane emissions from the oil and gas sector as well as other sectors of the U.S. economy.[4] In addition, the United States is partnering with other countries on the Global Methane Pledge to reduce overall methane emissions by 30% below 2020 levels by 2030.[5] The U.S. Department of Energy has also announced that it will begin the process of amending energy conservation standards and rulemakings to reduce the use of fossil fuels in federal buildings.

As a mechanism to address the impacts of climate change and promote the necessary reduction of economy-wide GHG emissions to meet these goals, there is a continued focus on integrating pricing into climate policy. Pricing policies for at least some sectors have already been adopted by a number of states. Whether through a tax, a cap, or another mechanism, such policies will have economic effects on energy providers and consumers.

A carbon fee and other regulatory and policy requirements for gas-related GHG emissions would change the cost of operations for gas distribution companies, including direct compliance and procurement costs. They would also impact gas customers in the

[3] https://www.govinfo.gov/content/pkg/FR-2021-11-15/pdf/2021-24202.pdf.
[4] https://www.whitehouse.gov/wp-content/uploads/2021/11/US-Methane-Emissions-Reduction-Action-Plan-1.pdf
[5] https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/18/joint-us-eu-press-release-on-the-global-methane-pledge/.

residential, commercial, and industrial sectors through changes in the cost of gas or actual limits on its use.

In the face of increasing recognition of the effects of climate change and the potential and actual development of policy and regulatory initiatives as discussed above, Southern Company, the parent company of Southern Company Gas and VNG, has set GHG emissions reduction goals across all electric and gas operations.[6] In addition to considering investments to reduce direct emissions in support of that goal and broader sustainability efforts to reduce indirect emissions, Southern Company Gas is exploring a number of opportunities. These include CO_2-neutral gaseous fuels, such as RNG and the future potential for hydrogen, and is focused on opportunities to reduce GHG emissions associated with the use of natural gas even further through smart innovation, energy efficiency, new and modernized infrastructure, and advanced technologies that provide reliable, resilient, and affordable energy service choices for consumers.

As these measures reduce VNG's direct and indirect emissions, they also have the potential to reduce VNG's customers' exposure to increased GHG policy costs as their direct and indirect GHG footprints are reduced.

[6] https://www.southerncompany.com/clean-energy/net-zero.html.

II. RNG AND NEXTGEN GAS BACKGROUND

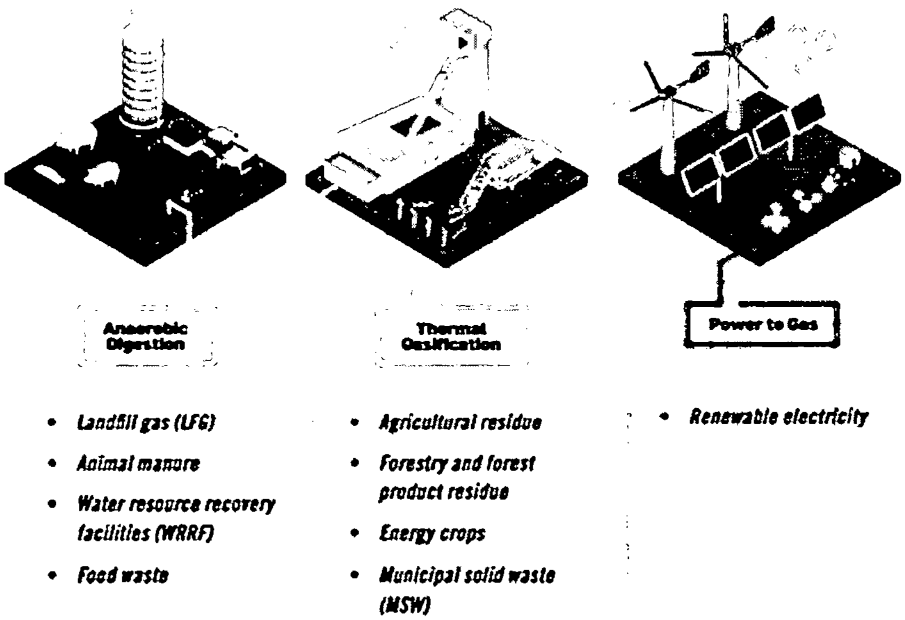
A. RNG Background

Q. What is RNG?

A. RNG is a sustainable alternative to geologic natural gas. RNG is a term that represents both the physical gas as well as any environmental attributes. RNG is most commonly produced from organic waste from sources such as landfills, water resource recovery facilities, farms, food waste, forest waste, and other renewable energy sources. As organic waste decomposes, it emits methane. Instead of releasing the methane into the atmosphere, the organic waste can be captured and processed in anaerobic digesters or thermal gasification systems to produce methane-rich biogas. The biogas then undergoes a process to clean and condition the gas to meet pipeline quality requirements. Additionally, and using a different process, RNG can be produced with renewable electricity, such as that from wind or solar, using a power-to-gas ("P2G") system in combination with a methanation system. Ultimately, the resulting output yields pipeline quality gas, or RNG, that is interchangeable with geologic natural gas. Below is an illustration of the three production technologies used to produce RNG.[7]

[7] https://gasfoundation.org/wp-content/uploads/2019/12/AGA_3894-RNG-2-Pager_V-11.pdf.

Figure 1: RNG Production Technologies



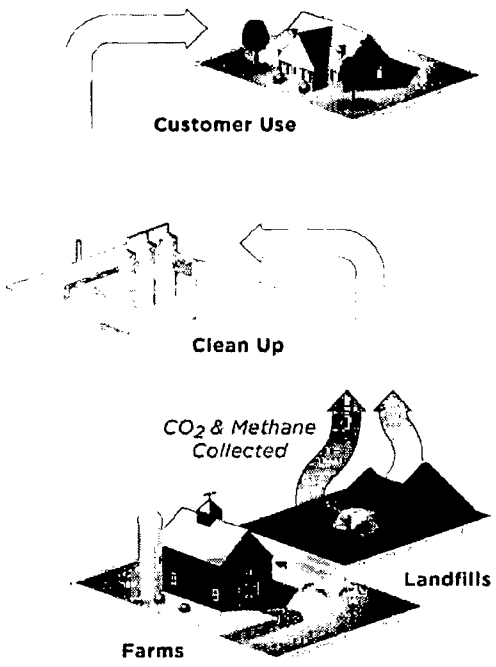
As I have stated and will further describe below, RNG is considered CO_2-neutral at the point of use[8] and can be produced from a variety of sources. Many of these sources, absent capture at the RNG facility, likely would be left to release waste methane into the atmosphere. Thus, RNG not only provides a sustainable and alternative source of natural gas, but also provides additional benefits for customers, the gas pipeline system, local economies, neighboring communities, and the environment.

