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May 25, 2016

**VIA ELECTRONIC FILING**

Joel H. Peck, Clerk
State Corporation Commission
c/o Document Control Center
Tyler Building, First Floor
1300 East Main Street
Richmond, Virginia 23219

**RE: Commonwealth of Virginia**
**ex rel.**
**State Corporation Commission**

**Ex Parte: In the matter of receiving input for evaluating the establishment of protocols, a methodology, and a formula to measure the impact of energy efficiency measures**
**Case No. PUE-2016-00022**

Dear Mr. Peck:

Enclosed please find a copy of the Comments of Columbia Gas of Virginia, Inc., Virginia Natural Gas, Inc, and Washington Gas Light Company as permitted in the Commission's March 30, 2016 Scheduling Order in the above referenced proceeding.

Thank you for your attention to this matter.

Sincerely,

James S. Copenhaver

JSC/mmf
Enclosures

cc: Ms. Kimberly B. Pate
Mr. William F. Stephens
Mr. Cody D. Walker
C. Meade Browder, Jr., Esq.
Ashley Macko, Esq.
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**COMMONWEALTH OF VIRGINIA**

**STATE CORPORATION COMMISSION**

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| **COMMONWEALTH OF VIRGINIA,** ***ex rel.*** **STATE CORPORATION COMMISSION** | ) ) ) | |
| *Ex Parte*: In the matter of receiving input for evaluating the establishment of protocols, a methodology, and a formula to measure the impact of energy efficiency measures | ) ) ) ) | CASE NO. PUE-2016-00022 |

## COMMENTS OF COLUMBIA GAS OF VIRGINIA, INC., VIRGINIA NATURAL GAS, INC. AND WASHINGTON GAS LIGHT COMPANY

On March 30, 2016, the Virginia State Corporation Commission ("Commission") issued a Scheduling Order inviting stakeholder input in conjunction with the Commission's development of a Report to be submitted to the Governor and the General Assembly pertaining to the measurement of the impact of energy efficiency measures.[1] Columbia Gas of Virginia, Inc. ("CGV"), Virginia Natural Gas, Inc. ("VNG") and Washington Gas Light Company ("WGL") (collectively, the "Gas Utilities") appreciate the opportunity to participate in this proceeding and jointly submit the following Comments, as permitted in the Scheduling Order.

## Executive Summary

The Natural Gas Conservation and Ratemaking Efficiency Act[2] ("CARE Act") prescribes the cost/benefit analysis to be performed in determining whether an energy efficiency program or portfolio is cost-effective. Consistent application of the

[1] Senate Bill 395 provides for the Commission to "evaluate the establishment of uniform protocols for measuring, verifying, validating, and reporting the impacts [of electric utilities'] energy efficiency measures...and the establishment of a methodology for estimating annual kilowatt savings and a formula to calculate the levelized cost of saved energy for such energy efficiency measures." The Report is to be submitted to the Governor and the General Assembly by December 1, 2016. The Commission expanded the scope of its consideration of energy efficiency measures to include natural gas utilities to provide for a more thorough evaluation. Scheduling Order at 2.

[2] Virginia Code §§ 56-600 *et seq.*

requirements of the CARE Act and transparency in the manner in which energy efficiency programs and portfolios will be measured, verified and validated are critical to the development of cost-effective energy efficiency programs that further the objectives of the CARE Act as well as the Energy Policy of the Commonwealth of Virginia[3] ("Virginia Energy Policy"), including the actions set forth in the Virginia Energy Plan.[4] Those objectives include managing the level of consumption of existing energy resources in relation to economic growth, promoting cost-effective conservation of energy and fuel supplies, and providing customers with long-term, meaningful opportunities to more efficiently consume natural gas and mitigate their expenditures for natural gas.

(1) *Cost-effectiveness tests and the associated standard of review*

Cost-effectiveness tests and the associated standard of review applied by the Staff and Commission to natural gas conservation and energy efficiency programs and measures should be applied consistently across natural gas utilities to avoid jeopardizing the development, approval, and implementation of cost-effective conservation and energy efficiency programs. Consistent application of the requirements of the CARE Act is critical to the development of cost-effective energy efficiency programs that further the statutory objectives of the Virginia Energy Policy and the CARE Act. The standard of review should thus be refined to eliminate obstacles to the implementation of cost-effective conservation and energy efficiency programs. The current obstacles include the following:

- The Commission's policy objective to reduce impacts of energy efficiency programs and measures to non-participating customers can conflict with the statutory objective to increase opportunities for customers to participate in conservation and energy efficiency measures. These often competing objectives result in the elimination of marginally cost-effective conservation and energy efficiency measures that would further the objectives of the CARE Act and the Virginia Energy Policy.

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[3] Virginia Code §§ 67-100 *et seq.*

[4] The current Virginia Energy Plan was issued October 1, 2014 by the Department of Mines, Minerals and Energy in accordance with Virginia Code §§ 67-200 *et seq.*

- The principle that an energy efficiency measure is not cost-effective if the measure reflects a negative net present value ("NPV") under the Rate Impact Measure ("RIM") Test, unless that negative RIM NPV is offset by an equivalent or greater positive NPV for the measure under the Total Resource Cost ("TRC") Test, inappropriately eliminates measures based on the results of a single cost-effectiveness test, where the measure passes the remaining three tests. The resulting elimination of a measure based solely on the results of the RIM test is also inconsistent with the Commission's previous determination that a "multi-perspective" approach strikes an appropriate balance of all stakeholders affected by a proposed measure and that reliance upon the RIM test as a threshold test would inappropriately screen out conservation and energy efficiency measures.

- Low-Income and Elderly Programs are improperly included in the cost/benefit analysis of a portfolio of conservation and energy efficiency measures. Low-Income and Elderly Programs increase opportunities for customers to participate in conservation and energy efficiency measures and, by statute, may be "deemed" cost-effective. However, the inclusion of Low-Income and Elderly Programs in a utility's portfolio cost/benefit analysis requires all other programs have a positive NPV of sufficient magnitude to offset the negative NPV of the Low-Income/Elderly Program, which runs counter to the statutory objective to encourage participation by low income and elderly customers.

- The cost of infrastructure avoided as a consequence of natural gas conservation and energy efficiency programs is recognized throughout the industry and should be reflected in the cost-effectiveness analysis of CARE plans.

- The Commission's analysis of CARE Plans should recognize the ancillary benefits of Education and Outreach Programs and their contribution toward customers' favorable views of conservation and energy efficiency offerings.

