

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Co-)
lumbia Gas of Ohio, Inc. for Approval of)
Demand Side Management Program for) Case No. 16-1309-GA-UNC
its Residential and Commercial Custom-)
ers.)

In the Matter of the Application of Co-)
lumbia Gas of Ohio, Inc. for Approval to) Case No. 16-1310-GA-AAM
Change Accounting Methods.)

**APPLICATION OF
COLUMBIA GAS OF OHIO, INC.
TO CONTINUE ITS
DEMAND SIDE MANAGEMENT PROGRAM**

1. Introduction

In this application, Columbia Gas of Ohio, Inc. (“Columbia”) seeks approval to continue its Demand Side Management (“DSM”) Program approved by the Public Utilities Commission of Ohio (“Commission”) in Case Nos. 08-833-GA-UNC, 11-5028-GA-UNC, and 11-5029-GA-AAM. Columbia is a national, regional, and state leader among natural gas utilities in the development and implementation of innovative energy efficiency and weatherization programs for its customers. Columbia seeks to continue this leadership through the continuation of its DSM Program. Columbia proposes to invest an average of approximately \$26.8 million annually in the proposed programs for calendar years 2017 through 2022.¹ Prior to filing this application to continue its DSM Program, Columbia presented the costs, savings and a description of the proposed DSM Program to Columbia’s DSM Stakeholder Group.

¹ The budget will increase annually by approximately 3% to account for inflation and natural growth in successful programs. In addition to this amount, Columbia receives \$7.1 million for WarmChoice® through base rates.

Columbia recovers the costs of its DSM Program through Columbia's Rider DSM. Columbia's Rider DSM is adjusted effective May each year to enable Columbia to recover the DSM costs incurred during the prior calendar year. Columbia proposes no changes to the currently approved procedures to review and adjust Rider DSM. Columbia is proposing, however, some modifications to the shared savings levels, which are detailed herein in Section 3.5.

Columbia is committed to helping its customers use natural gas more efficiently by effectively implementing its DSM Program. The key purposes of the DSM Program are to:

- Provide cost-effective, customer-oriented energy efficiency services for residential and commercial customers throughout Columbia's entire service territory
- Improve customer safety, comfort, and productivity
- Reduce wasteful and inefficient use of natural gas and other resources, such as water and electricity
- Increase customers' financial resources by reducing natural gas bills
- Lower customers' carbon dioxide emissions
- Support job creation and economic development
- Help the Commission comply with R.C. §§ 4929.02 and R.C. 4905.70
- Help the State of Ohio meet Pillar 7 of Ohio's 21st Century Energy Policy.

This DSM Program, Columbia's third since 2008, is based on third-party and internal energy efficiency analyses and results from the current DSM Program. The DSM Program term has been lengthened from five to six years in order to:

- Align the end date of the proposed DSM Program extension (December 31, 2021) with the expected end date of Columbia's next Infrastructure Replacement Program ("IRP") extension (December 31, 2022). Since 2012, Columbia has annually filed its application and testimony to adjust Rider DSM with its adjustment to Rider IRP. Ending and renewing both "programs" on the same schedule is ideal for stakeholders and the Commission.
- Reduce administrative burden and costs to customers, Columbia, stakeholders, and the Commission, while continuing to provide annual oversight through the Rider DSM application and review process, program evaluation, and input from the DSM Stakeholder Group.

- Provide stability for customers and businesses, and for the contractors that provide energy efficiency services to them, who expect utilities to offer and deliver energy efficiency as part of 21st century customer expectations for utility company operations.
- Maintain established and ongoing collaborative relationships with other utilities, units of local government, and other strategic partners in delivering energy efficiency services to customers and citizens of Ohio. This includes Columbia's key partnership with American Electric Power ("AEP Ohio") on programs that Columbia jointly delivers in shared service territories.

The DSM Program continues Columbia's current, successful programs and provides program enhancements to continue that success, serve additional market segments, and deliver more savings to customers.

2. Creating Value Through Demand Side Management

2.1. Long-Term Energy Reduction Benefits

Columbia has been providing energy-efficiency programs and services to its customers for over three decades, as described in Appendix C. The energy efficiency measures undertaken through Columbia's DSM programs since the inception of the WarmChoice[®] program in 1987, and the creation of the first DSM Program in 2008, will save customers over 60.7 Bcf of natural gas over the life of the measures. This equates to an estimated total savings of \$492 million. In addition to the natural gas savings created by Columbia's programs, several of the programs create electricity savings through reduced use of air conditioning after insulation and air sealing measures are installed, reduced run time of furnace fans through lower heating and cooling loads, and more efficient furnace motors in Energy Star[®] qualified furnaces.

Columbia continued its 33-year legacy of leadership in energy efficiency with the last extension and expansion of its DSM Program in 2011. Table 1 provides a brief description of the current programs and shows the results for the first four years of the DSM Program, 2012-2015. The programs continue to meet and exceed customer service and natural gas reduction targets through a network of talented energy efficiency professionals and contractors who are among the best in the nation at effectively meeting the challenges of program design and implementation. A summary of accomplishments to date for the current DSM Program is shown below in Table 1.

Table 1 Current DSM Program Accomplishments

Program	Description	2012-2015 Customers Served	2012-2015 Lifetime Mcf Savings
Home Performance Solutions	In home Energy Audit and Rebates	22,251	7,128,796
WarmChoice®	Free Weatherization to income-eligible customers	8,129	5,200,248
High Efficiency Furnace Rebates	Rebates on high efficiency furnaces and boilers	11,434	2,290,047
EfficiencyCrafted® Homes	Incentives to home builders for homes 30% better than energy code	7,565	5,752,709
Home Energy Reports	Energy Efficiency behavior modification reports to motivate customers to engage in energy efficiency actions	430,000	753,261
Simple Energy Solutions	Online e-store and rebates on programmable thermostats, energy efficient showerheads, and faucet aerators	27,830	1,206,309
Residential Energy Code	Training for code officials, homebuilders, and trade allies on residential energy codes	595*	-
e3 smart	Energy efficiency education delivered as part of school curriculum, with kit of energy efficiency measures for students to install in their homes	82,019	199,673
Home Energy Checkup	On-line energy audit that refers customers to other DSM programs that can help them save more	241**	-
Innovative Energy Solutions	Prescriptive rebates, and custom rebates for energy audits and energy conservation measures for nonprofits, houses of worship, schools, hospitals, government and businesses	166	3,031,892
Energy Design Solutions	Commercial energy code education for small commercial building design professionals and trade allies	121***	-
U.S. EPA Portfolio Manager	Link to U.S. EPA's building energy benchmarking tool to determine efficiency level and next steps	3****	-

Notes:

* Training for code officials, homebuilders, contractors and real estate agents.

** Pilot period participation for new on-line energy audit.

*** Building design professionals and trade allies trained.

**** Key partnerships with City of Columbus, Ohio Hospital Association, and Ohio Interfaith Power and Light.

2.2. Multiple Non-Energy Benefits and Impacts of the DSM Program

The DSM Program provides Columbia's customers, ratepayers, and society with multiple benefits beyond energy and utility bill savings. Extensive research has been conducted into the additional benefits of DSM in the areas of macroeconomic impacts, public budget impacts, health, and well-being impacts, among many others. For instance, lifetime carbon dioxide reduction for Columbia's DSM Program is estimated to be 3,643,817 tons, the equivalent of taking 677,878 automobiles off the road for one year or planting 2,639,278 acres of trees. A bibliography of reports on these non-energy benefits ("NEBs") is included in Appendix E.

