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**BEFORE**

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THE PUBLIC UTILITIES COMMISSION OF OHIO <sup>2009</sup> JUL 15 PM 5: 20

**In the Matter of Protocols for the Measurement and Verification of Energy Efficiency and Peak Demand Reduction Measures.**

**PUCO**  
Case No. 09-512-GE-UNC

**JOINT COMMENTS REGARDING APPENDIX B OF THE EAST OHIO GAS COMPANY D/B/A DOMINION EAST OHIO, COLUMBIA GAS OF OHIO, INC., VECTREN ENERGY DELIVERY OF OHIO, INC., AND DUKE ENERGY OHIO, INC.**

**I. INTRODUCTION**

Pursuant to the Commission's June 24, 2009 Entry, The East Ohio Gas Company d/b/a Dominion East Ohio ("DEO"), Columbia Gas of Ohio, Inc. ("Columbia") Vectren Energy Delivery of Ohio, Inc. ("VEDO") and Duke Energy Ohio, Inc. ("DE-Ohio") (together, the "Gas Utilities") jointly file these comments regarding Appendix B to that Entry. The Gas Utilities are filing these joint comments in an attempt to construct a consensus about the data requirements necessary to establish energy savings and demand reduction values for gas energy efficiency programs in Ohio. In sum, because of the different service characteristics in each of the Gas Utilities' service territories, the methodologies to value the gas energy efficiency and demand reduction programs must be flexible. Flexibility is also required because each of the Gas Utilities maintains a different mix of energy efficiency programs.

The Commission has approved energy efficiency programs for each of the Gas Utilities. In many instances, the Gas Utilities have submitted engineering studies and verification procedures. Some programs have been designed to pass the Total Resource Cost ("TRC") test. Programs have also been designed to provide the Gas Utilities incentives to design and implement energy efficiency programs. New program development requirements, such as the

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measures set forth in Appendix B, should not be applied to existing programs. Existing programs should continue based upon the program parameters already approved by the Commission if such programs or parameters have been submitted for approval.

Appendix B proposes to establish standardized data collection to measure energy savings, demand reduction and cost effectiveness through the TRC test. The Commission should consider additional values to measure avoided costs and non-energy benefits. The Commission should also design the Technical Reference Manual (“TRM”) to permit the submission of program specific data that is appropriate to test the energy savings, demand reduction, cost-effectiveness and non-energy benefits associated with specific program proposals. In this manner, the TRM can be appropriately amended as the Commission, Gas Utilities and customers gain experience through the provision of energy efficiency programs.

## II. COMMENTS

### A. **Appendix B Should Include the Data Necessary to Determine Avoided Cost and the Flexibility to Consider Program Specific Data.**

The Commission will apply the TRC test to determine whether an electric energy efficiency program is beneficial. O.A.C. § 4901:1-39-03. Appendix B suggests that the Commission may also apply the TRC test to gas energy efficiency programs. *See* Appendix B at 1. If the Commission applies the TRC test to gas energy efficiency programs, the Commission should count all of the avoided costs that result from such programs, including electric utility avoided costs. The Commission should count all avoided costs, whether they accrue to the sponsoring utility or another utility.<sup>1</sup> Data requirements that capture all avoided costs associated with an energy efficiency or demand reduction program will encourage the development of

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<sup>1</sup> This does not address the issue of allocation of costs and benefits among utilities jointly sponsoring or participating in programs. Costs and benefits should be allocated to the applicable utility through appropriate agreements.

economically efficient programs. A complete recognition of avoided costs will permit the Gas Utilities to maximize the number of energy efficiency programs they can cost effectively offer.

The Commission should develop a set of avoided cost data requirements as part of Appendix B to allow all parties to calculate the avoided supply costs associated with energy efficiency and demand reduction programs. The avoided cost measures should account for cost differences among utilities and regions of the state if those differences are material. They should also be transparent so that any person designing an energy efficiency program can determine whether the program passes the TRC test. Finally, the calculation of avoided costs should include commodity savings.