(2) *Better defined evaluation and verification protocols*

The application of the cost/benefit tests should be enhanced through better defined evaluation and verification protocols for estimating savings actually realized. However, the scope and magnitude of evaluation and verification protocols must be balanced against the incremental costs and benefits of evaluation and verification activities in order to avoid Evaluation, Measurement and Verification "EM&V")[5] costs that are not justified based on the incremental level of validation to be achieved.

- Acceptance and adherence to industry-standard approaches to M&V is necessary to develop accurate and transparent savings results for CARE programs. These

[5] Note that these Comments refer to both EM&V and Measurement and Verification ("M&V"). M&V refers to data collection, monitoring, and analysis used to calculate gross energy and demand savings from individual sites or projects. M&V can be a subset of program impact evaluation. In general, the differentiation between evaluation and project M&V is that evaluation is associated with programs and M&V is associated with projects.

approaches may include a range of techniques based on the magnitude of impacts and uncertainty in savings and should consider both accuracy and cost of conducting the M&V assessment to achieve an appropriate balance in the value of information received from the M&V. Industry-accepted guidance documents and protocols are readily available to inform EM&V approaches.

- Specific EM&V approaches should balance accuracy with costs to optimize the value of information obtained from EM&V efforts. It is not always appropriate, or feasible, to directly measure the impacts, or to directly measure all input variables used to determine savings impacts. Industry standard EM&V approaches outlined in the International Performance Measurement and Verification Protocol ("IPMVP") and other guidance documents offer the ability to customize the approach to individual situations.

- The Gas Utilities' annual EM&V budgets, as a percentage of total program costs, have generally increased since the initiation of each Gas Utility's initial CARE Plan to accommodate the scope of the evaluation. Moreover, the Gas Utilities' annual EM&V budgets exceed national averages, suggesting that the Gas Utilities' annual EM&V budgets are higher than necessary to sufficiently validate the benefits of their conservation and energy efficiency programs, given the availability of recognized industry estimates for measure savings and industry recognized methods for further verifying such estimates, where appropriate.

- Guiding principles in determining appropriate EM&V for a particular program or measure should include: prioritizing the M&V budget; assessing the relative uncertainty of savings impacts; use of industry-standard approaches; and an appropriate balance of the rigor and cost of EM&V activities.

(3) *Retention of cost-effective measures*

The CARE Act provides that neither a program nor a portfolio may be eliminated based on the results of a single test. The prohibition against eliminating a program or portfolio based on the results of a single test should be clarified to preclude the elimination of a measure based on the results of a single test. An individual measure may further the purposes of the CARE Act and the Virginia Energy Policy. Moreover, the retention of cost-effective conservation and energy efficiency measures will often increase the realistically possible number of participants in such measures and help reduce the potential number of non-participating customers that will be required to pay for the Plan.

**Scope of Commission Evaluation**

The Commission provided, in its Scheduling Order, that an Evaluation should be conducted in order to consider the establishment of: (i) uniform protocols for measuring, verifying, validating, and reporting the impacts of energy efficiency measures; (ii) a methodology for estimating annual kilowatt savings for such energy efficiency measures; and (iii) a formula to calculate the levelized cost of saved energy for such energy efficiency measures (referred to in the Scheduling Order as the "Objectives").

The Commission noted that the evaluation and measurement of energy savings are typically measured against projected savings included in cost/benefit analyses. Accordingly, the Commission provided that the Evaluation should also encompass the methodologies by which utilities calculate the components of the cost/benefit tests in proceedings requesting approval to implement energy efficiency programs, including: (i) whether the application of costs and benefits is consistent across utilities; (ii) whether consistent application of cost and benefits across utilities is necessary or reasonable; and (iii) whether the application of the cost/benefit tests can be improved by enhanced evaluation and verification protocols for estimating savings actually realized (referred to in the Scheduling Order as the "Cost/Benefit Questions").

In addition to general comments, the Commission seeks specific input concerning existing measurement and verification protocols and their applicability for Virginia as well as appropriate formulae for developing the cost of saved energy resulting from energy efficiency programs and appropriate inputs for such formulae.

The Gas Utilities' Comments are organized along the lines of the three Cost/Benefit Questions. The Gas Utilities will also address Objective (i), relating to the establishment of uniform protocols for measuring, verifying, validating, and reporting

the impacts of energy efficiency measures, in its response to Cost/Benefit Question (iii).[6] These Comments also address (in the responses to Cost/Benefit Questions) the Commission's request for specific input concerning existing measurement and verification protocols and their applicability for Virginia as well as appropriate inputs for developing the savings resulting from energy efficiency programs. Finally, the Gas Utilities recognize that the recommendations herein may differ from those of electric utilities and other stakeholders due to the unique aspects of each industry and the laws and regulations applicable thereto.

## Comments of the Gas Utilities

### I. The application of costs and benefits do not appear to be consistent across natural gas utilities. (*Response to Cost/Benefit Question (i)*)

The cost-effectiveness tests and the associated standard of review of the Gas Utilities' respective CARE measures and programs do not appear to be consistently applied across natural gas utilities. The resulting uncertainties create obstacles to the seamless development, approval and implementation of cost-effective conservation and energy efficiency programs. While differences in utility-specific assumptions and portfolios of programs may play a role in the inconsistencies in Commission approval or rejection of virtually identical measures for different utilities, the Gas Utilities submit that such inconsistent approvals are driven, at least in part, by inconsistent application of cost-effectiveness tests and the associated standard of review applied to CARE Plans, which are explained further in Section II of these Comments.

Inconsistencies in the approval of comparable measures include rebates for tank water heaters, tankless water heaters, and attic and floor insulation. For example, although the Commission approved CGV's commercial ENERGY STAR Gas Storage

[6] These Comments do not address Objectives (ii) and (iii), which relate to annual kwh savings and a formula to calculate the levelized cost of savings for electric utilities.

Water Heater (≤75,000 btu/hr) measure in 2009,[7] CGV was required to withdraw that measure as a condition of the reauthorization of its CARE Plan in 2012.[8] Similarly, the Commission rejected WGL's Storage Water Heater (≤75,000 btu/hr) measure in 2013,[9] and then approved VNGs High Efficiency Tank Water Heater measure in 2013.[10] Another example relates to tankless water heaters. The Commission approved CGV's commercial High Efficiency Tankless Water Heater (≥200,000 btu/hr) measure in 2009[11] and 2012,[12] but rejected WGL's Tankless Water Heater (≥200,000 btu/hr) measure in 2013.[13] In addition, the Commission approved CGV's Attic and Floor Insulation measures in 2009,[14] 2012,[15] 2014[16] and 2016,[17] but rejected WGL's comparable Attic and Floor Insulation measure in 2015.[18]

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[7] *Application of Columbia Gas of Virginia, Inc., For approval to implement a natural gas conservation and ratemaking efficiency plan including a decoupling mechanism*, Case No. PUE-2009-00051, Final Order (Dec. 4, 2009) at 9-10 (hereafter, the "2009 CGV Case").