Columbia's DSM Program creates numerous NEBs, including:

- Lower water and sewer bills
- Avoided CO₂ emissions
- Direct economic benefits from jobs created by DSM programs
- Lower customer arrearages and bad debt
- Increased tax revenue to state and local government
- Secondary economic (multiplier) benefits
- Improvements in health and safety

These NEBs can, and should, be used in DSM cost tests to account for the full value proposition that energy efficiency provides to its customers. In Iowa² and Minnesota, which use the societal cost test to determine which energy efficiency programs to implement, NEBs are used as a key input to calculate the value of energy efficiency programs and their impact in their states. An economic impact assessment of energy efficiency efforts in Minnesota found a total net benefit of more than \$5.9 billion in new economic output and nearly 55,000 job-years.³ This Commission, too, can factor in NEBs in the cost tests to obtain a broader perspec-

² Iowa Admin. Code r.199-35.8(1)e.(1).

³ Cadmus, *The Aggregate Economic Impact of the Conservation Improvement Program 2008-2013*, Prepared for the Minnesota Department of Commerce, Div. of Energy Resources (Oct. 2015) (available at <http://mn.gov/commerce-stat/pdfs/card-report-aggregate-eco-impact-cip-2008-2013.pdf>).

tive on the true value and impact that Columbia's DSM Program creates through ratepayer investments throughout Ohio.

2.3. Best Practice Awards and Recognition

Columbia's DSM programs and team members have been recognized for their leadership in the field of energy efficiency at the state, regional, and national levels. These awards and recognition are a testament to Columbia's focus on implementing best practices to market and deliver effective programs to customers.

The current portfolio of DSM programs has received 17 program awards, most of them in the past 3 to 4 years. Nationally, Columbia's largest programs, WarmChoice®, Home Performance Solutions, and EfficiencyCrafted® Homes, have received awards from the American Council for an Energy Efficient Economy and the United States Environmental Protection Agency ("U.S. EPA"), leading proponents of energy efficiency as a resource for helping Americans manage energy costs and greenhouse gas emissions. At the regional and state level, Columbia has been recognized by the Midwest Energy Efficiency Alliance and received the Ohio Governor's Award for Excellence in Energy Efficiency. Columbia's leadership, Commission Staff, and DSM Stakeholder Group members are to be credited for giving DSM Program staff the flexibility to develop and implement these peer-leading DSM programs in Ohio. A complete list of awards and recognition can be found in Appendix D.

2.4. Collaborative Partnerships and Community Engagement

Throughout its history in DSM, Columbia has worked collaboratively with many partners and stakeholders, from non-profit and governmental organizations to fellow natural gas and electric utilities, to determine the best ways to prudently use ratepayer funds to save energy and reduce bills for customers. The public-private partnerships enhance service delivery and customer satisfaction by reducing confusion about programs in the marketplace and offering streamlined, efficient service delivery methods to reach customers.

For instance, Columbia's partnership with AEP Ohio enabled the utilities to: 1) co-deliver the e³ smart program in schools in jointly served counties; 2) integrate Columbia's and AEP Ohio's new homes programs to save on program implementation and marketing costs; and 3) deliver and install high efficiency lighting products during Columbia's in-home energy audits. In addition, profes-

sional commercial building energy auditors are able to leverage both Columbia's and AEP Ohio's energy audit and rebate programs to maximize cost effective investments for each company's respective customers. Columbia also partnered with AEP Ohio in its Community Energy Savers program to ramp up energy efficiency upgrades in Athens County.

The low-income network that Columbia uses to implement its WarmChoice® program also acts as a one-stop-shop in delivering both utilities' income-eligible customer programs and link them to the many additional services for which they may be eligible. Since 1983, Columbia has used Ohio's exemplary community-based weatherization network to deliver Columbia's WarmChoice® program jointly with other services for income-eligible households, including the Home Energy Assistance Program ("HEAP") and the Percentage of Income Payment Plan ("PIPP Plus"), state and federally funded home repair programs, and other energy-efficiency services. Partnering with this network creates additional public value by linking income-eligible weatherization customers to other needed social programs such as Meals on Wheels, HeadStart, Health Services, Child Care, and other social services that can help improve customers' lives.

Another example of Columbia's effective partnerships is Columbia's relationship with Ohio Interfaith Power and Light and Ohio Hospital Association, which use U.S. EPA's Portfolio Manager Tool to benchmark energy usage in houses of worship and hospitals to help target those facilities for energy efficiency improvements.

3. Columbia's Proposed 2017-2022 DSM Program

Columbia believes it is in the continued best interest of its customers to continue to provide DSM services through programs that promote the installation and implementation of energy efficiency measures and technologies in a cost-effective manner. Over 500,000 homes and buildings in Columbia's service territory were built before energy codes were implemented in Ohio. For many of Columbia's customers, there are numerous barriers to the adoption of efficient technology, including higher incremental costs for high efficiency equipment, lack of customer education, lack of contractor trade ally training, lack of monetary resources, fear of change, and societal costs not being reflected in prices. Likewise, the default action for customers in regards to energy efficiency and reducing waste is no action, even when it is in their best interests to lower their energy bills. Accordingly, Columbia and the DSM Stakeholder Group believe that Columbia must continue to play a role in promoting and encouraging energy ef-

iciency, economic development, and job creation in Ohio. Utility companies in the nation are in a unique position to bring energy efficiency to scale, which would be absent without these investments.

Specifically, Columbia will continue to take a leadership role in promoting energy efficiency because of Columbia's existing relationship with its customers, who often view Columbia as their primary source of energy information. Columbia's unique relationship with customers and stakeholders will allow it to continue to meet customers' needs for DSM services through technology, education, and incentives to help remove market barriers and speed the adoption of more efficient technologies. Other DSM Stakeholder Group members, including consumer advocate groups, contractors, trade allies and numerous energy-related organizations, are also an integral part of creating and maintaining a successful program as these groups interact with Columbia and its customers.

Residential and small commercial customers will continue to benefit from these proposed energy efficiency programs by having ready access to energy-saving measures and services that will directly reduce natural gas usage throughout the life of the energy efficiency measures, improving the affordability of natural gas service. Additionally, customers will benefit through improved safety and reliability of their heating equipment, better efficiency and comfort, as well as electricity and water savings.

Non-participating customers will also benefit through the establishment of a network of trained providers and an enhanced marketplace, with better access and availability to state-of-the-art energy conservation techniques promoted by these DSM programs. Moreover, non-participating customers may benefit from the price-dampening effects of energy efficiency and from the positive environmental impacts of the programs, as well as other societal benefits.