[8] See, e.g., https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf [ghgprotocol.org] (chapter 4, p. 25 and chapter 9, p. 63).

Q. What sources can be used to produce RNG?

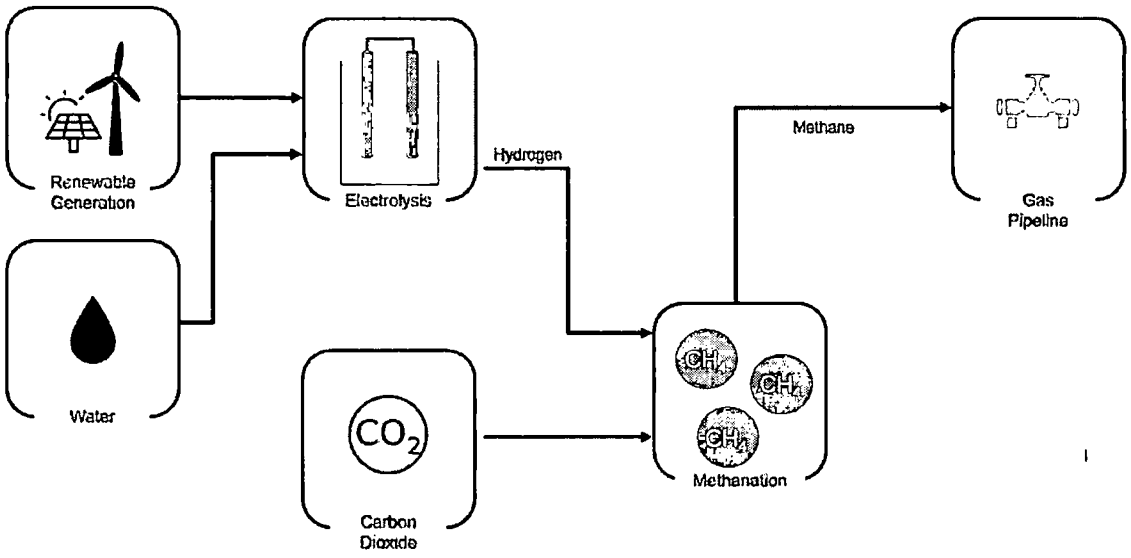
A. At present, sources used to produce RNG include animal waste, landfills, food waste, municipal solid waste, agricultural residues, forestry and forest product residues, energy crops, the use of renewable electricity, and water resource recovery facilities. Most RNG production facilities use waste that would otherwise decompose and release methane into the atmosphere. Instead, that waste methane is harnessed and converted into RNG. Figure 2, at right, is a graphic from the AGA depicting, in a simple form, how RNG is produced. A discussion of the RNG source materials within VNG's service territory is included later in my testimony.

Figure 2: RNG Production



Additionally, RNG can be produced from P2G applications. With P2G, renewable electricity is used to convert water into renewable hydrogen by using a process called electrolysis. Then, using a methanation process to convert the hydrogen to methane, RNG is produced. P2G is a promising technology as it can capture and beneficially use excess energy that would otherwise be curtailed (or limited and not used) from resources like solar and wind. Moreover, with the declining costs of solar and wind power, P2G facilities could be purpose-built as dedicated facilities. Such facilities unlock significant RNG potential. Figure 3, below, presents the P2G process:

Figure 3: P2G Process



Q. How is RNG different from biogas?

A. Biogas is a broader category that includes many types of fuels naturally produced from the decomposition of organic waste. While biogas can be useful in certain applications such as engines and fuel cells, it cannot be used in a natural gas pipeline system without further processing. RNG is a biogas that has been upgraded to meet pipeline quality specifications and can be used interchangeably with geologic natural gas. As a result, RNG can be distributed through an existing natural gas pipeline system. It is interchangeable with conventional, geologic natural gas and can be used in the same way as natural gas as both a fuel and feedstock, including in homes and businesses, in manufacturing and heavy industries, for electricity production, and for natural gas-powered vehicles.

Q. What is the process for producing pipeline quality RNG?

A. Generally, one of three technologies is used to produce RNG. These technologies include anaerobic digesters, thermal gasification systems, and power to gas in combination with a methanation system.[9] Thereafter, treatment systems process the biogas to remove trace constituents to create RNG. As an example, according to the EPA, treatment for landfill gas includes "removing moisture, carbon dioxide (CO_2) and trace level contaminants [...], as well as reducing the nitrogen and oxygen content." These treatment processes result in RNG that meets the quality standards to be delivered into a natural gas pipeline and the RNG is then supplied into a natural gas pipeline that has a methane content between 96 and 98 percent.[10]

Q. Is RNG considered CO_2-neutral?

A. Yes. RNG is considered a CO_2-neutral fuel at the point of use because it either comes from organic sources that previously removed CO_2 from the atmosphere, would have otherwise decayed to create methane emissions, or is sourced from renewable energy. In certain applications, when applying a lifecycle analysis, RNG can even be considered GHG-negative. RNG is considered GHG-negative when the greenhouse gases generated by its use are less than the greenhouse gases removed by its production when calculated on a carbon dioxide-equivalent basis, as described in more detail below.

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[9] *Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment*, American Gas Foundation, December 2019, https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf.

[10] *Basic Information about Landfill Gas*, U.S. Environmental Protection Agency Landfill Methane Outreach Program, https://www.epa.gov/lmop/renewable-natural-gas.

Q. What are the environmental benefits of RNG?

A. There are numerous environmental benefits associated with RNG. First, RNG is not a fossil fuel and is considered CO_2-neutral at the point of use.

Second, the methane from organic waste that is captured to be converted into RNG would often otherwise have entered directly into the Earth's atmosphere. According to an EPA report in 2018, landfills, wastewater treatment, and manure management—three sources that can be used to provide RNG—make up approximately 30% of the country's methane emissions.[11] Converting these sources to RNG instead results in the beneficial use of what would otherwise be waste methane. The environmental impact of GHGs can be evaluated by examining the Global Warming Potential ("GWP") of the gas. The GWP is a measure of the total energy that a gas absorbs over a particular period (usually 100 years), compared to carbon dioxide. Therefore, a gas that causes twice as much warming as the same mass of carbon dioxide would have a GWP of 2, three times would have a GWP of 3, etc. Methane (CH4) is estimated to have a GWP of 25 over 100 years. Thus, converting waste resources to RNG would limit methane emissions and improve overall GWP.

Third, constructing an RNG production facility to capture this methane from organic waste not only captures the methane, it also allows displacement of fossil fuels by beneficially using the methane. In essence, RNG production facilities serve as a

[11] Executive Summary, Inventory of U.S. Greenhouse Gas Emissions and Sinks, https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-chapter-executive-summary.pdf

mechanism to recycle and beneficially use waste methane in a productive way. This contributes to a more sustainable and circular economy by reducing wasted resources and mitigating new emissions.