While it may be helpful to start with a set of data points (as suggested by the Commission in Appendix B), the Gas Utilities believe that data that is specific to suggested programs will be necessary to determine accurately the energy savings, demand reduction or cost effectiveness of any particular program. For example, the data necessary to measure cost effectiveness associated with energy efficiency built into new construction is different than the data necessary to determine the cost effectiveness of an energy efficiency retrofit of an existing structure.

Additionally, the Commission should adopt Deemed Savings Measures and Deemed Calculated Measures associated with environmental savings that are a known and measurable consequence of an energy efficiency program. Each energy efficiency program that reduces the use of natural gas also reduces carbon dioxide emissions in measurable quantities. Thus, insulation programs, shower head replacement programs and appliance replacement programs all have established measures to determine reductions of carbon dioxide. Residential Energy Efficiency Scheme, Energy Efficiency Activities (October 2008).<sup>2</sup>

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<sup>2</sup> See [http://www.dtei.sa.gov.au/energy/government\\_programs/rees](http://www.dtei.sa.gov.au/energy/government_programs/rees).

**B. The Commission Should Use Deemed Measures.**

Appliances in homes or businesses that use natural gas are primarily the furnace, water heater, cook top and oven. Manufacturers and customers have substantial experience with equipment that uses natural gas. Thus, it is relatively easy to measure the change in gas usage by an appliance. Similarly, gas energy efficiency and demand reduction program costs are known, measurable and accounted for. For example, the cost of a high efficiency replacement furnace or a pilotless cook top is known and measurable. The same is true for measures such as insulation, which have a direct effect upon the amount of gas used in a household. Manufacturers provide a reasonable range of the useful life of an appliance and how much gas the appliance will consume over its useful life. Thus, it makes sense to rely upon Deemed Savings Measures to determine the cost effectiveness of gas energy efficiency and demand reduction programs.

Savings associated with electricity, emissions reductions, and other resources should also count toward the costs and benefits associated with gas energy efficiency programs. For the most part, depending upon the equipment's use and other variables, these too are known and measurable within a range. The cost of a high efficiency electric motor that is part of a furnace replacement is reasonably known, as is the range of electricity it will save. The cost of a pilotless furnace or cook top and the CO<sup>2</sup> reduction that results from its installation is also known and measurable.

Despite all of the information that is available to utilities, customers and regulators, it is prudent to periodically audit actual results to compare them with expected results. New energy efficiency equipment, insulation, air sealing and other measures may perform better – or worse – than expected. Customer usage in northern Ohio may differ from usage in southern Ohio because of the difference in heating degree days. Thus, an audited Deemed Savings Measures

approach should be adopted. The initial program assessment should be made through Deemed Savings Measures using expected costs and benefits. Some assessment of how actual results compare to projections should be made using techniques such as billing data analysis and some site specific audits to assess the relationship between expected and actual results. The Commission may then make appropriate adjustments to the Deemed Savings Measures on a going forward basis without changing the basis on which existing programs were initially developed or approved. The Deemed Savings Measures approach encourages continued development of the TRM as utilities develop new energy efficiency programs and gather additional information about the cost and benefits of the programs.

**C. Appendix B, Table 1 – Data Requirements for Deemed Savings Measures**

The Gas Utilities agree that the TRM should require the energy efficiency program sponsor to describe the following data to establish Deemed Savings Measures:

**1. Description of Efficiency Technology, Measure or Practice**

The description should include both the energy efficiency measure, technology, or practice and the affected device(s) or behavior. For example, additional insulation may be a measure that causes the furnace to use less gas and electricity. Similarly, a caulking and sealing program to reduce drafts may encourage a change in behavior by increasing comfort so that the customer may lower the thermostat setting during heating season.

**2. Description of the Program Delivery Mechanism**

The list of delivery mechanisms should not attempt to be exhaustive as future program development may require new delivery mechanisms. Current mechanisms include: (1) financial incentives such as customer rebates, contractor incentives, low interest financing, cooperative

savings such as combined advertising campaigns and retailer buy down (subsidy); or (2) direct installation of the energy efficiency technology.