3.1. DSM Program for 2017 – 2022

Columbia is proposing to continue and enhance its portfolio of DSM programs, which offers a wide range of services to its residential and commercial customers. Each program has been determined to be cost-effective, as shown in Appendix B. While Columbia will continue to effectively administer its DSM Program, the programs will be implemented primarily by third-party consultants (vendors). Columbia proposes to continue offering these programs from January 1, 2017, through December 31, 2022. Columbia has also proposed budgets for each program, based on estimated projections of potential customer participation

rates and activity within each program. Sources for costs of energy conservation measures included impact evaluation studies, engineering calculations, and industry sources. Based upon the results of Columbia's team and evaluation consultant's work, and discussions with the DSM Stakeholder Group, Columbia proposes that its DSM programs be continued and/or enhanced. These programs are described in Section 3.2, and are summarized in Table 2 below.

Table 2 Summary of DSM Programs

Program	Program Description
WarmChoice®	Low-income customer home weatherization
Home Performance Solutions	Low-cost home energy audits and rebates/discounts
Simple Energy Solutions	Energy efficient thermostat, showerhead, and aerator rebates
High Efficiency Furnace Rebates	Rebates for energy efficient furnaces and boilers
Home Energy Reports	Energy usage comparison reports, recommendations
Home Energy Checkup	Online energy audit tool
e3 smart	Student education program and kit of materials
EfficiencyCrafted® Homes	Incentives for homes built 30% more efficient
Residential Code Training	Energy code training for officials, trade allies
Energy Design Solutions	New commercial building above energy code education and incentives
Innovative Energy Solutions	Rebates on energy audits and measures for non-profits and businesses
EPA Portfolio Manager	Online energy use benchmarking for commercial buildings

3.2. Summary of Key Programmatic Enhancements to the DSM Programs

Columbia believes that maintaining the success of its DSM Program requires it to adjust its programs. Accordingly, Columbia is proposing several changes to its DSM portfolio of programs. These changes will strengthen the programmatic reach for customers and enable Columbia to enhance customers' opportunities for implementing energy efficient measures. A summary of Columbia's proposed DSM Program enhancements is provided in Table 3. Each program, and Columbia's proposed enhancements to each program, are discussed below.

Table 3 Summary of DSM Program Enhancements

Program	Program Enhancements
WarmChoice®	Increase weatherization assistance to customers in rental properties.
Home Performance Solutions	Provide audits to multi-family, residential buildings, add an option for walk-through audit.
Simple Energy Solutions	Higher rebates for learning thermostats, direct install component, partner with AEP Ohio.
HE HVAC Rebates	Add energy-efficient water heater rebates to the program; Energy Star qualified.
Home Energy Reports	Optimize mail versus email reports, enhance customer segmentation.
Home Energy Checkup	Continue to optimize customer segmentation and DSM recommendations.
e ³ smart	School-to-school competitions to increase kit installation rates.
EfficiencyCrafted® Homes	Incorporate Residential Energy Code Training into the program, expand to more builders.
Residential Code Training	Remove as separate program, integrate into EfficiencyCrafted® Homes.
Energy Design Solutions	Expand square footage eligible based on market.
Innovative Energy Solutions	Include Preliminary Energy Audit (PEA) to increase audit to measure conversion rate.
EPA Portfolio Manager	Study/implement opportunity to automate uploading of customer energy data with customer permission.

3.2.1. Home Performance Solutions (Home Energy Audits)

Columbia proposes to both continue and enhance its highly successful Home Performance Solutions program, which currently provides low-cost, comprehensive, computerized and diagnostic in-home energy audits, combustion and gas leakage safety inspections, and cost-effective energy efficiency measure rebates to residential buildings with incomes above 150% of the federal poverty guidelines (“FPG”). Program enhancements include:

- Targeting more high-energy savings rental and multi-family properties for services

- Providing customers with an option for a quicker “walk through” energy analysis and safety inspection with a prescriptive list of rebate-eligible energy efficiency measures and lower rebate levels for those customers who don’t desire the highest level of service that a comprehensive energy audit provides

In addition, Columbia will work with its program implementer and trade allies to determine the potential value of aligning the program’s comprehensive energy audit with DOE/U.S. EPA Home Performance with Energy Star® requirements. Columbia is also evaluating potential inclusion of DOE’s Home Energy Score, U.S. EPA’s Home Energy Yardstick, or other rating tools that would provide value to the customer experience, increase the potential resale value of their property, or help market the program.

3.2.2. WarmChoice® Program (Income-eligible Weatherization Service)

The WarmChoice® program provides whole house weatherization services to natural gas heating customers with household incomes at or below 150% of the federal poverty guidelines. The program targets high-use homes and Percentage of Income Payment Program (“PIPP Plus”) customers. The program is delivered through the nation’s best community-based weatherization service delivery network and also delivers among the nation’s highest residential natural gas savings per home served. The network brings a one-stop-shop approach to the WarmChoice® program that combines it with electric utility DSM programs, home repair programs, and other critical social services in order to maximize efficiency and benefits to customers. From 2014-2016, Columbia worked with its WarmChoice® provider network to develop a 21st-century home energy inspection and reporting system software to improve program efficiency and accountability. Enhancements to the WarmChoice® program design include:

- Increased targeting of high natural gas use rental properties
- Strategic targeting of PIPP Plus customers in rental properties

3.2.3. EfficiencyCrafted® Homes (Energy Efficient New Homes)

Columbia will continue its EfficiencyCrafted® Homes program, which offers incentives to home builders to build homes that exceed state energy code minimum levels. Participating homebuilders will continue to provide Ohio homebuyers with Energy Star® certified homes or EfficiencyCrafted® Homes that

score 70 or lower on the Home Energy Rating System scale. Both standard market and affordable housing market homebuilders participate in the program. Columbia will also maintain its partnership with AEP Ohio in jointly served counties to match incentives to achieve high levels of energy efficiency in new homes. The program will also provide builders and home energy raters with training and technical assistance. Enhancements to the program include:

- Introduction of an additional per-home incentive to new builders in the program, to aid with recruitment of additional Ohio home builders
- Integration of energy code training for builders, code officials, and trade allies into this program from a previously separate program, in order to reduce administrative costs and take advantage of the natural synergies between the two programs

3.2.4. Simple Energy Solutions (Energy Efficient Products)

Columbia will continue and enhance its Simple Energy Solutions program and will offer rebates for standard and smart/wifi-enabled programmable thermostats, energy-efficient showerheads and faucet aerators. Eligible products will be available online through Columbia's e-store. Customers will also be able to use a mail-in rebate form with a receipt to support the direct purchase of qualifying products through local hardware or home improvement stores or other sources. Enhancements to the program include:

- A direct install component for some customers in multifamily buildings
- Partnerships with water/sewer utilities, where possible, to lower program implementation costs
- Increase in the availability and adoption of learning thermostats through Columbia's e-store and rebate forms
- Alignment of showerhead specifications with U.S. EPA's WaterSense program, where feasible

3.2.5. Home Energy Efficiency Reports (Behavior Modification)

The Home Energy Efficiency Report program will continue to provide customers with motivational information to help them take action to reduce their energy use. This is accomplished by comparing the participant's energy use with similar homes, and then using peer pressure and social norms to encourage customers to take action. This program approach has proven to be a successful way

to engage customers in the energy efficiency discussion in a way that results in them taking action to lower their energy use. Enhancements to the program include:

- Optimizing the best method of report delivery and their frequency to customers
- Continuing to enhance customer segmentation so that report recommendations are even more appropriate for their needs