[8] *Application of Columbia Gas of Virginia, Inc., For authority to amend and extend its natural gas conservation and ratemaking efficiency plan*, Case No. PUE-2012-00013, Final Order (Aug. 6, 2012) see Attachment A at 2 (hereafter, the "2012 CGV Case").

[9] *Application of Washington Gas Light Company, For authority to amend its natural gas conservation and ratemaking efficiency plan*, Case No. PUE-2012-00138, Order Approving Amended Natural Gas Conservation and Ratemaking Efficiency Plan (April 2, 2013) at 10 (hereafter, the "2012 WGL Case").

[10] *Application of Virginia Natural Gas, Inc., For approval of a natural gas conservation and ratemaking efficiency plan and rider*, Case No. PUE-2012-00118, Order Approving Natural Gas Conservation and Ratemaking Efficiency Plan (May 30, 2013) at 5 (hereafter, the "2012 VNG Case").

[11] 2009 CGV Case, *supra* at Attachment A at 2.

[12] 2012 CGV Case, *supra* at 2.

[13] 2012 WGL Case, *supra* at 10.

[14] 2009 CGV Case, *supra* at Attachment A at 2.

[15] 2012 CGV Case, *supra* at 13.

[16] *Application of Columbia Gas of Virginia, Inc., For authority to amend its natural gas conservation and ratemaking efficiency plan pursuant to Chapter 25 of Title 56 of the Code of Virginia*, Case No. PUE-2013-00114, Final Order (April 10, 2014) at 9 (hereafter, the "2013 CGV Case").

[17] *Application of Columbia Gas of Virginia, Inc., For authority to amend and extend its conservation and ratemaking efficiency plan pursuant to Virginia Code §56-602*, Case No. PUE-2015-00072, Final Order (Oct. 29, 2015) as amended by an Order Approving Amended Natural Gas Conservation and Ratemaking Efficiency Plan (Feb. 23, 2016) at 8 (hereafter, the "2015 CGV Case").

[18] *Application of Washington Gas Light Company, For authority to amend its natural gas conservation and ratemaking efficiency plan*, Case No. PUE-2015-00138, Final Order (April 29, 2016) at 8 (hereafter, the "2015 WGL Case").

Energy efficiency cost-effectiveness requirements and associated Commission policies governing the review and approval of CARE programs should be clearly articulated and consistently applied across jurisdictional natural gas utilities. The CARE Act prescribes the cost/benefit analysis to be performed in determining whether an energy efficiency program or portfolio is cost-effective. A consistent understanding of energy efficiency cost-effectiveness requirements and associated Commission policies governing the review and approval of CARE programs is critical to the development, approval and implementation of cost-effective conservation and energy efficiency programs in furtherance of the objectives of the Virginia Energy Policy and the CARE Act.

## II. Consistent application of costs and benefits across natural gas utilities is necessary to the development of cost-effective energy efficiency programs that further the objectives of the Virginia Energy Policy and the CARE Act. (*Response to Cost/Benefit Question (ii)*)

### A. Statutory Objectives

The Virginia Energy Policy is set forth in Chapters 1 and 2 of Title 67 of the Code of Virginia. In establishing the Virginia Energy Policy, the General Assembly recognized various "objectives" pertaining to energy issues that are designed to advance the health, welfare and safety of Virginia residents. Those objectives include "[m]anaging the rate of consumption of existing energy resources in relation to economic growth;" "[u]sing energy resources more efficiently;" and "[f]acilitating conservation."[19] Moreover, in order to achieve the foregoing objectives, the General Assembly directed that, *inter alia*, it shall be the policy of the Commonwealth to "[e]nsure that the combination of energy supplies and energy-saving systems are sufficient to support the demands of economic growth" and to "[p]romote cost-effective conservation of energy and fuel supplies."[20]

[19] Virginia Code § 67-101(4), (6) and (7).
[20] Virginia Code § 67-102(2) and (4).

In furtherance of the Virginia Energy Policy, the General Assembly enacted the CARE Act, which incorporates the objectives of the Virginia Energy Policy:

> A. Consistent with the objectives pertaining to energy issues set forth in §67-101 and the policy elements stated in §67-102, it is in the public interest to authorize and encourage the adoption of natural gas conservation and ratemaking efficiency plans that promote the wise use of natural gas and natural gas infrastructure through the development of alternative rate designs and other mechanisms that more closely align the interests of natural gas utilities, their customers, and the Commonwealth generally, and improve the efficiency of ratemaking to more closely reflect the dynamic nature of the natural gas market, the economy, and public policy regarding conservation and energy efficiency. Such alternative rate designs and other mechanisms should, where feasible:
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> 1. Provide utilities with better tools to work with customers to decrease the average customer's annual average weather-normalized consumption of natural gas;...
> 4. Provide customers with long-term, meaningful opportunities to more efficiently consume natural gas and mitigate their expenditures for the natural gas commodity...;
> 5. Recognize the economic and environmental benefits of efficient use of natural gas; and
> 6. Preserve or enhance the utility bill savings that customers receive when they reduce their natural gas use.[21]

The significance of the objectives of the CARE Act in furthering the Virginia Energy Policy in general, and conservation and energy efficiency in particular, are apparent from the General Assembly's directive that the CARE Act "shall be construed liberally to accomplish [the foregoing] purposes" of the CARE Act.[22]

## B. The Standard of Review Applied to CARE Plans May Impede the Statutory Objectives

The standard of review of CARE Plans has evolved over time in a manner that precludes the implementation of certain cost-effective conservation and energy efficiency programs. In addition, individual policies that may be appropriate in isolation are often contradictory and collectively may eliminate cost-effective programs, in contravention of statutory objectives promoting conservation and energy efficiency.

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[21] Virginia Code § 56-601(A).
[22] Virginia Code § 56-601(C).

*Increased Opportunities for Customer Participation*

The Commission highlighted the importance of developing programs that are designed to offer greater opportunities for customer participation in its 2008 Order Approving VNG's CARE Plan.[23] In that case, the Commission concluded that "for the Plan to be cost effective under the Act, the annual funds proposed by the Company should be allocated in a manner that appreciably increases the realistically possible number of participants in significant conservation measures[.]"[24] The Commission recognized, in the VNG Order, that designing a CARE Plan in this manner would "help to reduce the potential number of non-participants that will be required to pay for this Plan."[25]

The Gas Utilities agree that the public interest is served by designing CARE Plans in a manner that increases opportunities for participation and thus reduces the potential number of non-participating customers. However, the Commission often rejects conservation and energy efficiency measures that would expand opportunities for increased participation by otherwise non-participating customers due to the financial impact of those measures on non-participants. The inherent inconsistency in the dual objectives of: (i) increasing opportunities for participation; and (ii) reducing financial impacts on non-participating customers is explained below.