### **3. Applicability Conditions Required For Use of Values**

This measure requires the program sponsor to set forth the parameters under which an energy efficiency or demand reduction program will produce acceptable results. The parameters describe the program from beginning to end including items such as: (a) the measures to be removed; (b) the measures to be installed; (c) the method of installation; (d) the use of the measure; (e) the expected energy efficiency results; and (f) the procedure to test the equipment after installation, if practicable. The program parameters may formulate the basis for a post-installation site verification audit.

### **4. Baseline Unit Efficiency/Use**

The Baseline Unit Efficiency/Use should be part of the Applicability Conditions Required For Use of Values and need not be a separate line item. If the Baseline Unit Efficiency/Unit remains a separate data requirement, the data requirement should establish a baseline to measure energy and emission reductions for each appliance effected by the applicable energy efficiency or demand reduction program. For example, an insulation program may be expected to reduce the amount of gas used by a furnace, eliminate the use of electric space heaters, reduce the electric use of the furnace motor, reduce the use of electric or gas associated with air conditioning, and reduce CO<sup>2</sup> emissions associated with the furnace and/or a wood burning stove. Thus, a baseline level of usage must be established for electric, gas and emission reductions for each appliance. The Commission should approve the proposed baseline as part of the program approval process. Baseline measures may be set forth in the TRM or may be derived from another credible source and proposed to the Commission.

## **5. Efficient Unit Efficiency/Use**

This data requirement, along with instructions for installation, should be set forth in the Applicability Conditions Required For Use of Values and need not be a separate line item. The standard setting forth the measure's use and expected efficiency should permit a program sponsor to calculate the Deemed Savings Measures, in part, as the difference in energy usage between the replaced device and the installed device. Additional calculations may be necessary to account for the interactive effects of other measures such as installed insulation.

## **6. Effective Measure Life**

An effective measure life may be determined by a collaborative process or based on the engineering life obtained from the manufacturer. The effective measure life will be more accurate if adjusted for retention and performance factors. The effective measure life for life cycle savings calculation will also depend on the expected remaining lifespan of the existing equipment and projected efficiency level of replacement equipment in the absence of the program.

## **7. Annual Site Savings (kWh and therms)**

Energy savings should be determined based upon a collaborative process or the manufacturer's engineering data with applicable adjustments. Energy savings associated with a particular piece of equipment should be adjusted for factors unique to each utility such as weather. Other adjustments include site-specific circumstances such as occupancy and usage patterns.

## **8. Coincidence Factor (electric)**

An explanation of the applicable Coincidence Factor is necessary to measure demand reduction. Demand reduction is a less important measurement to gas usage because moving gas

usage from peak to off-peak periods does not cause a material change to the Gas Utilities' avoided costs. Avoided costs do not change because the distribution and interstate pipeline systems remain necessary to deliver gas. There is no gas equivalent to avoid building the next electric peaking unit.

#### **9. Electric Demand Savings (kW)**

The Electric Demand Savings must be measured from the baseline set pursuant to the Coincidence Factor so that the costs and benefits associated with demand reduction may be quantified. Each program sponsor should describe the circumstances under which the customer will reduce demand.

#### **10. Gas Demand Savings (therms/day)**

There are no statutory requirements for gas utilities to invest in energy efficiency or demand reduction programs. The Gas Utilities' existing programs are the result of stipulations. The Commission should not require gas utilities to develop demand reduction programs because such programs yield few savings for customers. A benefit to a gas energy efficiency program to reduce gas usage is a reduction to system peak day demand. This demand reduction has value that should be accounted for in the TRC.

#### **11. Incremental Capital Cost, Annual O&M Cost, and Periodic Capital Replacement Cost & Schedule**

All incremental energy efficiency or demand reduction program costs must be accounted for in the calculation of program savings or demand reduction. Actual costs should be periodically trued-up to ensure that program sponsors recover all of their costs and customers do not pay more than the program costs.



**D. Table 2 – Data Requirements for Deemed Calculated Measures**

The Gas Utilities' comments regarding the specific data requirements for Deemed Calculated Measures are identical to their comments concerning the specific data requirements for Deemed Savings Measures with one general exception. The Gas Utilities do not favor Deemed Calculated Measures because they are unduly expensive and complicated. It may be cost prohibitive to set up an infrastructure to formulate Deemed Calculated Measures. Such an infrastructure would require hiring additional engineers, accountants, field auditors, and energy efficiency specialists to determine the appropriate data to collect, collect the data, and account for the data. All of this data would need to be collected on a program-by-program basis. Deemed Savings Measures represent a reasonable alternative to calculate the cost effectiveness of gas energy efficiency programs. Some of the Gas Utilities do not have the personnel or infrastructure to accommodate a Deemed Calculated Measures process.