3.2.6. High-Efficiency Appliance Rebate Program (Appliance Rebates)

The current High-Efficiency Heating System Rebate program provides rebates to landlords and customers to incentivize them to install high-efficiency natural gas furnaces and boilers, rather than the minimum low-efficiency products that are currently available. Enhancements to the program include:

- Rebates on Energy Star® qualified furnaces and boilers of 96% and 90% Annual Fuel Utilization Efficiency, respectively
- Rebates on Energy Star® natural gas water heaters with a .67 Energy Factor or greater for tank type heaters and a .91 Energy Factor or greater for tankless water heaters

3.2.7. e³ smart Program (Student Education)

Teachers participating in the e³ smart program will continue to educate elementary, middle school, and high schools students about natural gas energy efficiency through energy education materials that Columbia provides as a formal part of the school's science curriculum, culminating with a kit of energy conservation materials that is provided to students to install at their home. The curriculum, which Columbia co-sponsors with AEP Ohio, complies with State of Ohio, Department of Education requirements. Proposed program enhancements include:

- School to School competitions to increase installation rates of energy efficiency kits

3.2.8. Home Energy Efficiency Checkup Program (Online Energy Efficiency Audit)

The Home Energy Efficiency Checkup program will continue to provide Columbia's customers with a web-based energy audit tool to enable them to evaluate their own home without an in-home visit. The tool will link customers to appropriate DSM programs that can provide them with opportunities to reduce their natural gas usage based on their energy usage level. This program is a good alternative for lower-use customers for whom a whole house audit may not be cost-effective, as well as those who want to make an initial foray into understanding how their home performs before committing to a more comprehensive energy audit. Enhancements include:

- Further optimization of appropriate, customer-focused energy efficiency messaging
- Potential integration of DOE/U.S. EPA home energy scoring tools into the energy audit tool.

3.2.9. Innovative Energy Solutions (Non-Profit and Business Energy Efficiency)

Columbia will continue its Innovative Energy Solutions program, which provides prescriptive rebates for certain energy efficiency measures as well as rebates for energy audits and custom energy efficiency measures for non-profits, schools, hospitals, houses of worship, municipal buildings and other commercial customers. All natural gas energy saving measures and technologies are eligible for consideration through the current energy audit or energy engineering estimation process used to determine cost effectiveness. Planned enhancements to the program include:

- Implementation of an American Society of Heating, Refrigeration and Air Conditioning Engineers ("ASHRAE")-compliant preliminary energy assessment ("PEA") tool to improved energy audit to completed work conversion ratios.

3.2.10. Energy Design Solutions (Energy Efficient New Buildings)

In order to move the commercial building market forward, Columbia proposes to continue its Energy Design Solutions program, an education program based on the ASHRAE Advanced Energy Design Guides. Educational seminars will be provided to architects, engineers, building developers and owners to help them understand the opportunities beyond first costs⁴ to life-cycle costs⁵ and energy use of new buildings over their life spans. Program enhancements include:

- Increasing the size of buildings eligible for incentives to help reduce first costs, in order to exceed current commercial energy code standards

3.2.11. U.S. EPA Portfolio Manager (Building Benchmarking)

Columbia will also continue to promote the use of the U.S. Environmental Protection Agency's Portfolio Manager, an interactive energy management tool that allows building owners to track and assess energy and water consumption in a secure on-line environment. U.S. EPA Portfolio Manager can help building owners set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive U.S. EPA recognition for superior energy performance. Columbia will continue to partner with Ohio Hospital Association, Ohio Interfaith Power and Light, as well as the city of Columbus. Program enhancements include:

- Partnership with AEP Ohio to automate the uploading of utility energy usage data into the U.S. EPA Portfolio Manager tool.

3.3. DSM Stakeholder Group Process

Throughout the current DSM Program implementation period, Columbia met with its DSM Stakeholder Group annually. At these meetings, the DSM Stakeholder Group discussed DSM Program performance. At its February 23, 2016, stakeholder group meeting, Columbia informed the stakeholder group that it was working on its next DSM plan, and that it would provide details of the

⁴ First costs are generally defined as the costs to construct a facility and do not include long-term operations and maintenance costs.

⁵ Life cycle costs include the costs for operating and maintaining a facility over its useful life.

program plan at its next meeting. On May 13 and 25, 2016, Columbia presented its proposed 2017-2022 DSM Program plan and received positive feedback from the DSM Stakeholder Group. A complete list of DSM Stakeholders is included as Appendix A.

3.4. Proposed DSM Program Evaluation

Columbia has a long history of conducting program evaluations to determine how its energy efficiency programs are performing and how they might be improved. Columbia will continue to use multiple strategies to evaluate the effectiveness of the proposed DSM programs, including continuous tracking of, and feedback on, contractor program metrics and independent impact and process evaluations.

The program evaluation process includes impact evaluations using engineering savings estimates and process evaluations. For residential programs that install energy conservation measures, Columbia will continue to conduct an annual impact evaluation of estimated energy savings based on actual participation rates and engineering estimates, as well as the TRM, within three to six months of the end of the program year. Impact evaluations also will be conducted within 13 to 20 months of the end of the programs for which this type of analysis can be conducted.

In addition to independent evaluations, Columbia will provide quality assurance, technical assistance and training as part of its administration of the programs where applicable. In addition to quality assurance conducted by program implementers, Columbia will evaluate work completed by contractors for quality assurance purposes. Customer satisfaction surveys will also be implemented as part of some program implementation and evaluation processes. Training and orientation of contractors on program standards and acceptable installation methods also will be conducted. This will be the primary up-front strategy to ensure that quality work is performed for customers. Progressive and corrective improvement processes that can positively impact non-compliant work will be established on a program-by-program basis.

3.5. Shared Savings Performance Incentive

Columbia proposes to continue and amend its shared savings incentive mechanism. The mechanism gathers and tracks data for energy conservation measures installed through each DSM program. Columbia uses this data, with

limited exceptions, to calculate the projected natural gas savings using the formulas identified in the State of Ohio Energy Efficiency Technical Reference Manual ("TRM"). The exceptions are the WarmChoice® program, where historic billing analysis is used; the Home Energy Reports program, where guaranteed contract savings with adjustments for measured actual savings are used; and the Innovative Energy Solutions program, where the energy audit projected natural gas savings are used. Using the energy conservation measure lifetime identified in the TRM, Columbia calculates the projected lifetime natural gas savings and the value of the natural gas savings for all of its DSM programs.