*Reduction in Impact on Non-Participating Customers*

Conservation and energy efficiency programs proposed by each of the Gas Utilities are often rejected or modified because the portfolio of measures and programs

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[23] *Application of Virginia Natural Gas, Inc., For approval to implement a natural gas conservation and ratemaking efficiency plan including a decoupling mechanism and to record accounting entries associated with such mechanism,* Case No. PUE-2008-00060, Order Approving Natural Gas Conservation and Ratemaking Efficiency Plan (Dec. 23, 2008) at 13 (hereafter, the "2008 VNG Case").
[24] *Id.*
[25] *Id.*

failed to reduce the impact on CARE Plan non-participants.[26] The elimination of marginally cost-effective measures or programs in order to mitigate the impact of a CARE Plan on non-participating customers is inconsistent with the statutory objectives of the CARE Act and the Virginia Energy Policy, which are designed to promote cost-effective conservation and energy efficiency measures.

The CARE Act only requires that conservation and energy efficiency programs or a portfolio of programs further the objectives of the CARE Act by: (i) decreasing the average customer's annual, weather normalized consumption or total bill; (ii) avoiding energy costs or consumption the customer may otherwise have incurred; and (iii) being cost-effective.[27] There is no requirement in the CARE Act, the Rules identifying the CARE Plan filing requirements[28] or the Rules governing cost/benefit tests[29] that require a CARE Plan to minimize the impact on non-participating customers.

Moreover, a requirement that a CARE Plan be designed to minimize the impact on non-participating customers appears to be inconsistent with the Commission's finding in the 2008 VNG Case that CARE Plans be designed to increase the likely number of participants in a CARE Plan. The promotion of a wide range of cost-effective measures and programs can be designed to reduce the number of non-participating customers. However, each measure or program has unique costs and benefits. The elimination of measures or programs solely because they are less cost-effective than others (*i.e.* in order to maximize cost-effectiveness) naturally results in fewer measures

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[26] See e.g., 2012 CGV Case, *supra* at 14-15, wherein the Commission approved a significant reduction in CGV's proposed CARE Plan measures because the reduction in measures "mitigates the negative economic impacts upon non-participating residential and small general service customers by substantially reducing the scope of Columbia's Amended CARE Plan, as well as the costs that must be borne by these non-participating customers." See also, 2012 WGL Case, *supra* at 10, wherein the Commission reiterated its concerns over the financial impact on non-participating customers in rejecting a significant number of WGL's proposed programs and measures.

[27] Virginia Code § 56-600.

[28] 20VAC5-201-85. Conservation and Ratemaking Efficiency Plans.

[29] 20VAC5-304-20.

or programs and thus fewer opportunities for various segments of a utility's customers to participate.

*Requirement that TRC Benefits offset RIM Costs*

In approving energy efficiency programs under the CARE Act, the Commission has followed the principle that an energy efficiency measure is not cost-effective if the measure reflects a negative NPV under the RIM Test unless that negative NPV is offset by an equivalent or greater positive NPV of the measure under the TRC Test.[30] The Staff has consistently reiterated that requirement in recommending the rejection or modification of various conservation and energy efficiency measures.[31] A requirement that a negative RIM NPV be offset by an equal or greater positive TRC NPV appears to eliminate measures based solely on the results of a single test (where a program otherwise satisfies three of the four cost/benefit tests), in contravention of the CARE Act.[32]

The elimination of a program or portfolio of energy efficiency measures based solely upon the failure to satisfy the requirements of the RIM test is also inconsistent

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[30] See e.g., 2012 WGL Case, *supra* at 9, wherein the Commission found that "[f]or the programs we approve, we find that the NPV TRC Test benefits are sufficiently high when compared to the NPV RIM Test costs." See also *Application of Virginia Natural Gas, Inc., For authorization to amend its conservation and ratemaking efficiency plan pursuant to Chapter 25 of Title 56 of the Code of Virginia*, Case No. PUE-2014-00068, Order Approving Amended Natural Gas Conservation and Ratemaking Efficiency Plan (Dec. 30, 2014) (hereafter, the "2014 VNG Case") at 7, wherein the Commission approved a VNG gas furnace measure only after VNG reduced the proposed incentive for the measure because the revised incentive "results in a better balance of benefits and costs between program participants and non-participants" and cites the Staff's comparison of the RIM costs and the TRC benefits.

[31] See e.g., *Application of Columbia Gas of Virginia, Inc. For authority to amend its natural gas conservation and ratemaking efficiency plan pursuant to Chapter 25 of Title 56 of the Code of Virginia*, Case No. PUE-2013-00114, Staff Report (February 28, 2014) at 17-18, where the Staff recommended as follows:

> When these present value discounted program costs are compared to the NPVs for the appropriate cost/benefit tests for the High-Efficiency Tankless Water Heater Measure in Table 1, it can be seen that the program costs attributed to this measure exceed the positive NPV benefits of the RIM Test, indicating that the total NPV costs exceed the total NPV Benefits under the RIM Test.
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> ... Staff does not believe that the Company has shown either measure to be cost-effective and does not recommend they be approved at this time.

[32] Virginia Code § 56-600.

with the Commission's explanation of the purpose and scope of applicability of the various cost/benefit tests in its promulgation of the Rules Governing Cost/Benefit Measures for DSM Programs:

> Although the Commission is sympathetic to the request for [the Commission] to choose a threshold test, we are concerned that use of a threshold test would prematurely eliminate programs that may ultimately prove to be in the public interest. We concur with the criticism of some commenters that the RIM Test, as a threshold measure, would inappropriately screen out conservation programs. The TRC Test as a threshold measure, on the other hand, would screen out strategic load building programs which, when viewed in relation to a utility's total resource plan and load shape, may prove to be beneficial. Thus, we are unable to establish a threshold test. The information provided by each individual analysis will serve to provide more comprehensive information about the expected impact, costs, and benefits of a particular program. We agree that a multi-perspective approach strikes the proper balance for all parties affected by a proposed program.[33]

The Commission clearly recognized that each test provides valuable information about the projected impact of a program and that a "multi-perspective approach strikes the proper balance of all parties affected by a proposed program"[34] in the development of cost-effective conservation and energy efficiency programs.