Fourth, in certain applications, RNG can provide local air quality benefits to communities by avoiding other emissions associated with the waste streams. Finally, RNG facilities that use animal waste as a feedstock can help to reduce odors from livestock manure.

Q. Are there any environmental credits or attributes associated with RNG?

A. Yes. Environmental attributes are the bundle of "non-energy" attributes of RNG, including all avoided emissions, environmental benefits, and other aspects associated with the production, combustion, use, and transport of RNG when compared to geologic natural gas. These RNG environmental attributes are a form of environmental claims associated with RNG. An additional potential environmental attribute, or benefit, of RNG is that it can, under certain circumstances, offset GHG emissions associated with the use of geologic natural gas.

Q. How can RNG help organizations achieve GHG reduction targets?

A. There are industry protocols, including the evolving World Resources Institute and World Business Council for Sustainable Development Greenhouse Gas Protocol—which is the most widely accepted corporate GHG accounting standard and the one Southern Company conforms to—as well as others such as EPA regulations, that govern accounting for and reporting of the GHG reductions within the bundle of environmental attributes associated with RNG. Through these established protocols, companies can reduce GHG emissions from natural gas by using RNG bundled with the associated

environmental attributes. For example, natural gas customers that are environmentally conscious could reduce direct GHG emissions associated with their use of natural gas by integrating RNG as part of their natural gas service.

Q. What are the economic benefits of RNG?

A. Producing RNG has the potential to transform a costly waste burden into a local asset, reduce local budgets for waste management and fuel-purchasing, stimulate the evolution of local businesses, and create jobs up and down the supply chain. For example, the food industry can benefit significantly from the local integration of RNG. Instead of paying for the unused food or food waste to be picked up and taken to a landfill, the food industry can instead divert their food waste to an RNG facility and avoid costly landfill tipping fees while contributing to the growth of locally sourced RNG. The RNG production facility not only generates renewable natural gas, but can also provide nutrient rich biosolids that can be used as fertilizers and return nutrients to the soil for future use. This creates a more circular economy, where food is not wasted, but rather, beneficially used within the economy. RNG also provides an additional revenue stream for farmers, as manure can be used as a feedstock for RNG production. Additionally, when RNG facilities are used at farms, they serve as a manure management system. The manure serves as a feedstock to create usable RNG from the otherwise waste methane and the post-digestion process yields a usable effluent that can be used as fertilizer. Moreover, local jobs can be created during the construction and operation of RNG facilities. Temporary jobs are created during construction and permanent jobs are created to operate and maintain the facility long-term. These jobs can include plant managers, technicians, biologists, and market analysts. One of the main barriers to development of projects is

high interconnection costs. Offering an incentive can attract new projects to the region and thus produce environmental and economic benefits.

Q. Is VNG's system able to accommodate delivery of RNG?

A. Yes. Once RNG has been processed to meet pipeline quality specifications and a location is identified on the system where the supply volume may be accepted, RNG is pipeline-compatible, meaning it is both interchangeable and can be intermingled with geologic natural gas. Once the RNG supplier is interconnected, VNG can use its existing pipeline infrastructure to transport RNG and does not need to perform unique system upgrades.

Q. Are there any operational benefits realized with the integration of RNG?

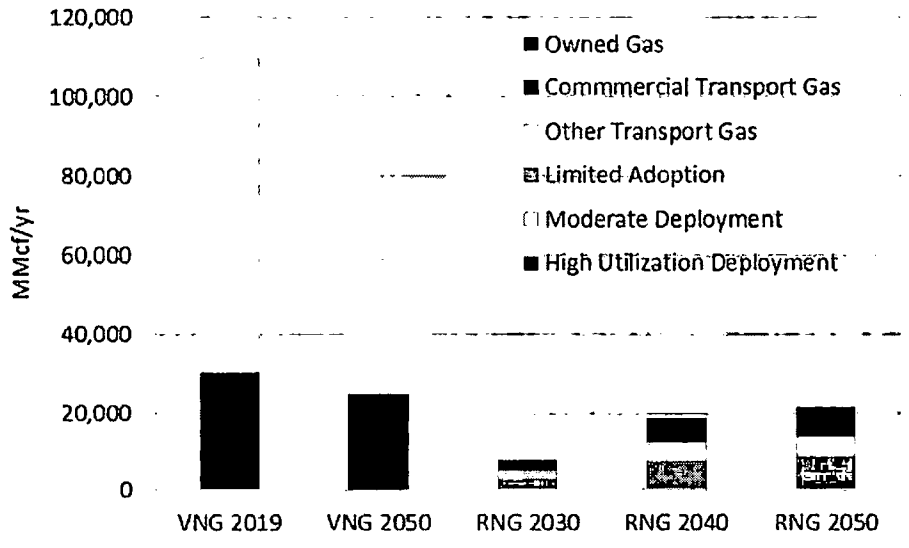
A. Yes. Currently, the natural gas VNG purchases for delivery to its customers is supplied from production areas located outside of Virginia. RNG facilities are a form of local distributed energy resources. RNG facilities typically produce smaller volumes than a traditional natural gas supply source but have the potential to be more numerous and geographically dispersed within VNG's service territory, which has the potential to improve the overall reliability and resiliency of the natural gas supply.

Since RNG is a direct substitute for geologic natural gas, integrating RNG into the supply opens the option of displacing the need to acquire geologic natural gas. In addition, RNG facilities generally operate 24/7, thus providing a local, reliable baseload source of natural gas for customers. Further, because of the distributed local nature of these facilities, there is potential for upstream pipeline capacity costs to be slightly reduced or possibly avoided if a sufficient volume of RNG is produced on the pipeline system.

Q. What is the anticipated resource potential for RNG in VNG's service territory?

A. In 2021, ICF Resources, LLC ("ICF") conducted an assessment of the potential availability of RNG, presenting "limited," "moderate," and "high deployment" RNG resource assessment estimates for the VNG service territory. The limited and high deployment RNG resource assessments project enough RNG resource potential within the VNG service territory to supply approximately 42% to 103% of VNG's total owned natural gas supply by 2050 after accounting for reductions in energy usage due to the implementation of energy efficiency and other similar efforts. Figure 4 below illustrates this point.

Figure 4: VNG Service Territory RNG Resource Potential



Q. How can implementation of the Sustainable Gas Program attract new RNG facilities?

A. Implementation of the proposed Sustainable Gas Program, discussed in detail below, provides a pathway for third-party RNG producers to interconnect with the Company's

system and be added as a part of VNG's gas supply mix. As RNG producers identify locations for new development, an approved tariff to interconnect to a pipeline system and a Commission approved option to sell the RNG to the resident natural gas utility, keeping the supply in state, is likely to make the VNG service territory a desirable location for RNG development. Furthermore, in some circumstances, RNG producers may develop a specific project tailored to meet the needs of a particular consumer in the Commonwealth of Virginia. Additionally, the RNG Schedule provides an established, transparent process to qualify for the Renewable Gas Interconnection Service, which VNG believes is attractive to developers.