The shared savings mechanism is based on Columbia earning a share of the net benefits as calculated under the Utility Cost Test ("UCT"). Shared savings are computed on the difference between the net present value of program lifetime energy savings and non-energy benefits minus the program costs calculated from the UCT. The non-energy benefits, newly proposed in this continuation of the DSM program, recognize the value of the DSM programs more holistically. Columbia proposes including the following non-energy benefits: the value of water savings; CO₂ reductions; and direct economic impacts. These non-energy benefits were selected from a larger pool of non-energy benefits because they are both quantifiable and have highly reliable calculations to support the amounts. The estimated values per year for 2017-2022 are:

- Water Savings: Average of \$2.2 million/year
- CO₂ reductions: Average of \$6.3 million/year
- Direct Economic Impacts: Average of \$2.8 million/year

The recovery of the shared savings performance incentive, grossed up for taxes, will be based on the following tiered levels of program achievement:

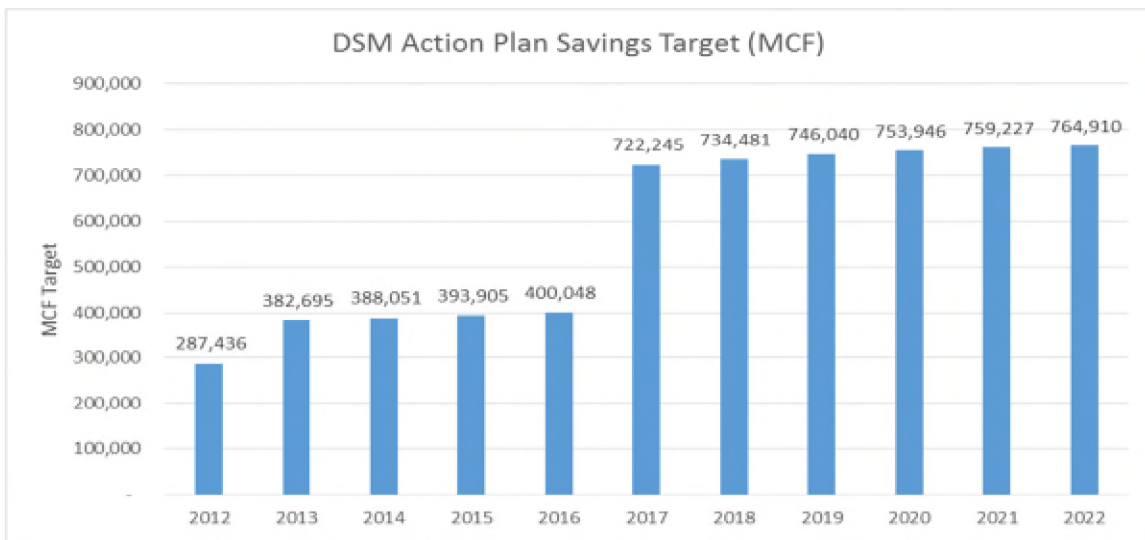
- No shared savings are earned for a program that does not meet 75% of the program impacts at its prorated budgeted cost level.
- 5% of the savings is earned once the program meets 75% of the projected program impacts at its prorated budgeted cost level up to 85% of budgeted expenditures.
- 5.5% of the savings is earned once the program meets 80% of the projected program impacts at its prorated budgeted cost level up to 90% of budgeted expenditures.
- 6% of the savings is earned once the program meets 85% of the projected program impacts at its prorated budgeted cost level up to 95% of budgeted expenditures.

- 6.5% of the savings is earned once the program meets 90% of the projected program impacts at its prorated budgeted cost level.
- 7% of the savings is earned once the program meets 95% of the projected program impacts at its prorated budgeted cost level.
- 7.5% of the savings is earned once the program meets 100% of the projected program impacts at its prorated budgeted cost level.
- 8.0% of the savings is earned once the program meets 105% of the projected program impacts at its prorated budgeted cost level.
- 8.5% of the savings is earned once the program meets 110% of the projected program impacts at its prorated budgeted cost level.
- 9% of the savings is earned once the program meets 115% of the projected program impacts at its prorated budgeted cost level.
- 9.5% of the savings is earned once the program meets 120% of the projected program impacts at its prorated budgeted cost level.
- 10% of the savings is earned once the program meets 125% of the projected program impacts at its prorated budgeted cost level.

The shared savings incentive potential is the equivalent of a return of approximately 3.7% to 6.2% on the investment.⁶

This shared savings incentive mechanism is further supported by Columbia increasing the DSM program annual Mcf savings targets by almost 100%, as shown in Figure 1 below.

Figure 1 2012-2022 DSM Program Savings Targets



⁶ The 3.7% to 6.2% is based on \$5,984,402 (shared savings amount at 5%) divided by \$161,041,052 (total DSM budget) and \$10,000,000 (shared savings amount at proposed cap) divided by \$161,041,052 (total DSM budget).

Notwithstanding the proposed changes above, Columbia also proposes to cap the shared savings incentive, over the entire term of the DSM Program ending on December 31, 2022, at \$10 million and grossed up for taxes.

Taken together, Columbia proposes to recognize non-energy benefits that can be reliably calculated and amend its shared savings opportunity while also challenging itself by almost doubling the savings amounts that must happen for shared savings to occur. This shared savings approach provides Columbia incentives for effectively and efficiently managing the programs and for meeting the ambitious program participation and impact goals.

5. Recovery of Costs Related to DSM

Consistent with the Stipulation approved by the Commission in Case Nos. 11-5028-GA-UNC and 11-5029-GA-AAM (hereinafter “2011 Extension”), Columbia requests a continuation of the deferral treatment and recovery set forth therein. In the 2011 Extension, Columbia and other stakeholders agreed that Columbia would continue filing annually to adjust the Rider DSM rate to allow for the review and recovery of DSM costs incurred and shared savings realized during the prior calendar year. Columbia and stakeholders further agreed that Columbia was authorized to continue deferring the difference between actual DSM program expenses (including carrying costs) and Columbia’s portion of shared savings. Likewise, Columbia seeks authority to continue its accounting treatment to defer DSM program expenses resulting from the expansion and continuation of the programs approved by the Commission in the 2011 Extension, as described herein. Columbia also requests continuing the recovery mechanism approved by the Commission in the 2011 Extension.

R.C. § 4905.13 authorizes the Commission to establish systems of accounts to be kept by Ohio’s public utilities and to prescribe the manner in which these accounts shall be kept. Pursuant to Ohio Admin. Code 4901:1-13-13, the Commission adopted the Uniform System of Accounts (“USOA”) for gas utilities established by the Federal Energy Regulatory Commission (“FERC”) for use in Ohio. The Commission may modify the USOA prescribed by FERC as it applies to utilities within the state of Ohio.

Columbia will defer expenses in special sub-accounts of Account 182-Other Regulatory Assets for recovery through Rider DSM. DSM expenses eligible for deferral will include all expenses incurred through implementation of comprehensive, ratepayer-funded, cost-effective, energy efficiency programs made

available to all customers served under Columbia's Small General Service rate schedule. Consistent with its current program and the Commission's Opinion and Order in Case Nos. 08-0072-GA-AIR, *et al.*, Rider DSM will further include carrying costs to be computed at Columbia's current cost of long-term debt and any incentives approved by the Commission. Columbia's portion of shared savings during each calendar year will be calculated and supported through an annual filing based on actual data for the previous calendar year. This report will be filed by Columbia no later than June 30 of the subsequent calendar year with deferral authority assumed to be granted absent an objection by Staff within thirty days of the filing. Columbia will recognize its portion of shared savings upon receipt of authority to defer these amounts.⁷

The requested continuation and enhancement of Columbia's DSM Program and proposed change in accounting procedure does not result in any increase in rate or charge, and the Commission can therefore approve this application without a hearing.

6. Other DSM Considerations

6.1. DSM Program Funding Levels

Columbia will monitor and evaluate the level of success of all of its DSM programs. If, through program analysis, it is determined that a particular program design is not likely to invest all of the resources available to it, Columbia retains the flexibility to shift funding between and within programs without Commission approval in order to maximize program performance and customer benefits.