*Inclusion of Low Income and Elderly Programs in Portfolio Analysis*

The costs and benefits (*i.e.*, the negative NPV) of programs that are designed to address the needs of low-income and elderly customers have traditionally been included in the cost/benefit analyses of CARE Plans,[35] even though the definition of a "cost-effective conservation and energy efficiency program" does not require the inclusion of

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[33] *Commonwealth of Virginia, ex. rel. State Corporation Commission Ex Parte: In Re: Investigation of Conservation and Load Management Programs,* Case No. PUE-1990-00070, Order Issuing Rules on Cost/Benefit Measures (June 28, 1993) at 12-13.

[34] *Id* at 13.

[35] See, e.g. 2009 CGV Case, *supra* at 2; 2012 CGV Case, *supra* at 13; 2013 CGV Case, *supra* at 10; 2014 CGV Case, supra; 2015 CGV Case, *supra*; 2008 VNG Case, *supra*; 2012 VNG Case, *supra*; 2014 VNG Case, *supra*, (as amended); 2015 VNG Case, *supra*; 2012 WGL Case, *supra* at 7; and 2015 WGL Case, *supra* at 8.

low-income and elderly programs in the cost/benefit analysis.[36] VNG excluded its Low Income Program from the cost-effectiveness analysis of the portfolio of its Amended CARE Plan in 2014. In initially denying approval of VNG's Amended CARE Plan, the Commission noted that "[a]lthough the CARE Act does not require energy efficiency programs for low-income and elderly customers to pass any of the cost/benefit tests in § 56-600 of the Code in order to be deemed cost-effective, we still examine the impact of the...Low-Income Program on the total CARE Plan program portfolio in order to evaluate the impact on non-participating customers."[37]

Significantly, the CARE Act requires a CARE Plan to include "provisions to address the needs of low-income or low-usage residential customers"[38] and provides that energy efficiency programs resulting in "measurable and verifiable energy savings to low-income or elderly customers may also be *deemed* cost-effective"[39] even if such low-income or elderly program reflects a negative NPV.

Low-Income and Elderly Programs provide energy savings to disadvantaged customers who do not have the means or ability to participate in typical CARE programs. While low-income and elderly programs result in measurable and verifiable energy savings, they typically reflect a negative NPV but may be "deemed" cost-effective in furtherance of the goal of reducing the potential number of non-participating customers. However, the inclusion of the negative NPV of low-income and elderly programs distorts the analysis of the remaining programs, which must reflect a positive NPV that exceeds any negative NPV of the low-income and elderly program that is deemed cost-effective.

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[36] See Virginia Code §56-600, which specifically requires the cost-effectiveness test to include consideration of administrative costs as well as education and outreach costs, but is silent with respect to consideration of the costs of low-income and elderly programs.

[37] *Application of Virginia Natural Gas, Inc., For authorization to amend its conservation and ratemaking efficiency plan pursuant to Chapter 25 of Title 56 of the Code of Virginia,* Case No. PUE-2014-00068, Order Denying Amended Natural Gas Conservation and Ratemaking Efficiency Plan (Dec. 30, 2014).

[38] Virginia Code §56-602(A)(iv).

[39] Virginia Code §56-600 (emphasis added).

Accordingly, Low-Income and Elderly Programs should be excluded from the portfolio analysis of a CARE Program.

*Avoided Costs Included in Cost-Effectiveness Analysis*

The CARE Act and the Virginia Energy Policy are designed to manage the rate of consumption of natural gas and promote cost-effective consumption of energy and fuel supplies as well as to mitigate the attendant release of greenhouse gas emissions. A collateral benefit of reducing natural gas consumption, particularly during peak periods, is to reduce the infrastructure (transmission and distribution facilities) needed to deliver natural gas to end-use consumers. In order to reflect this latter benefit, it is common practice for gas utilities to include transmission and distribution facility investments as an avoided cost benefit in the cost/benefit evaluation of natural gas conservation and energy efficiency programs. Transmission and distribution facility investments should likewise be included in the cost/benefit analysis of conservation and energy efficiency programs proposed in CARE Plans.

CARE Plans are evaluated by a series of cost-effectiveness tests that are commonly used throughout the country by both gas and electric utilities. It is widely acknowledged that these tests originated in California and have been published in the California Standard Practice Manual.[40] Thus, it is interesting to examine how the originators of these tests define the avoided cost to be used in their application.

In 2004, the California Public Utility Commission (CPUC) developed new avoided cost estimates for use in the California Standard Practice Manual cost/benefit

[40] California Standard Practice Manual: Economic Analysis of DSM Programs, July 2002, available at http://www.energy.ca.gov/greenbuilding/documents/background/07J_CPUC_STANDARD_PRACTICE_MANNUAL.pdf.

tests. In a 2004 paper[41] summarizing "the new avoided cost estimates developed by the California Public Utility Commission (CPUC), the fundamental methodology for developing the estimates, and the guiding principles of their development," Price and Kollman characterize the new natural gas avoided cost estimates as follows:

> The benefits of conservation are computed as the sum of the following components...[e]lectricity and natural gas commodity, adjusted for energy losses...**and [t]ransmission and distribution (T&D) capacity, which captures the reduced demand related capital expenditures, line capacity losses and maintenance costs associated with energy savings.**[42]

Thus, it is apparent that the tests relied upon by the CARE Act were designed to recognize avoided distribution and other costs as an important benefit of conservation and energy efficiency programs.

Similarly, an Avoided-Energy-Supply-Component (AESC) Study Group in New England develops a regional estimate of avoided energy supply costs for use in the cost/benefit evaluation of natural gas conservation and energy efficiency programs. The latest estimate was published on April 3, 2015 in a document entitled Avoided Energy Supply Costs in New England: 2015 Report[43] (the 2015 Report"). The stated purpose of the document is as follows:

> This 2015 Avoided-Energy-Supply-Component Study ("AESC 2015," or "the Study") provides projections of marginal energy supply costs that will be avoided due to reductions in the use of electricity, natural gas, and other fuels resulting from energy efficiency programs offered to customers throughout New England.

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[41] Snuller Price and Eli Kollman, New California PUC Avoided Costs for Energy Efficiency Evaluation, available at http://eceee.org/files/proceedings/2004/data/papers/SS04_Panel5_Paper20.pdf.
[42] *Id.* at 5-230 (emphasis added).
[43] Avoided Energy Supply Costs in New England: 2015 Report, Prepared for the Avoided-Energy-Supply-Component (AESC) Study Group, March 27, 2015, Revised April 3, 2015 available at http://www.ripuc.ri.gov/eventsactions/docket/4580-NGrid-TRM4-AESC_report.pdf.