B. NextGen Gas Background

Q. What is NextGen Gas?

A. NextGen Gas is also referred to as differentiated natural gas, certified natural gas, or responsibly sourced natural gas. The Company defines NextGen Gas as geologic natural gas that is differentiated from traditional geologic natural gas production through the assessment and verification of environmental performance criteria across the natural gas value chain, with a particular focus on reduced methane emission intensity during production and processing.

Q. How is NextGen Gas different from standard geologic natural gas production?

A. NextGen Gas is produced using a process that is substantially the same as that used for standard geologic (i.e., legacy) production, but with a lower methane emission intensity. It may require specialized or updated equipment or operational practices to make certain that the methane emission intensity can be reduced to the required threshold levels and otherwise meet the environmental performance criteria for the applicable standard.

Q. How is NextGen Gas different from RNG?

A. NextGen Gas is geologic production with a lower methane emission intensity, while RNG is produced from the decomposition of organic waste or other renewable resources and processed to meet specific quality standards. RNG is considered to be GHG-neutral at the point of use, while NextGen Gas is not. They are both natural gases, but from two different sources, yet they are complementary natural gas utility supply options as they both offer environmental advantages relative to standard geologic production.

Q. What are the benefits associated with NextGen Gas?

A. The primary benefit of NextGen Gas is the meaningfully lower level of upstream methane emission intensity, along with the potential for other environmental performance criteria across the natural gas value chain. In addition to the emissions from its customers' use of gas, VNG's indirect emissions include the emissions from the production, gathering, processing, and delivery of natural gas to VNG for sale to its customers. The emissions include:

- Fugitive and vented methane emissions along the value chain
- CO_2 from compressors and gas processing operations
- CO_2 that is present in raw gas and is removed prior to being put into the pipeline

The U.S. Inventory of Greenhouse Gases and Sinks[12] is the official inventory of U.S. GHG emissions and is updated annually by the EPA. Based on data from the U.S. EPA GHG Inventory, the U.S. EPA, the NETL, and other sources, ICF estimated that the 2020 upstream emissions of methane and CO_2 from production, gathering, processing, and

[12] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

transportation of gas delivered to VNG for sale to customers were approximately 7 kg CO2e/MMBtu delivered.

Methane emissions intensity along the gas value chain has been decreasing continuously since 1990. There are companies all along the natural gas value chain that have committed to further reducing their emissions. VNG's parent, Southern Company Gas, is part of the ONE Future coalition, which is a gas industry group committed to meeting stringent methane intensity targets. Southern Company Gas has already started to focus gas procurement on companies that have made commitments consistent with these goals. Other companies subscribe to EPA voluntary emission reduction programs or, like Southern Company, have committed to their own emission reduction targets. VNG has already started to support the reduction of these upstream emissions by purchasing approximately 25% of its gas supply in 2021 from producers who commit to reduce their emissions through improved equipment or operating procedures. However, current cost prudency criteria for fuel procurement can constrain the ability to expand this percentage. A collaborative and market-driven approach, NextGen Gas supply efforts yield CO_2 and methane emissions reductions across the natural gas value chain. These efforts encourage gas producers and suppliers to reduce the environmental impacts of their operations and enhance transparency in emission reporting. NextGen Gas offers a mechanism to create enduring environmental improvements while maintaining affordable and reliable energy supply to customers. By expanding fuel procurement efforts to support broader NextGen Gas procurement, the Program will enable VNG to further expand on these efforts and signal to the natural gas value chain the value of these efforts.

Q. Is VNG's system able to accommodate delivery of NextGen Gas?

A. Yes. As noted above, VNG is already purchasing NextGen Gas. NextGen Gas is received from the existing receipt points associated with the Company's interstate pipeline transportation capacity. The delivered supply has the same components as standard geologic production and meets the same gas quality standards as specified in the interstate pipelines Federal Energy Regulatory Commission (FERC) approved tariffs.

III. OVERVIEW OF THE SUSTAINABLE GAS PROGRAM

Q. Please describe the proposed Sustainable Gas Program.

A. The Company proposes a comprehensive Sustainable Gas Program to allow and encourage the production and delivery of RNG into VNG's pipeline system, to support the procurement of RNG and NextGen Gas for VNG customers, and to acquire information to analyze whether, and to what extent, the interconnection of RNG production facilities with VNG's existing system delivers benefits to customers, the Company, the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward. The Program includes the following components:

i. a new rate schedule and tariff designed to allow RNG suppliers to interconnect production facilities with the Company's pipeline system, designated Rate Schedule 17, Renewable Natural Gas Receipt Service;

ii. a five-year RNG Interconnection Allowance Pilot offering an interconnection allowance to offset the capital cost of the interconnection, subject to annual and overall spending limits to begin upon the commencement of VNG's first RNG interconnection project; and

iii. a proposal to modify the tariff to permit recovery of incremental costs associated with purchases of RNG and NextGen Gas through the purchased gas adjustment to further support the reduction of greenhouse gas emissions.

Q. Why is VNG proposing the Sustainable Gas Program at this time?

A. While Virginia is a good candidate for RNG Production,[13] (the American Biogas Council ranks Virginia 19th out of 50 states for its biogas production potential at 26 billion cubic feet annually), there currently are no operating RNG production facilities interconnected to the natural gas infrastructure in VNG's service territory. One reason for the lack of RNG production facilities could be that VNG does not have a tariff in place to enable an RNG producer to interconnect with the VNG system. Hence, VNG is proposing this tariff to facilitate and incentivize the development of RNG production facilities.