6.2. DSM Program Time Frames

The proposed time frame for DSM implementation is January 1, 2017, to December 31, 2022. Therefore, expedited treatment of this application is requested, with an approval date no later than September 28, 2016. Because Columbia has been working with the DSM Stakeholder Group both regarding its programmatic performance over the last term and in anticipation of this filing, Columbia does not anticipate that an expedited procedural schedule will impose any hardship. If, for any reason, a Commission decision on Columbia's application is not issued before December 31, 2016, Columbia requests that the program

⁷ The DSM Deferral-Account 182 will be debited and Revenue or Contra-Expense will be credited.

be extended, on a temporary basis, under the existing construct to ensure Columbia is able to continue providing valuable DSM services to Ohio consumers.

7. Proposed Procedural Schedule

Columbia's current DSM Program expires on December 31, 2016. Because the DSM Program is expiring in less than six months, and Columbia has been meeting with the DSM Stakeholder Group, Columbia requests an accelerated procedural schedule as follows:

August 1 – Comments
August 29 – Reply Comments
September 28 – Opinion and Order

8. Conclusion

Columbia seeks authority from the Commission to: (1) continue its DSM Program for an additional six years; (2) include additional benefits for customers; (3) maintain the total DSM funding level at approximately \$25 million for calendar year 2017; (4) increase the annual DSM funding level by approximately 3% each calendar year thereafter for the balance of the six-year period for inflation and natural growth in program demand; (5) continue its shared savings mechanism with increased Mcf targets, realization of non-energy benefits, and an overall shared savings incentive cap; (6) continue Rider DSM for the six-year period, as previously approved in Case No. 11-5028-GA-UNC; and (7) continue the accounting treatment of the DSM Program expenses as previously approved in the 2011 Extension.

Columbia hereby respectfully requests the Commission approve the Application to continue its DSM Program and change in accounting methods as described in the instant Application and establish an expedited procedural schedule to ensure implementation of the new programs by the date requested in this filing.

Respectfully submitted by,

COLUMBIA GAS OF OHIO, INC.

/s/ Joseph M. Clark

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Attorneys for

COLUMBIA GAS OF OHIO, INC.

APPENDIX A

Columbia DSM Stakeholder Group

LAST NAME	FIRST NAME	COMPANY
AIREY	JONATHAN	VORYS
ALLWEIN	CHRIS	OPAE
ANDERSON	SHAWN	COH
ANDREWS	ADRIAN	COH
ARNOLD	DALE	Ohio Farm Bureau
BALLA	HANNA	COH
BUSSARD	MARILYN	COH
CHILDS	KIMBERLY	PUCO
CLARK	JOE	COH
DAVENPORT	DAVE	GLS
HALL	RANDY	Cornerstone Energy Conservation Services
HEALEY	CHRISTOPHER	OCC
HEMINGER	NED	HAWA
JENKINS	BRANDON	PUCO
JOHNSON	JOHN	GLS
KERN	KYLE	OCC
KLAUS	KRIS	OHIO Home Builders Assoc
LAVERTY	JOHN	COH
MASON	ROB	COH
MATTHEWS	TONY	PUCO
MELBY	MEGAN	COH
METZ	ANDREW	COH
MILLER	ERIN	City of Columbus
NOWINSKY	KELLI	COH
OHLER	DEBBIE	Ohio Bd of Bldg Standards
O'KEEFFE	CHRISTINA	MORPC
OLIKER	JOE	IGS
PIGG	SCOTT	Seventhwave
POE	SARAH	COH
RACHER	PAUL	COH
REES	RON	COAD
RINEBOLT	DAVE	OPAE
RIPKE	JAMES	PUCO
SAUER	LARRY	OCC
SHUTRUMP	COLLEEN	OCC
SMITH	CRAIG	PUCO
STEWART	TONJA	PUCO
SWEPTON	MARK	Atlas Butler
THARP	DORA	NHST
THOMPSON	MELISSA	COH
WILLIAMS	SUZANNE	PUCO

APPENDIX B

1. Columbia DSM Program Cost Effectiveness Test Results

	SCT	TRC	PCT	UCT	RIM
Home Performance Solutions	2.29	1.91	11.51	1.52	\$ 0.0059
WarmChoice	1.05	0.89		0.64	\$ 0.0054
HE HVAC Rebates	3.29	2.91	4.85	3.55	\$ 0.0020
Energy Efficient New Homes	2.36	1.90	3.76	3.31	\$ 0.0025
Home Energy Reports	1.91	1.92		1.56	\$ 0.0014
Simple Energy Solutions	4.31	3.88	9.50	5.47	\$ 0.0007
Student Education	5.24	5.06		4.72	\$ 0.0003
On Line Audit	-	-		-	\$ 0.0002
Innovative Energy Solutions	1.78	1.64	4.33	2.12	\$ 0.0012
Energy Design Solutions	-	-		-	\$ 0.0005
EPA Portfolio Manager	-	-		-	\$ 0.0001
Total	2.05	1.76	7.00	1.64	\$ 0.0206

2. Columbia DSM Program Natural Gas Savings Projections

Program	2017	2018	2019	2020	2021	2022	Total
Home Performance Solutions	87,582	87,582	87,582	87,582	87,582	87,582	525,493
WarmChoice	68,515	68,515	68,515	68,515	68,515	68,515	411,088
HE HVAC Rebates	81,431	81,431	81,431	81,431	81,431	81,431	488,584
Energy Efficient New Homes	55,553	59,789	64,347	69,254	74,535	80,218	403,695
Home Energy Reports	336,000	344,000	351,000	354,000	354,000	354,000	2,093,000
Simple Energy Solutions	40,277	40,277	40,277	40,277	40,277	40,277	241,663
Student Education	13,226	13,226	13,226	13,226	13,226	13,226	79,355
On Line Audit	-	-	-	-	-	-	-
Innovative Energy Solutions	39,662	39,662	39,662	39,662	39,662	39,662	237,972
Energy Design Solutions	-	-	-	-	-	-	-
EPA Portfolio Manager	-	-	-	-	-	-	-
Totals	722,245	734,481	746,040	753,946	759,227	764,910	4,480,849