In defining natural gas avoided costs, the 2015 Report notes:

> Initiatives that enable retail customers to reduce their natural gas use also have a number of benefits. The benefits from those reductions include some or all of the following avoided costs:
>
> - Avoided gas supply costs due to a reduction in the annual quantity of gas that has to be produced;
> - Avoided pipeline costs due to a reduction in the quantity of gas that has to be delivered; and
> - Avoided local distribution infrastructure costs due to delays in the timing and/or reductions in the size of new projects that have to be built resulting from the reduction in gas that has to be delivered. [44]

While the 2015 Report recognizes that "the ability to avoid the retail margin varies by LDC," it is clear that it considers the avoided natural gas transmission and distribution costs to be valid components of as appropriate natural gas avoided cost estimate.

The neighboring regulatory jurisdiction of Maryland also includes a measure of avoided distribution costs in its respective estimates of natural gas avoided costs. The April 2014 report entitled, "Assessment of the Costs Avoided through Energy Efficiency and Conservation Measures in Maryland"[45] describes natural gas avoided costs as a result of natural gas conservation and energy efficiency programs as follows:

> Avoided natural gas costs are based on three components: projected Henry Hub (HH) wholesale gas prices; projected transmission costs; and projected distribution costs.[46]

In addition, many other regulatory jurisdictions prescribe the avoided cost calculation for use in the cost/benefit evaluations of electricity conservation and energy efficiency programs (e.g., Pennsylvania). Each of these jurisdictions include an estimate of the avoided costs of transmission and distribution investments as a part their estimates of avoided costs. Non-gas costs in the avoided cost estimates should be

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[44] Avoided Energy Supply Costs in New England: 2015 Report at 1-11 (emphasis added).
[45] Available at http://www.psc.state.md.us/.
[46] *Id.* at 44.

included in natural gas energy efficiency program cost-effectiveness testing. It is a best practice in the industry and supported by various studies and groups.

In summary, the cost of infrastructure avoided as a consequence of natural gas conservation and energy efficiency programs is recognized throughout the industry as a component of the cost/benefit test and should be reflected in the cost-effectiveness analysis of CARE Plans.

*Additional Considerations*

Education and Outreach Programs afford customers with valuable information designed to encourage customers to (i) take advantage of conservation and energy efficiency opportunities offered through a Gas Utility's CARE Plan and (ii) pursue other conservation and energy efficiency opportunities on their own initiative. While it is difficult to measure the specific benefits of an Education and Outreach Program, it clearly adds value and furthers the objectives of the CARE Act and the Virginia Energy Plan by providing customers with valuable information that often encourages conservation and energy efficiency beyond the measures included in an approved CARE Plan. Accordingly, while the costs of an Education and Outreach Program may appropriately be considered in the quantification of the cost-effectiveness of a CARE portfolio, the Commission's analysis should, at least subjectively, recognize the unquantifiable benefits of Education and Outreach programs (e.g. by authorizing programs and measures that are only marginally cost-effective).

The unquantifiable benefits of Education and Outreach efforts are also apparent from the fact that CARE initiatives and Education and Outreach Programs are viewed favorably by customers. Each of the Gas Utilities have found that their customers appreciate conservation and energy efficiency offerings provided by their respective

natural gas utility and are viewed favorably by customers as a consequence of their Education and Outreach efforts and conservation and energy efficiency offerings.[47]

*Summary*

Cost-effectiveness tests and the associated standard of review applied by the Commission to natural gas conservation and energy efficiency programs and measures should be applied consistently across natural gas utilities to avoid jeopardizing the development, approval and implementation of cost-effective conservation and energy efficiency programs that further the statutory objectives of the Virginia Energy Policy and the CARE Act. The standard of review should thus be refined to eliminate obstacles to the implementation of cost-effective conservation and energy efficiency programs.

**III. The application of the cost/benefit tests should be enhanced through better defined evaluation and verification protocols for estimating savings actually realized. However, the scope and magnitude of evaluation and verification protocols must be balanced against the incremental costs and benefits of evaluation and verification activities.** (*Response to Cost/Benefit Question (iii)*)

The Gas Utilities acknowledge the important role that EM&V plays in assuring the cost-effectiveness of conservation and energy efficiency measures and programs.

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[47] CGV was included in the most recent JD Power Gas Utility Residential Customer Satisfaction Studies, which rank perceptions of customers and non-customers within CGV's service territory. The importance of energy efficiency programs is reflected in favorability ratings among utilities offering energy efficiency programs versus utilities not offering energy efficiency programs. In the 2015 JD Power Study, CGV experienced a 34% higher customer satisfaction rating from those customers familiar with its energy efficiency programs. The current 2016 JD Power midpoint results (6 months) reflect a continuation of the importance placed on a utility having energy efficiency programs. The 2016 survey responders ranked CGV the fourth highest Midsize Utility nationally in the energy efficiency/conservation awareness category.

Similarly, VNG customers appreciate their utility's efforts to promote energy efficiency. In a recent study released by Cogent Reports, VNG was ranked as the third best "Environmental Champion" in its energy segment and region. The study results validate VNG's efforts to educate customers about the importance of energy efficiency and prove that customers notice and appreciate when their utility offers energy efficiency programs.

WGL conducts a survey of program participants every quarter to gauge program sentiment and identify areas of improvement. Typically, VA CARE customer satisfaction scores range from 85% to 93%.

Common and consistent expectations of the scope and timing of EM&V activities are also critical in planning, proposing and executing conservation and energy efficiency measures in a manner that furthers the objectives of the Virginia Energy Policy and the CARE Act.

### A. Cost/Benefit Tests

As defined in Va. Code § 56-600 of the CARE Act, cost-effectiveness is determined by analyzing conservation and energy efficiency programs "using the Total Resource Cost Test, the Societal Test, the Program Administrator Test, the Participant Test, the Rate Impact Measure Test, and any other test the Commission deems reasonably appropriate."

These tests were first developed for the evaluation of demand side measures in California in the early 1980s. The most recently published California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs and Projects[48] describes the tests required by the CARE Act as follows:

- The Participant Test – This test determines whether the demand side measure is cost-effective for the party who receives the demand side treatment.
- The Ratepayer Impact Measure Test – This test determines the impact that the demand side measure will have on non-participants. Because of this, the test is often referred to as the Non-Participants Test, and measures the rate impacts of the utility offering the program.
- The Total Resource Cost Test – This test is designed to measure whether the demand side measure is cost-effective from society's standpoint. Because this test can be derived as the sum of the Participant Test and the Ratepayer Impact Measure Test, it is often referred to as the All Ratepayers Test.