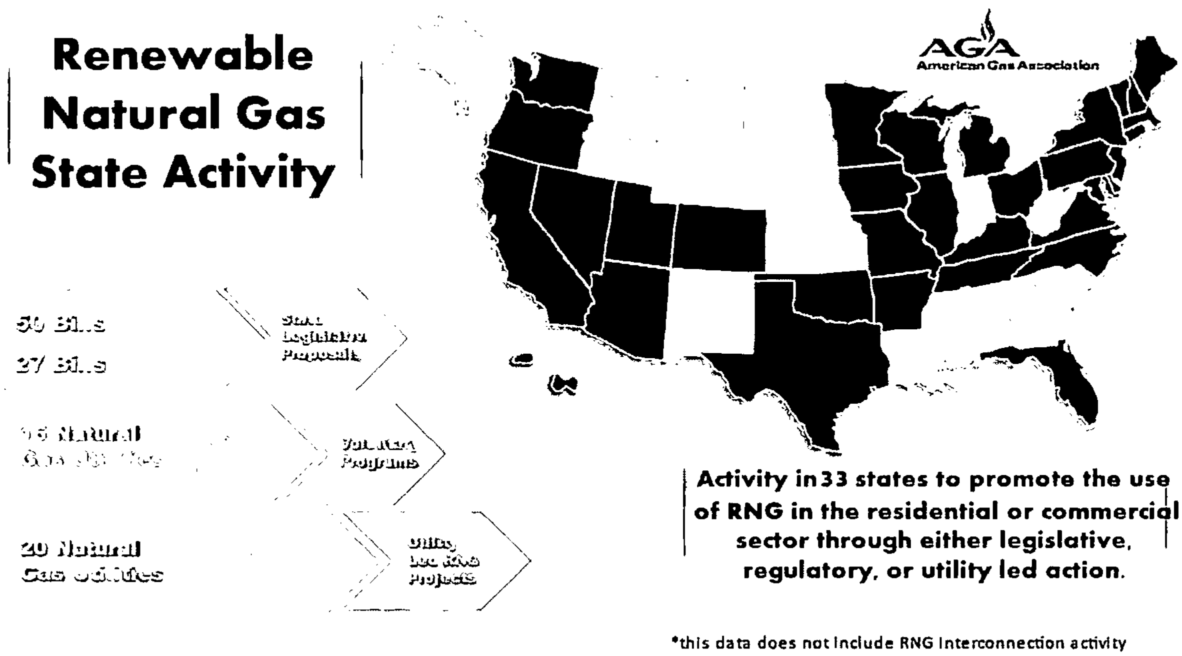
Since 2019, VNG has received several RNG interconnection inquiries from various entities. At present, the lack of a tariff that allows for the interconnection, transportation, and sale of RNG through the Company's infrastructure presents a major barrier for interested producers. By offering a standardized and clear set of services, terms, and conditions to RNG producers, interconnection offerings can encourage and facilitate the interconnection of RNG while also providing additional sustainable gas supply options for the pipeline system and existing customers. In offering a tariff with standardized and clear expectations, VNG can establish a streamlined and repeatable process for RNG development and use in the VNG pipeline system. In addition, the proposed

[13] ABC-2020-State-Profiles-46.pdf (americanbiogascouncil.org)

interconnection allowance for RNG producers will create an incentive to develop projects and keep the supply in the Commonwealth of Virginia.

RNG is an emerging resource that is an alternative to geologic natural gas production, and the Company believes it is important to be able to integrate RNG facilities into the conventional natural gas system. States across the nation are at different stages in incorporating RNG into their statewide fuel resource mix. As shown in Figure 5 below, there were 33 states engaged in activity that promotes RNG, either through legislative, regulatory, or utility led action, as of 2020. This figure does not show the activity around utility interconnections, which would increase the number of states with RNG activity.

Figure 5: U.S. RNG Activity



The AGA also maintains an RNG activity tracker on its website, which can be accessed at https://www.aga.org/natural-gas/renewable/. This activity tracker details, state-by-

state, the status of RNG development, as well as regulatory and legislative activity. A current version of this activity tracker is attached hereto as Schedule 2.

A. RNG Schedule

Q. Please describe the RNG Schedule.

A. Schedule 17 sets forth the general requirements necessary to serve these suppliers and a rate calculation methodology that will establish a unique facilities fee for each supplier served under this rate schedule. Company Witness John M. Cogburn addresses the RNG Schedule and facilities fee in detail.

Q. Who is eligible to subscribe to the proposed Schedule 17?

A. Any RNG production facility located within the VNG service territory, or that can otherwise transport gas and interconnect within the VNG service territory, that contracts with the Company for an interconnection to deliver RNG to the Company's system is eligible to subscribe to Schedule 17. RNG suppliers must agree to quality provisions and system requirements to ensure the RNG supplied meets the same standards as VNG's flowing gas supply.

Q. How are the potential RNG suppliers different from VNG's traditional upstream suppliers of natural gas?

A. The potential RNG suppliers would interconnect with the Company's system in an entirely different manner than VNG's traditional wholesale upstream natural gas suppliers. The natural gas associated with these traditional suppliers flows through VNG's upstream pipeline capacity and enters the VNG pipeline system at gate stations at the intersection of the transmission pipeline system and VNG's pipeline system. By

contrast, the RNG proposed to be received under Schedule 17 would enter the VNG pipeline system through a newly constructed interconnection between the RNG supplier and VNG's pipeline system *within* VNG's existing pipeline system.

Q. Please give a hypothetical example of how the RNG interconnection process would work.

A. The first step is to determine whether the proposed interconnection is feasible. If feasible, the RNG Producer would work to enter into a Renewable Natural Gas Interconnection Agreement ("Interconnection Agreement") with the Company and design and construct the RNG Production Facility. The RNG Producer would also need to ensure that the RNG produced at the facility meets the Company's gas quality standards and the Commission's rules for gas quality. After executing the Interconnection Agreement, VNG would design and construct interconnection facilities necessary to enable the RNG Production Facility to connect to the existing VNG system.

Upon execution of the Interconnection Agreement, the RNG Producer would become a VNG customer under the RNG Schedule. The RNG Producer would pay a monthly Facilities Fee to account for operations and maintenance ("O&M") costs associated with the Company's operation of the interconnection, as well as program administrative costs, which would be based on the total capital cost of interconnection and estimated operational costs.

The RNG Producer would manage the RNG produced and will sell the physical pipeline-quality gas from RNG facilities to third parties, for subsequent resale to VNG customers or directly to VNG as part of VNG's gas supply.

Q. How does RNG fit into the portfolio of gas supply?

A. RNG is a substitute for geologic natural gas and, once integrated into the system, is managed similarly as geologic natural gas. By providing an incentive for potential RNG producers to interconnect to the VNG system, the physical gas and associated environmental attributes from the RNG facility will be transported through VNG's infrastructure for use by and to the benefit of all customers. When the physical natural gas is coupled with environmental attributes, the resulting RNG provides a CO_2-neutral solution at the point of use.

Q. Please describe the RNG quality standards suppliers will be required to meet per the RNG service agreement.

A. A form of the current RNG quality specifications suppliers will have to meet over time is included as Exhibit A of the Interconnection Agreement which is provided as Schedule 3 to my testimony.

Q. Did the Company solicit input from potential RNG suppliers in the process of developing Rate Schedule 17?

A. Yes. RNG developers in general request from a utility a clear, transparent, and repeatable process for interconnection. To meet those needs, the Company reviewed existing interconnection tariffs offered by other utilities and, building on the successes of other programs, designed the proposed interconnection program for VNG. To date, the Company has shared the proposed tariff with RNG suppliers interested in an interconnection with VNG facilities and no concerns have been articulated regarding the proposed tariff.