3. Columbia DSM Program Projected Budgets

Program	2017	2018	2019	2020	2021	2022	Total
Home Performance Solutions	\$ 7,369,691	\$ 7,621,030	\$ 7,757,603	\$ 8,019,555	\$ 8,167,033	\$ 8,365,611	\$ 47,300,524
WarmChoice	\$ 6,682,051	\$ 6,882,513	\$ 7,088,988	\$ 7,301,658	\$ 7,520,707	\$ 7,746,329	\$ 43,222,246
HE HVAC Rebates	\$ 2,474,613	\$ 2,511,614	\$ 2,479,126	\$ 2,547,162	\$ 2,515,739	\$ 2,584,874	\$ 15,113,129
Energy Efficient New Homes	\$ 2,850,140	\$ 2,943,908	\$ 3,210,465	\$ 3,330,773	\$ 3,625,866	\$ 3,776,857	\$ 19,738,010
Home Energy Reports	\$ 1,654,422	\$ 1,741,492	\$ 1,713,136	\$ 1,755,902	\$ 1,826,691	\$ 1,757,503	\$ 10,449,145
Simple Energy Solutions	\$ 811,456	\$ 853,611	\$ 825,980	\$ 868,570	\$ 841,388	\$ 884,440	\$ 5,085,444
Student Education	\$ 325,771	\$ 385,244	\$ 345,001	\$ 405,051	\$ 365,403	\$ 426,065	\$ 2,252,535
On Line Audit	\$ 349,349	\$ 198,135	\$ 199,459	\$ 200,823	\$ 202,227	\$ 203,674	\$ 1,353,668
Subtotal: Residential DSM	\$ 22,517,494	\$ 23,137,547	\$ 23,619,758	\$ 24,429,493	\$ 25,065,055	\$ 25,745,354	\$ 144,514,701
Innovative Energy Solutions	\$ 1,308,250	\$ 1,335,798	\$ 1,348,722	\$ 1,362,033	\$ 1,375,744	\$ 1,389,866	\$ 8,120,413
Energy Design Solutions	\$ 538,178	\$ 553,723	\$ 569,735	\$ 586,227	\$ 603,214	\$ 620,710	\$ 3,471,786
EPA Portfolio Manager	\$ 208,000	\$ 140,300	\$ 140,909	\$ 141,536	\$ 142,182	\$ 142,848	\$ 915,775
Subtotal: Commercial DSM	\$ 2,054,428	\$ 2,029,821	\$ 2,059,365	\$ 2,089,796	\$ 2,121,140	\$ 2,153,424	\$ 12,507,975
DSMSG Support/DSM Planning	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 420,000
Admin (non-program specific)	\$ 556,300	\$ 572,989	\$ 590,179	\$ 607,884	\$ 626,121	\$ 644,904	\$ 3,598,377
Total : selected programs	\$ 25,198,222	\$ 25,810,356	\$ 26,339,302	\$ 27,197,174	\$ 27,882,316	\$ 28,613,682	\$ 161,041,052
Total Budget	\$ 25,198,222	\$ 25,810,356	\$ 26,339,302	\$ 27,197,174	\$ 27,882,316	\$ 28,613,682	\$ 161,041,052
WarmChoice Base Funding	\$ 7,100,000	\$ 7,100,000	\$ 7,100,000	\$ 7,100,000	\$ 7,100,000	\$ 7,100,000	\$ 42,600,000
Total Budget with WC Base	\$ 32,298,222	\$ 32,910,356	\$ 33,439,302	\$ 34,297,174	\$ 34,982,316	\$ 35,713,682	\$ 203,641,052

4. Columbia DSM Gas Cost Projections

Year Number	Year	Nominal Cost of Gas, \$/Mcf
1	2017	\$ 5.90
2	2018	\$ 6.45
3	2019	\$ 6.86
4	2020	\$ 7.33
5	2021	\$ 7.50
6	2022	\$ 7.67
7	2023	\$ 7.94
8	2024	\$ 8.15
9	2025	\$ 8.37
10	2026	\$ 8.73
11	2027	\$ 8.84
12	2028	\$ 8.96
13	2029	\$ 9.13
14	2030	\$ 9.23
15	2031	\$ 9.65
16	2032	\$ 10.03
17	2033	\$ 10.42
18	2034	\$ 10.82
19	2035	\$ 11.19
20	2036	\$ 11.58
21	2037	\$ 11.88
22	2038	\$ 12.34
23	2039	\$ 13.09
24	2040	\$ 14.04
25	2041	\$ 14.52
26	2042	\$ 15.02
27	2043	\$ 15.53
28	2044	\$ 16.07
29	2045	\$ 16.63
30	2046	\$ 17.21
31	2047	\$ 17.81
32	2048	\$ 18.43
33	2049	\$ 19.09
34	2050	\$ 19.76
35	2051	\$ 20.47
36	2052	\$ 21.20
37	2053	\$ 21.96
38	2054	\$ 22.75
39	2055	\$ 23.58

APPENDIX C

History of Columbia's DSM Program

Beginning with Operation HomeCheck, Columbia has been a leader among Ohio utilities in developing energy efficiency and weatherization programs over the past three decades. Established in 1983, Operation HomeCheck represented Columbia's first partnership with the Corporation for Ohio Appalachian Development ("COAD") and the Ohio Association of Community Action Agencies, or OACAA (community-based, non-profit organizations) and provided income-eligible customers with innovative, computerized in-home energy audits. Operation HomeCheck developed the capacity to perform more than 11,000 home energy audits annually in Columbia's service territory. Columbia and its partners further developed the energy audit program in 1986 by adding a low-cost weatherization component. The Columbia Gas of Ohio Weatherization Program provided both energy education and material installation services for eligible customers.

Columbia continued its energy efficiency partnership with the community action network in Ohio (the operators of USDOE's Home Weatherization Assistance program) by continuing to collaborate with COAD and OACAA, while adding Mid-Ohio Regional Planning Commission ("MORPC"), Neighborhood Housing Services of Toledo ("NHST"), and Lorain County Community Action Agency ("LCCAA"), as well as the State of Ohio's Department of Development, Office of Energy Efficiency, in a major effort that resulted in the creation of the innovative WarmChoice® program in 1987. WarmChoice® is Columbia's whole-house weatherization program for income-eligible customers. The goal of the program is to provide eligible customers with a complete set of weatherization measures, including attic, wall, floor, duct and pipe insulation, air sealing, water heater repairs and replacements, and furnace repairs and replacements, to help this segment of its customers manage their energy use, and consequently, save on utility bills. Additionally, the program focuses on health and safety to help ensure that low-income residents within Columbia's service territory are insulated from the dangers of antiquated, unsafe heating equipment despite income limitations. Since its inception in 1987, WarmChoice® has served over 63,000 households. In order to achieve these results, Columbia contracts with four community-based organizations to manage and operate the program.

2009-2011 DSM Program

Columbia expanded its weatherization efforts with its DSM Pilot Program. On January 23, 2008, the Commission issued an Opinion and Order in Case No. 05-221-GA-GCR, *et al.*, adopting the December 28, 2007 Joint Stipulation and Recommendation (“Stipulation”). Pursuant to the stipulation, the parties agreed that by July 1, 2008, Columbia would file a DSM application cooperatively developed by Columbia, the OCC, Staff and other stakeholders for approval of comprehensive energy efficiency programs for residential and commercial customers. The Stipulation allowed a DSM Program funding increase of \$1 million in 2010 and 2011, provided energy efficiency targets were met.

On July 3, 2008, Columbia filed an application in Case No. 08-833-GA-UNC requesting approval of a Demand Side Management Program for residential and commercial customers. In partnership with the DSM Stakeholder Group, Columbia developed an innovative and comprehensive portfolio of energy efficiency programs. The programs included:

- WarmChoice®, the company’s whole house weatherization program for income-eligible customers.
- Home Performance Solutions, which provides low-cost diagnostic energy audits and rebates to customers to help offset the cost of energy efficiency upgrades.
- Simple Energy Solutions, which provides instant discounts on energy efficient programmable thermostats and showerheads through Columbia’s on-line, e-store, or a rebate available through a mail-in form for items purchased at local hardware or home improvement stores.
- New Home Solutions which, in coordination with AEP Ohio, provides incentives for Ohio homebuilders to exceed the state minimum energy code.
- The Ohio Small Business Energy Saver program, which provided on-line energy audits to commercial customers through a collaboration with the Ohio Department of Development and other investor-owned utilities.
- Energy Design Solutions, through which Columbia provided continuing education seminars on how to exceed the minimum commercial building energy efficiency code.
- Innovative Energy Solutions, which provided rebates to non-profits, houses of worship, schools, and other commercial customers for energy audits and energy conservation measures.