[48] California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs, October 2001, available at http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF

- The Program Administrator Cost Test – This test is designed to measure the cost-effectiveness of a demand side measure as a utility resource alternative.

The application of the foregoing tests should be enhanced through better defined evaluation and verification protocols for estimating savings actually realized, as explained in the following Section of these Comments.

**B. EM&V Protocols**

Acceptable EM&V protocols should be better defined and reasonably standardized. Generally, energy efficiency program evaluation has two key objectives:

1) To document and measure the effects of a program and determine whether it met its goals with respect to being a reliable energy resource.
2) To help understand why those effects occurred and identify ways to improve current programs and select future programs.[49]

Comprehensive EM&V should include the assessment of impacts, the study of market effects, and process improvement review. The outcomes from well implemented EM&V inform program planning, existing program implementation, or efforts to redesign a program. Industry accepted EM&V activities may include a variety of approaches based on the characteristics of the installed energy efficiency technologies, from direct measurement of impacts to verification of project installation to validation of deemed savings. Developing a documented framework or guiding principle agreed upon by the impacted program administrators will ensure a consistent level of rigor and accuracy in assessing energy efficiency accomplishments.

The IPMVP is a guidance document that provides standardized approaches for measuring and verifying savings from energy and water efficiency projects. The framework of M&V options detailed in the IPMVP are widely referenced and used as

[49] Model Energy-Efficiency Program Impact Evaluation Guide – A Resource of the National Action Plan for Energy Efficiency, United States Environmental Protection Agency, November 2007.

standard protocols in the energy efficiency industry. The IPMVP provides that "savings cannot be directly measured, since they represent the absence of energy use."[50] Accordingly, EM&V attempts to determine the impacts of the energy efficiency measure installed through a variety of measurement and verification techniques.

The IPMVP includes four options for conducting M&V, including: (i) measurement of key energy efficiency measure or equipment parameters; (ii) measurement of all energy efficiency measure parameters; (iii) measurement of an entire facility's energy consumption; and (iv) simulation of a facility's energy consumption.

The goal of EM&V, as it applies in Virginia, should be clarified and agreed upon as an initial step in development of EM&V protocols. In considering the national and regional landscape for other evaluation frameworks, it is important to note that in some jurisdictions, where there are specific energy efficiency program performance standards or targets with financial incentives or penalties tied to specific accomplishments, EM&V provides the determination of these accomplishments. However, other jurisdictions may not require the same level of rigor and precision. In Virginia, the goal of EM&V in the context of natural gas conservation and energy efficiency measures has been to accurately quantify the impacts of such measures in utility-sponsored efficiency programs, which informs the cost-benefit assessment of the programs, recognizing that there are no specific energy efficiency performance standards or mandates applicable to natural gas utilities in Virginia.

Acceptance of and adherence to industry-standard approaches to EM&V is necessary to develop accurate and transparent savings results for CARE programs. These approaches may include a range of techniques based on the magnitude of impacts and uncertainty in savings and should consider both accuracy and cost of conducting the EM&V assessment to achieve an appropriate balance in the value of information received

[50] International Performance Measurement and Verification Protocol, pg 4. Available at www.nrel.gov/docs/fy02osti/31505.pdf.

from the EM&V. Industry-accepted guidance documents and protocols are readily available to inform EM&V approaches, which include:

- The IPMVP, which offers a framework for measuring and verifying impacts of energy efficiency measures, recognizing that the magnitude and uncertainty of impacts, as well as M&V costs should be considered when selecting the appropriate M&V approach for a particular measure.

- The Environmental Protection Agency's National Action Plan for Energy Efficiency Model Energy Efficiency Program Impact Evaluation Guide, which describes approaches and considerations for evaluating energy efficiency programs.

- The Department of Energy's Uniform Methods Project, which is based on IPMVP approaches, but provides a more detailed approach for specific energy efficiency measures. The Residential Furnaces and Boilers Evaluation Protocol is an example of such a protocol.

- Technical Reference Manuals, which include savings algorithms and input assumptions for specific energy efficiency measures developed for a particular service territory or jurisdiction.

## C. Appropriate Scope of EM&V

The Gas Utilities also propose that the scope and magnitude of EM&V be better defined. The Gas Utilities' annual EM&V budgets, as a percentage of total program costs, have generally increased since the initiation of each Gas Utility's initial CARE Plan and currently range from 4.85% (VNG) to 6.9% (WGL).[51] In contrast, annual EM&V

[51]

| UTILITY | CARE PLAN APPROVAL YEAR | ANNUAL EM&V AS A % OF TOTAL PROGRAM COSTS | CASE NO. |
|---|---|---|---|
| CGV | 2009 | *2.1%* | *PUE-2009-00051* |
| CGV | 2012 | 5.8% | PUE-2012-00013 |
| CGV | 2016 | 6.1% | PUE-2015-00072 |
| | | | |
| VNG | 2008 | N/A - deferred to next rate case | PUE-2008-00060 |
| VNG | 2012 | 3.15% | PUE-2012-00118 |
| VNG | 2014 | 3.15% (initial) | PUE-2014-00068 |
| VNG | 2014 | 5.58% (revised) | PUE-2014-00068 |
| VNG | 2015 | 4.85% | PUE-2015-00129 |
| | | | |
| WGL | 2009 | 2.7% | PUE-2009-00064 |
| WGL | 2012 | 3.8% | PUE-2012-00138 |
| WGL | 2015 | 6.9% | PUE-2015-00138 |

expenditures (by U.S. region) range from 1.42% to 2.34% of total program costs among natural gas utilities surveyed by the American Gas Association ("AGA").[52] These comparative annual EM&V expenditures strongly suggest that the Gas Utilities are incurring annual EM&V expenses in excess of those necessary to sufficiently validate the benefits of their conservation and energy efficiency measures and that greater reliance should be placed on accepted industry estimates for measure savings and methods for further verifying such estimates, where appropriate.

EM&V should strive to confidently identify the savings achieved from energy efficiency measures installed. However, the specific EM&V approaches used should balance accuracy with costs to optimize the value of information obtained from EM&V efforts. In other words, it is not always appropriate, or feasible, to directly measure the impacts, or even directly measure all input variables used, to determine savings impacts through engineering calculations. Industry standard EM&V approaches outlined in IPMVP and other guidance documents offer the ability to customize the approach to a particular situation or circumstance. Based on the foregoing, the Gas Utilities recommend that their annual EM&V budgets, as a percentage of total program costs, be brought closer in line with national average expenditures by permitting the Gas Utilities to incorporate accepted industry standards and measures into their annual evaluations.