B. RNG Interconnection Allowance Pilot

Q. Please describe the interconnection allowance proposed as the Pilot.

A. Through the interconnection tariff as part of this Pilot, the Company is proposing to provide an interconnection allowance for RNG producers to develop projects and keep the supply in the Commonwealth of Virginia. The Pilot is designed to attract potential RNG suppliers and incentivize them to interconnect with VNG's system while also providing VNG and its customers an opportunity to immediately begin realizing the benefits of RNG.

VNG has structured the proposed Pilot so that the Company will spend no more than $4 million annually (a maximum total of $20 million in capital investment over the 5-year enrollment period). Pursuant to the terms of the Pilot, a single RNG production facility will have an interconnection allowance that will cap at $2 million in capital expenditures. Meanwhile, each participating RNG producer will be responsible for the annual O&M expenses associated with the facilities needed to interconnect with the Company's existing facilities, an administration fee, and any interconnection-related capital investment in excess of $2 million.

Q. Who is eligible to participate in the RNG Interconnection Allowance Pilot?

A. Any RNG producer that is eligible to subscribe to the proposed Schedule 17 would also be eligible to receive an interconnection allowance under the Pilot. This eligibility would be limited to the enrollment period of the Pilot and would include a per-project cap of $2 million.

Q. How does VNG propose to recover the costs of the RNG Interconnection Allowance Pilot?

A. As noted above, VNG will provide an interconnection allowance to an RNG Production Facility participating in the Tariff of up to $2 million in capital investment necessary to interconnect that facility to the Company's existing facilities. VNG is proposing to recover this investment, up to $4 million annually ($20 million in total over five-year period), through base rates. Meanwhile, all other costs are directly assigned to, and recovered from, each RNG Producer. The Facilities Fee is a fixed charge and is not linked to production. It will include the annual O&M costs and administrative costs associated with that specific facility, and will be calculated on an annual basis and charged monthly over a 20-year agreement term. If the capital cost requirement for the interconnection service exceeds the interconnection allowance, the RNG Producer will be responsible for that cost as well.

Q. What would be the rate impact for an average VNG residential customer for VNG' cost associated with the Pilot?

A. The ultimate rate impact of these investments will be determined by the types of projects and the mix of capital investment deployed through this initiative. Assuming that VNG invests the entire $20 million available under the RNG Interconnection Allowance Pilot, an average residential customer would experience an increase of less than $0.50 per month.

Q. What does VNG propose as the term of the Pilot?

A. The project development process for RNG interconnect facilities can take over a year from the time discussions first begin to the time construction is completed. Given this

timeline, and given that VNG does not currently have any offerings to attract or connect potential RNG suppliers, it is unlikely that VNG will be ready to move forward with an RNG interconnection project immediately upon Commission approval of the proposed Pilot and RNG Schedule. Rather than having the first period of the Pilot be idle due to the lengthy project development timelines, VNG proposes to synchronize the official start date of the Pilot with the execution of the first Interconnection Agreement for the Pilot. This synchronization would ensure the maximum impact of the Pilot by eliminating idle years at the beginning of the Pilot while projects are being proposed but not yet ready to move forward. Once the Pilot commences, VNG proposes an enrollment term of five years.

C. RNG and Next Generation Natural Gas Purchases

Q. Does VNG plan to purchase and recover the costs for RNG and NextGen Gas under the Sustainable Gas Program?

A. Yes. Under the Sustainable Gas Program, VNG proposes to purchase both RNG and NextGen Gas for delivery and use on VNG's system. VNG proposes to recover the commodity costs and any cost premiums associated with RNG and/or NextGen Gas through VNG's traditional gas cost recovery mechanism as outlined in Section XX of VNG's tariff. The recovery of any cost premiums would be limited to 15% of the total annual projected comparable gas cost for traditional geologic production. Company Witness Cogburn discusses the tariff language as well as the cost cap in more detail.

IV. BENEFITS OF THE SUSTAINABLE GAS PROGRAM

Q. How will VNG customers benefit from the implementation of the proposed Program?

A. VNG customers will benefit under this approach as the Company will leverage the locally sourced RNG through the RNG Interconnection Allowance Pilot, the NextGen Gas and RNG purchases for gas supply, and the environmental attributes associated with this Program to reduce and offset GHG emissions associated with natural gas. The environmental attributes VNG obtains through the RNG Schedule represent the reduction of GHGs otherwise emitted into the atmosphere, providing an environmental benefit to customers. In addition, locally sourced RNG projects provide supply diversity with the potential to reduce upstream shipping and transportation costs. Customers may also realize benefits associated with improved air quality for transportation fleets leveraging RNG when compared to other fuels. In addition, methane emission reductions in the Commonwealth of Virginia, as well as nationwide through the purchase of NextGen Gas and RNG for gas supply, will contribute to reducing GHG emissions and addressing climate change.

Q. Are there any environmental justice benefits associated with VNG's use of RNG and implementation of the Program?

A. RNG projects at sources such as wastewater treatment facilities, dairies, and landfills can mitigate or reduce impacts on local air quality. RNG projects at farms can decrease the environmental impacts on local communities, reducing the potential for the leaching of nitrates into groundwater, as well as the potential release of nitrates and pathogens into surface waters. The emission of odors from storage lagoons is significantly reduced with

the use of anaerobic digestion. RNG production can also play a role in reducing the environmental impacts associated with landfills. Some landfills are required to capture fugitive methane emissions. Captured methane is generally burned (either flared or combusted for electricity generation), which emits criteria air pollutants. Landfill odors and leachate (i.e., liquid that exists as part of waste in a landfill) are also problematic, representing both a nuisance and a public health hazard. Purchasing RNG from landfills reduces methane flaring and can reduce associated on-site combustion-based nitrogen oxides (NOx), ozone (O3), and particulate matter. This reduction in air pollutants near landfills may improve local air quality, decrease local environmental hazards, and may help achieve environmental and social justice goals consistent with state policy.

More broadly, GHG emissions reductions at a statewide level (and at the national level through the purchase of NextGen Gas and RNG) will contribute to incremental GHG reductions that are needed to help mitigate natural disasters—and their impacts—associated with climate change such as flooding, coastal erosion, hurricanes, wildfires, heat waves, water insecurity, and food insecurity. Environmental justice communities face more exposure to climate-related damage and have more difficulty recovering after disasters.

Q. Will VNG receive any environmental attributes from RNG facilities that interconnect to the VNG system?

A. Yes. For those RNG projects that receive an interconnection allowance as part of the RNG Interconnection Allowance Pilot and as described previously, VNG will receive a level of environmental attributes from participating facilities commensurate with the Company's capital investment. The Company will negotiate a set number of

environmental attributes to be assigned to VNG on an annual basis over the 20-year term. This is necessary for projects that receive an interconnection allowance under the Pilot. The environmental attributes will be negotiated on a per-project basis and a schedule to receive those environmental attributes will be included in the Renewable Natural Gas Interconnection Agreement.