In addition to being costly, a Deemed Calculated Measures process may also be unnecessary. Gas appliance manufacturers currently provide a reasonable range of usage data over the life of the appliance under a variety of operating conditions. There may be no need to develop the expensive infrastructure necessary to develop such data from scratch. The Commission should consider whether to use a Deemed Calculated measures approach based upon the circumstance of the sponsoring gas utility and the specific program requirements.

Further, it is more productive and cost-effective to develop initial gas energy efficiency programs based upon known costs and savings provided by equipment manufacturers rather than making large investments to develop new programs. Because the Commission is using the TRC test, development of low-cost energy efficiency programs is particularly important. Costs associated with gas energy efficiency programs should be kept as low as possible.

**E. Additional Data Requirements Necessary to Calculate Deemed Savings Measures or Deemed Calculated Measures**

**1. Avoided Cost Data**

In order to determine whether an energy efficiency or demand reduction program passes the TRC test, it is necessary to calculate avoided costs. Avoided costs are incremental costs that are not incurred when additional output is not produced due to energy efficiency or demand reduction measures. Accounting for avoided cost is particularly crucial for a gas energy efficiency program to pass the TRC test; a gas program often produces ancillary electric savings, which also have avoided costs.

Avoided costs may be determined by adding the market price of avoided gas commodity service and electric generation service, environmental costs, transmission and distribution costs, load losses, avoided ancillary services, and the market cost of an option because energy efficiency savings act as a hedge against market price volatility. The avoided cost should be multiplied by the amount of energy saved. Accounting for avoided costs more accurately measures total savings. Volatile natural gas commodity prices have a significant impact on the calculation of avoided costs. In order to make measures more transparent, the Commission should consider referencing the assumed natural gas price in any published Deemed Savings Measures or Deemed Calculated Measures.

**F. Emission Reduction Data**

Emission reductions are an ancillary benefit to energy efficiency programs. The installation of more efficient equipment (such as a high efficiency gas furnace) not only lowers gas usage, but also lowers the amount of CO<sup>2</sup> emissions. Not all of the value of emissions is reflected in an avoided cost calculation because the market price of energy does not capture all externalities, such as emission costs. There is a standardized method for valuing energy


efficiency emission reductions and the Commission should include that value in its Deemed Savings Measures and Deemed Calculated Measures. Residential Energy Efficiency Scheme, Energy Efficiency Activities (October 2008).

Emission savings are measures in tCO<sup>2</sup>-e (tonnes of carbon dioxide equivalent). Deemed Savings Measures, including Applicability Conditions Required For Use of Values, are available for most energy efficiency programs including furnace and air conditioning replacement, showerhead replacement, insulation installation, air leakage sealing, duct work installation, and water heater replacement. The values associated with emission reductions may make the difference between an energy efficiency program that passes the TRC test and one that does not. For this reason, the Commission should include values for emission reduction as part of Appendix B.

### **III. CONCLUSION**

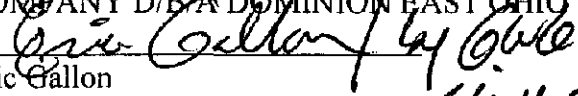
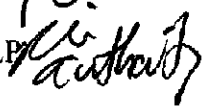
The Gas Utilities appreciate the opportunity to present comments to the Commission's proposed Appendix B. The Gas Utilities are in the process of implementing energy efficiency programs. A process that encourages the development and implementation of cost effective gas energy efficiency programs is prudent. The collection of necessary data to develop and define gas energy efficiency programs is a critical component of program development.

Respectfully submitted,

  
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I hereby certify that a copy of the foregoing was sent by electronic mail or regular U.S. mail, postage paid to the following parties on this 15th day of July, 2009.

  
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