Guiding principles in determining appropriate EM&V for a particular program or measure should reflect a value of information framework that includes: prioritizing the M&V budget; assessing the relative uncertainty of savings impacts; use of industry-standard approaches; and an appropriate balance of the rigor and cost of EM&V activities.

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[52] See American Gas Association, Natural Gas Efficiency Programs Brief: Investments and Savings – 2014 Program Year; AGA Report Appendix D – 2014 Natural Gas Efficiency Program Expenditures by Activity and Region (Annual EM&V expenditures as a percentage of total program costs were 1.83% for the Northeast, 2.34% for the Midwest, 1.92% for the South and 1.42% for the West).

- ***Prioritizing the EM&V budget.*** Properly allocating EM&V resources requires an assessment of the relative contributions of individual measures and program contributions to the overall portfolio savings. Measures with higher contributions typically should receive a greater portion of EM&V efforts. This will allow for more robust EM&V approaches for these measures, but also may necessitate that measures with smaller savings contributions be evaluated by different means, such as desk reviews of project applications, deemed savings, and engineering calculations rather than site visits and direct metering.

- ***Assessing the relative uncertainty of savings impacts.*** Some measures may have impacts that are well understood and not likely to deviate from the current value, while others may be newer or be more dependent on a particular installation or facility characteristics. In the case of measures that have extensive prior evaluation data, either conducted locally or performed elsewhere but determined to be applicable in the local market, EM&V may focus on the verification of measure installation or on key input parameters that inform the deemed savings algorithms.

- ***The use of industry-standard approaches.*** EM&V approaches should align with industry-standard approaches for each measure being evaluated. This alignment may include different EM&V techniques for different measures in the portfolio, and should be done in the context of the available budget, magnitude of savings, and level of uncertainty of measure impacts. Industry-standard approaches range from verification of installed measures coupled with the use of deemed savings, to the collection of key input parameters for savings algorithms through surveys or site visits, to direct metering or billing analysis of installed equipment or the entire facility.

- ***Appropriate balance of rigor and cost.*** Depending on the EM&V approach selected, it may be appropriate to prioritize primary data collection, recognizing that in some scenarios, direct measurement is not feasible or cost-effective. Where direct measurement is not feasible or cost-effective, secondary data may be available and relevant, and acceptable EM&V practices could include a review and validation of this secondary data to verify applicability to the measure being evaluated. The balance of rigor and cost may also influence the timing of EM&V activities. In some situations, annual EM&V is required or advisable; however, often EM&V activities can be aligned with the regulatory approval cycle to ensure that programs are evaluated prior to the development of new program offerings, but not evaluated so frequently as to unduly burden the overall portfolio budget.

The establishment of EM&V protocols that adhere to these four principles will create an EM&V framework that provides the optimal value of information while allowing for a variety of industry-accepted EM&V approaches.

## IV. The statutory prohibition against eliminating a program or portfolio based on the results of a single test should be extended to preclude the elimination of a measure based on the results of a single test, which will increase opportunities for participation and reduce the potential number of non-participating customers.

The CARE Act definition of "cost-effective conservation and energy efficiency program" is based on the application of four standard cost-effectiveness tests.[53] Moreover, the CARE Act provides that neither a program nor a portfolio may be eliminated based on the results of a single test.[54] The Gas Utilities recommend that the statutory prohibition against eliminating a program or portfolio based on the results of a single test be clarified to also preclude the elimination of a measure based on the results of a single test.

The CARE Act does not contemplate the application of the four tests to individual measures or the elimination of a measure that is cost-effective under three or four of the cost-effectiveness tests. Similarly, Rule 20 VAC 5-304-20 prescribes that an application for approval of a portfolio of conservation and energy efficiency programs include an analysis of the costs and benefits of each individual **program**. The Rule does not require or even contemplate the application of the four cost-effectiveness tests to a measure, much less the elimination of a measure based on such an analysis.

An individual measure may further the purposes of the Virginia Energy Policy generally, and the CARE Act specifically, for a variety reasons specified in the CARE Act such as: providing customers with long-term, meaningful opportunities to more efficiently consume natural gas; educating customers as to the economic and environmental benefits of efficient use of natural gas; facilitating a utility's ability to work with customers to decrease the average customer's annual average weather-normalized consumption of natural gas; or the preservation or enhancement of utility bill savings that customers receive when they reduce their natural gas use.

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[53] Virginia Code §56-600.
[54] *Id.*

Moreover, the retention of cost-effective conservation and energy efficiency measures will often increase the realistically possible number of participants in such measures and help reduce the potential number of non-participating customers that will be required to pay for a CARE Plan, as directed by the Commission.[55]

## IV. Recommendations

The CARE Act prescribes the cost/benefit analysis to be performed in determining whether an energy efficiency program or portfolio is cost-effective. Consistent application of the requirements of the CARE Act and transparency in the manner in which energy efficiency programs and portfolios will be measured, verified and validated are critical to the development of cost-effective energy efficiency programs that further the objectives of the CARE Act as well as the Virginia Energy Policy. In furtherance of those objectives, the Gas Utilities recommend the following:

(1) Cost-effectiveness tests and the associated standard of review applied by the Staff and Commission to natural gas conservation and energy efficiency programs and measures should be applied consistently across natural gas utilities in order to facilitate the development, approval and implementation of cost-effective conservation and energy efficiency programs, consistent with the statutory objectives of the Virginia Energy Policy and the CARE Act. Moreover, the standard of review should be refined to eliminate obstacles to the implementation of cost-effective conservation and energy efficiency programs.

(2) The application of the cost/benefit tests should be enhanced through better defined evaluation and verification protocols for estimating savings actually realized. Moreover, the scope and magnitude of evaluation and verification protocols should be balanced against the incremental costs and benefits of any such enhanced evaluation and verification activities, with the objective of bringing the Gas Utilities'

[55] 2008 VNG Case, *supra* at 13.

annual EM&V budgets, as a percentage of total program costs, closer in line with national average expenditures.

(3) Guiding principles should be adopted for determining appropriate EM&V for a particular program or measure and should include: prioritizing the M&V budget, assessing the relative uncertainty of savings impacts, use of industry-standard approaches, and an appropriate balance of the rigor and cost of EM&V activities.

(4) The statutory prohibition against eliminating a program or portfolio based on the results of a single test be clarified to also preclude the elimination of a measure based on the results of a single test.

WHEREFORE, CGV respectfully requests that the Commission: (i) consider the Gas Utilities Comments and recommendations; and (ii) incorporate the foregoing Comments and recommendations into its Report to the Governor and the General Assembly pursuant to Senate Bill 395.

Respectfully submitted,

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