Q. Is the implementation of the proposed Program in the public interest?

A. Yes. As discussed, the Program, including Schedule 17 and the RNG Interconnection Allowance Pilot, are designed to gather information concerning how the interconnection of RNG production facilities with VNG's existing system delivers benefits to customers, the Company, and the environment, and economic development in the Commonwealth, while developing best practices for RNG interconnection going forward. RNG is a CO_2-neutral fuel that offers numerous environmental, economic, and operational benefits, and the proposed Program seeks to attract RNG suppliers to invest in the economy and communities within VNG's service territory in order to construct and operate RNG production facilities that will interconnect and introduce renewable fuels in the VNG pipeline system. The benefits of such a program have been recently recognized by the Illinois Commerce Commission, wherein a similar program proposed by VNG's affiliate, Nicor Gas, was approved. The Illinois Commerce Commission found that:

> The Commission is required to ensure that Illinois citizens receive adequate, efficient, reliable, environmentally safe and least-cost public utility services, and that the regulation of the public utilities must, among other, ensure environmental quality by protecting the environment from the adverse external costs of public utility services. 220 ILCS 5/1-102. Thus, weighing the environmental

> benefits of the proposed Pilot is an important part of the Commission consideration of the potential benefits of the Pilot.[14]

The Illinois Commerce Commission further concluded that:

> the learnings, real life experience, environmental and economic benefits that could be realized under the RGI Pilot are identifiable and substantial benefits. While these benefits will be realized by the RNG producers, they will also benefit other customers of Nicor Gas and greater public. Anticipated learnings include: 1) real-world experience with the integration of RNG Production Facilities into gas utility operation and with gas quality assurance; 2) empirical evidence about the extent of the customer, environmental, and economic benefits that are expected under the pilot, including information about the availability and viability of RNG feedstock in Illinois; and 3) understanding of whether the proposed interconnection allowance will encourage investments and the creation of jobs in Illinois.[15]

VNG's proposed Program, which includes many of the same components as Nicor Gas' Pilot, will afford similar benefits, which are in the public interest. The EPA has also stated that "[u]se of RNG can provide benefits in terms of fuel security, economic revenues or savings, local air quality, and greenhouse gas reduction."[16]

Q. Can you please summarize your testimony?

A. RNG is a sustainable alternative to geologic natural gas that is produced from abundant amounts of organic waste from sources such as landfills, wastewater treatment plants, food processing facilities, and farms. RNG is CO_2-neutral at the point of use – or sometimes can even be GHG-negative – because it captures existing methane releases

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[14] Illinois Commerce Commission docket 20-0722, Final Order, p. 35
[15] Illinois Commerce Commission docket 20-0722, Final Order, p. 25
[16] https://www.epa.gov/lmop/renewable-natural-gas#benefits.

that otherwise would go into the atmosphere while also displacing the use of geological natural gas. The RNG production process of capturing waste methane effectively reduces greenhouse gas emissions which otherwise may be emitted into the atmosphere, having 25 times the global warming potential of carbon dioxide over 100 years.[17]

RNG production also helps society manage organic waste, and in some cases, divert the waste from landfills. RNG can help farms and businesses sustainably manage organic waste such as manure and food waste. Businesses and local governments can benefit from RNG's ability to transform a costly waste burden into a local asset, through the reduction of local budgets for waste management and fuel-purchasing. The construction and operation of RNG facilities also supports job creation and economic development.

There is a nationwide effort to scale up RNG production in order to meet increasingly aggressive climate and environmental goals, including in Virginia. VNG has seen increasing interest from prospective RNG producers looking to construct RNG production facilities, interconnect with Company facilities, and supply RNG into the Company's system for the benefit of Virginians. As part of VNG's ongoing commitment to deliver clean, safe, reliable, and affordable fuels to our customers, the Company believes that the Sustainable Gas Program is in the public's best interest.

At present, there are two main barriers to RNG production facility development in VNG's service territory: 1) the Company does not have a tariff structure in effect to offer

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[17] *Methane Emissions*, Greenhouse Gas Emissions, U.S. Environmental Protection Agency, https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

this particular interconnection service, thus creating uncertainty for prospective project developers; and 2) the cost of interconnection.

To address these considerations, VNG proposes the Sustainable Gas Program to facilitate and encourage investment in RNG production facilities in the Company's service territory. The RNG Interconnection Allowance Pilot offers an incentive to attract RNG suppliers to the VNG service territory while also tailoring the approach due to the caps in place, while the RNG Schedule provides the guidelines under which the interconnect and supplier will operate. The two in conjunction allow for VNG to promote RNG in VNG's service territory and offer customers the various benefits RNG provides. In addition, through the ability to purchase the associated environmental attributes from RNG facilities, VNG and our customers could also begin realizing these associated benefits.

A collaborative and market-driven approach, NextGen Gas supply efforts yield GHG and methane emissions reductions across the natural gas value chain. These efforts encourage gas producers and suppliers to reduce the environmental impacts of their operations and enhance transparency in emission reporting. NextGen Gas offers a mechanism to create enduring environmental improvements while maintaining affordable and reliable energy supply to customers. By expanding fuel procurement efforts to support broader NextGen Gas procurement, it will enable VNG to further expand on these efforts further and signal to the natural gas value chain the value of these efforts. Under the Sustainable Gas Program, VNG proposes to purchase both RNG and NextGenGas for delivery and use on VNG's system.

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

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF JOANNE MELLO

Joanne Mello is Vice President of Corporate Sustainability at Southern Company Gas. She assumed that role in 2021. In that role, she is responsible for developing and leading the Company's overall sustainability strategy, including coordination and support of local utility efforts to implement the Company's path to Net Zero and the Company's efforts around renewable natural gas.

Prior to her current position, Ms. Mello served as Director of Sustainability and Energy Policy. She was also previously the Assistant to the President and CEO of Southern Company Gas, supporting the CEO in executing strategic goals for the Company, and she has held various positions in the Legal Department at Southern Company Gas. Prior to joining the Company, Ms. Mello was a corporate attorney in private practice focusing on mergers and acquisitions, equity finance, securities regulation, and corporate governance.

Ms. Mello is a member of the Association of Corporate Counsel and the Women's Energy Network. She holds a B.A. in Psychology and Political Science and a M.A. in Political Science from Emory University, and a J.D. from Harvard Law School.

Schedule 17
RENEWABLE NATURAL GAS RECEIPT SERVICE

I. APPLICABILITY

Service under this Tariff is available to any party who contracts with the Company for an interconnection to deliver Renewable Gas to the Company's system, which meets the eligibility and Renewable Gas Quality criteria of this schedule, under the conditions provided herein. The Company shall ultimately receive such gas from the point of interconnection and deliver to a customer(s) of the Company. The point of interconnection shall be established as a receipt point for nominations.