APPENDIX D

Recent DSM Awards

2016 Energy Star Certified Homes Market Leader Award, EfficiencyCrafted® Homes

2016 EPA Partner of the Year - Sustained Excellence in Energy Efficiency Program Delivery, EfficiencyCrafted® Homes

2015 Energy Star Certified Homes Market Leader Award, EfficiencyCrafted® Homes

2015 EPA Partner of the Year - Sustained Excellence in Energy Efficiency Program Delivery, EfficiencyCrafted® Homes

2015 Building Industry Association (BIA) of Central Ohio Marketing and Merchandising Excellence - Exceptional Digital Media Campaign, Efficiency Crafted Homes

2015 BIA of Central Ohio Marketing and Merchandising Excellence - Most Successful One-Time Event, EfficiencyCrafted® Homes

2015 SIA (Service Industry Advertising Association) Silver Award for Total Ad Campaign, EfficiencyCrafted® Homes

2014 National Local Media Association's Best New Local Contest, 3rd Place Nationally, Home Makeover Contest, Home Performance Solutions

2014 EPA Partner of the Year - Sustained Excellence Partner of the Year, Efficiency Crafted Homes

2014 BIA of Central Ohio, 27th Annual Marketing and Merchandising Excellence Awards, Best Environmental Marketing Award, EfficiencyCrafted® Homes ECH won a 2014 Platinum MarCom award in the Website/Informational category for the program's website

2014 Gold MarCom Award, Marketing/Promo Campaign/Branding Refresh Category, EfficiencyCrafted® Homes

2014 Midwest Energy Efficiency Alliance, Inspiring Efficiency Impact Award WarmChoice®

2013 American Council for an Energy Efficient Economy, Exemplary Program Award, Home Performance Solutions

2013 American Council for an Energy Efficient Economy, Exemplary Program Award, WarmChoice®

2013 EPA Partner of the Year Award, EfficiencyCrafted® Homes

2012 EPA Energy Star Partner of the Year Award, EfficiencyCrafted® Homes

2012 BIA of Central Ohio Association, Best On-site Outdoor Signage and Best Green Environmental Marketing, EfficiencyCrafted® Homes

2012 Alliance to Save Energy's "Stars of Energy Efficiency" for COAD's "Weatherize Murray City" project sponsored by Columbia Gas of Ohio, WarmChoice® and Home Performance Solutions

2011 Affordable Comfort, Inc. (ACI) recognized Jack Laverty as one of 25 people in the nation who have been instrumental in building the weatherization and energy efficiency industry and community.

Other Awards:

2004 Governor's Award for Excellence in Energy Efficiency, WarmChoice®

2004 American Council for an Energy Efficient Economy, Exemplary Low-income Program Award, WarmChoice®

APPENDIX E

Non-Energy Benefits Bibliography

- 1) National Resources Defense Council (NRDC) report from April, 2015 (R:15-01-B), "Bridging the Clean Energy Divide: Affordable Clean Energy Solutions for Today and Tomorrow."
- 2) "LET'S DO BETTER COST-EFFECTIVENESS ANALYSIS" Midwest Energy Solutions Conference, January 17, 2013, Rebecca Stanfield, NRDC.
- 3) CPUC Presentation, "California's Experience in Incorporating Non-Energy Benefits into Cost-Effectiveness Tests" presented by Joy Morgenstern - Senior Regulatory Analyst, International Energy Agency (IEA). Conference, October 16, 2013. (Includes range estimates for many individual NEBs and a roll-up value for all NEBs.)
- 4) American Council for an Energy Efficient Economy (ACEEE) report entitled, 'Recognizing the Multiple Benefits of Energy Efficiency', Christopher Russell, Brendon Baatz, Rachel Cluett, and Jennifer Amann, December, 2015 (Report IE1502). (Includes NEB estimates for building owners, expressed as % of bill savings, with range estimates.)
- 5) Job Multipliers from DSM appear in the following references:
 - i) Zabin and Scott (2013), estimate employment impacts from California's Proposition 39, from previous IO studies that 6.2 direct and 2.3 indirect and induced jobs are created per \$1 million in DSM investment.
 - ii) District of Columbia Sustainable Energy Utility (DCSEU D. Nichols and J. Supp) estimates jobs created under the ARRA uses a rule-of-thumb estimate of 5 jobs per \$1 million of investment, or total direct incentives paid divided by \$200,000.
 - iii) TVA commissioned Deloitte Consulting to conduct a predictive analysis of economic and job creation impacts from its DSM Program using the IMPLAN model, from which it determined a multiplier of 8 jobs per \$1 million of DSM spending.
 - iv) Pinnacle Economics calculated total gross job impacts for the Energy Trust of Oregon as being approximately 8.4 jobs per \$1 million (2014).
 - v) An OECD/IEA report – Capturing the Multiple Benefits of Energy Efficiency (2014) provided range estimates of between 7 and 22 jobs per

\$1m euro-dollars invested in DSM resources , or about 6-19 jobs when converted into \$US.

- 6) Some of the best summaries of NEBs appearing in the literature can be found in papers and studies authored (or co-authored) by Lisa Skumatz, including an article published in the Electricity Journal entitled, "Efficiency Programs Non-Energy Benefits: How States Are Finally Making Progress in Reducing Bias in Cost-Effectiveness Tests", Electricity Journal, October 2015.
- 7) Another paper co-authored by Skumatz (and Karen Imbierowicz) is entitled, "The Most Volatile Non-Energy Benefits (NEBs): New Research Results Homing In. on Environmental and Economic Impacts", w/, Skumatz Economic Research Associates, Inc., Skumatz Economic Research Associates, Inc. (SERA).
- 8) Publications by Synapse Energy Economics, Inc. including, "Benefit-Cost Analysis for Distributed Energy Resources A framework for Accounting for All Relevant Costs and Benefits", prepared for the Advanced Energy Economy Institute, September 22, 2014.
- 9) "Unleashing Energy Efficiency" co-authored by Tim Woolf, Erin Malone, Chris Neme and Robin LeBaron in Public Utilities Fortnightly, October, 2014. (This article presents a reporting template for an expanded Resource Value Framework (RVF) for B/C screening studies of DSM that includes NEBs reporting.)
- 10) "Capturing the Multiple Benefits of Energy Efficiency", released by the International Energy Agency (IEA), serving as a handbook (of sorts) for the estimation of NEBs, published in 2014. (This publication gives a more European perspective on NEBs than what is found in the U.S. publications.)

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Summary: Application to Continue its Demand Side Management Program electronically filed by Cheryl A MacDonald on behalf of Columbia Gas of Ohio, Inc.

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in

Case No(s). 17-2168-GA-CSS

Summary: Testimony of Melissa Thompson Attachment D electronically filed by Cheryl A MacDonald on behalf of Columbia Gas of Ohio, Inc.