Virginia Natural Gas' investment toward this Renewable Natural Gas Interconnection Service is limited to, in aggregate, up to $20 million over the 5-year term of the pilot, with each qualifying Renewable Natural Gas Interconnection project limited to an Interconnection Allowance of no more than $2 million in capital investment from Virginia Natural Gas. Such capital investment must be dedicated solely to those facilities necessary to interconnect the RNG Supplier to existing Virginia Natural Gas facilities.

The provisions of this tariff shall be applicable only to those Renewable Gas Producers who execute a Renewable Gas Interconnection Service Agreement and subject to the requirements above.

II. RATE

Charges shall be the sum of a monthly charge of one twelfth ($1/12^{th}$) of the annual Interconnect Fee, as defined in Subpart III.B. of the Character of Service section of this rate schedule, plus applicable taxes, during the term of the Renewable Gas Service Agreement.

III. CHARACTER OF SERVICE

A. Renewable Gas Supplier: A Person who owns Renewable Gas or acts on behalf of a Person who owns Renewable Gas and who signs a Renewable Gas Service Agreement with the Company.

B. Interconnect Fee: A fee established for any Renewable Gas Supplier which shall recover the cost of service associated with the facilities required to make Renewable Gas Service available. The fee is unique to each RNG facility and shall be computed using the actual cost of required facilities, such as, but not limited to, pipeline labor and material, regulator station labor, materials, and equipment, and labor and material costs associated with metering, measurement, system control and data acquisition equipment, valves, and any other facilities required to make the service available. The Company will apply the rate of return and depreciation rates authorized in its most recent rate case or as otherwise established by the Virginia State Corporation Commission for the purpose of setting the Company's general rates. Additionally, the

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RENEWABLE NATURAL GAS RECEIPT SERVICE
(Continued)

Interconnect Fee shall include the estimated operating and maintenance expenses related to the facilities as well as estimated administrative costs.

C. Interconnection Allowance: Under this tariff, the Company will invest up to $2 million per RGP facility, in capital costs necessary to interconnect the RGP facility to Virginia Natural Gas' facilities and, thereby, reduce the Facilities Fee as result of that investment.

D. Renewable Gas Service Interconnect: As determined by the Company at its sole discretion, the location where the Renewable Gas Supplier delivers Renewable Gas to the Company's system.

III. CHARACTER OF SERVICE

E. Renewable Gas: Renewable Gas shall be gas produced from a landfill, digester, or other renewable source of gas provided through an interconnect into the Company's system and delivered to a customer within the Company's service territory; provided that all Renewable Gas shall conform to the Company's Gas Quality specifications.

F. Renewable Gas Quality: Renewable Gas Quality shall meet or exceed the Company's standards, as defined in the Renewable Gas Service Agreement. Customer-owned gas which does not meet such specifications shall be subject to the Company's approval and may be refused by the Company.

G. RNG Attributes: represent all of the environmental and other benefits that differentiate a unit of RNG from a unit of conventional natural gas.

H. The Company may disclose publicly certain aggregated information on Renewable Gas; including total production, number of facilities by source type, or total production by source.

I. VNG will install, maintain and operate the necessary equipment to determine the volume of the gas delivered into VNG's system from the customer, and the day and hours of such delivery.

J. VNG reserves the right to temporarily discontinue the receipt of gas on an immediate basis whenever the Renewable Gas Quality is non-compliant with the specifications as outlined in the Renewable Gas Service Agreement or whenever VNG shall deem it necessary to do so. The Customer agrees to discontinue the delivery of gas in compliance with such notice. Any volume imbalances associated with temporary discontinuances resulting from VNG requesting the Supplier to cease Renewable Gas delivery will not be subject to end-of-period balancing charges as outlined in Section V.

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RENEWABLE NATURAL GAS RECEIPT SERVICE
(Continued)

K. Any customer purchasing Renewable Gas is subject to the provisions in the relevant Terms and Conditions, Rate Schedule, and Service Agreement in place under which the purchasing customer is bound.

IV. SCHEDULING

Pursuant to the established North American Energy Standards Board ("NAESB") nomination cycles, Customer shall provide VNG, via VNG's electronic bulletin board ("EBB") system, a schedule of daily volumes to be delivered to VNG by, or on behalf of, Customer at each applicable delivery point on VNG's system and a schedule of daily volumes, if any, to be delivered by VNG to Customer from its volume bank balance as well as the pipeline company and pipeline transportation contract identifiers under which gas deliveries will be made to VNG's distribution system. VNG may determine eligible receipt point(s) for an individual transportation customer based on the relationship between a given receipt point and the customer's meter location. VNG shall not be obligated to accept or make deliveries in excess of volumes shown on each Customer's EBB scheduled volumes.

V. BALANCING OF DELIVERED VOLUMES

A. At the end of each billing period, each Renewable Gas Supplier's cumulative volume imbalance will be calculated. If Supplier delivers into VNG's system less Renewable Gas than it scheduled for a given billing period, Supplier will be charged for an amount of gas equal to the volume imbalance at a price of 1.5 times VNG's actual weighted average commodity cost of gas (WACCOG) for the given billing period. If Supplier delivers into VNG's system more Renewable Gas than it scheduled for a given billing period, Supplier will be credited for an amount of gas equal to the volume imbalance at a price of 0.5 times VNG's actual WACCOG for the given billing period.

B. If VNG is assessed a penalty from an upstream pipeline and the Supplier has a volume imbalance during the period for which the penalty is calculated, the Supplier shall be subject to a penalty charge calculated by dividing Supplier's imbalance volume by the total system imbalance volume for the same period, and multiplying the quotient by the total dollar value of the penalty as assessed by the upstream pipeline.

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RENEWABLE NATURAL GAS RECEIPT SERVICE
(Continued)

VI. TERM OF CONTRACT

A. The term of contract for service under this schedule shall be such as may be mutually agreed upon in the Service Agreement but not for less than one year.

B. Service is subject to all applicable laws and orders, and to the Company's Tariff.

C. All service under this Schedule shall require the execution of a Renewable Gas Service Agreement by the Renewable Gas Supplier and the Company. If requested, agreements entered into hereunder shall be submitted to the Virginia State Corporation Commission for informational purposes. Such contracts shall be treated on a proprietary basis.

D. A deposit may be required to be paid by a Renewable Gas Supplier at the time the Renewable Gas Service Agreement is executed equal to the total estimated charges for the first two (2) full months of Renewable Gas Service. The terms of the deposit arrangements shall be included in the Renewable Gas Service Agreement. Additionally, the Company at the Company's discretion may require a Renewable Gas Service Agreement to include an obligation that a Renewable Gas Supplier provide adequate assurance of payment to the Company in the form of a letter of credit, cash deposit, or parental guaranty, all in an amount, form, and by an issuer acceptable to the Company.