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BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

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

Case No. 09-512-GE-UNC

PROPOSED PREDETERMINED VALUES AND PROTOCOLS 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.

Pursuant to the Public Utility Commission of Ohio's Entries of June 24 and July 14, 2009, 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 the attached proposed predetermined values and protocols, in the format set forth in Revised Appendix B.

As the Public Utility Commission of Ohio ("Commission")'s consultant, Vermont Energy Investment Corporation (VEIC), works to incorporate the Utilities' attached proposed values and protocols into a Technical Reference Manual (TRM), the Gas Utilities encourage the Commission and VEIC to preserve the flexibility that is embodied in the Commission's Revised Appendix B. As the Gas Utilities stated in their Joint Comments Regarding Appendix B (submitted July 15, 2009), the methodologies to value the gas energy efficiency and demand reduction problems must be flexible because of the different service characteristics in each of the Gas Utilities' service territories and because each Gas Utility offers different energy efficiency programs. Moreover, each Utility should have the option to choose either a deemed savings measure, a deemed calculated savings measure, or the savings from an impact evaluation study to determine the cost-effectiveness of each of their energy efficiency measures. Some utilities

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may select the deemed savings approach because of its lower administrative costs, while other utilities may prefer the increased accuracy of the deemed calculated approach or a specific impact evaluation study from a measurement and verification analysis. Either way, each Gas Utility would apply to the Commission for approval of their choice.

In drafting the TRM, the Commission should also maintain its current consideration of the environmental savings associated with each energy efficiency measure. The Commission's Revised Appendix B added several new data requirements for deemed savings measures and deemed calculated savings measures. Among these are carbon dioxide emissions reductions. The Gas Utilities support the Commission's consideration of environmental benefits, because consideration of each energy efficiency measure's emission savings will help ensure that the Total Resource Cost (TRC) test will capture the true benefits of each proposed measure.

Capturing the true benefits of each proposed energy efficiency measure will become increasingly important if Congress enacts the energy efficiency mandates it is currently considering. The American Clean Energy and Security (ACES) Act passed by the U.S. House of Representatives this past June would establish a cap-and-trade system for greenhouse gas emission allowances. As many as 9% of the greenhouse gas emission allowances established for each year would be allocated to natural gas local distribution companies, with the requirement that the companies use the value of those allowances for the benefit of natural gas consumers. See H.R. 2454, 111th Cong. § 321, Proposed Clean Air Act § 782(b) (2009). In particular, natural gas local distribution companies would be required to use "[t]he value of no less than one third of the emission allowances distributed to natural gas local distribution companies [under that program] in any calendar year . . . for cost-effective energy efficiency programs[.]" *Id.* § 784(c)(5). The energy efficiency programs would need to meet the appropriate cost

effectiveness tests, taking into consideration “avoided supply and delivery costs and deferred or avoided investments,” along with other factors. *Id.* §§ 784(a)(1) and 784(c)(5). The climate change bill recently introduced by Senators Kerry and Boxer contains nearly identical requirements. See S. 1733, 111th Cong. § 111, Proposed Clean Air Act § 773(c).

Before any natural gas local distribution company’s energy efficiency expenditures could be used to satisfy the ACES Act’s mandates, this Commission would need to “authorize[] and oversee[]” the energy efficiency programs and either “promulgate[] a regulation or complete[] a public rate proceeding” to implement the Act’s requirements. H.R. 2454, 111th Cong. § 321, Proposed Clean Air Act §§ 784(c)(5) and 784(d)(1)(A). Thus, assuming Congress adopts the ACES Act in something like its current form, the Commission will ultimately determine which expenditures will fulfill the federal energy efficiency mandates. The Gas Utilities encourage the Commission to adopt implementing regulations that will take into consideration the full range of benefits associated with the Gas Utilities’ energy efficiency measures, including environmental benefits. A broad consideration of the benefits associated with each proposed energy efficiency measure will ensure that the Gas Utilities will be able to meet the federal expenditure requirements.

For similar reasons, the Gas Utilities also encourage the Commission to allow the Gas Utilities to “bank” the benefits of their recent energy efficiency expenditures to fulfill the federal mandates, to the extent permitted by the U.S. Environmental Protection Agency’s ultimate implementing regulations for the ACES Act. The number of energy efficiency measures found to be cost-effective under the appropriate cost effectiveness tests will necessarily be limited. The number of residences and businesses at which those measures can be implemented will also, of necessity, be limited. Thus, any energy efficiency measures that the Gas Utilities undertake

before the federal mandates go into effect (2015, according to the ACES Act (*see id.*, § 321, Proposed Clean Air Act § 784(b))) will lessen the Gas Utilities' ability to fulfill those mandates in the future. Without some assurance from the Commission that the Gas Utilities will be able to preserve the benefit of their current and near-term energy efficiency efforts, the Gas Utilities will have an incentive to idle their energy efficiency programs until the federal mandates go into effect. The Gas Utilities would therefore welcome the Commission's support for "banking" of the Gas Utilities' expenditures to fulfill at least a portion of the eventual federal greenhouse gas emission legislation's requirements.

Respectfully submitted,

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The Gas Utilities'
Proposed Values and Protocols

Case No. 09-512-GE-UNC

Deemed Savings Measures

Efficient Technology, Measure, or Practice Residential	Program Delivery Mechanism	Applicability Conditions Required for Use of Values
1 Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to: * Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL)	Audit; Direct Install; Education	Customer must be a participant in the Low Income Gas Weatherization program
2 Attic Insulation	Home Performance Retrofit	Res HH with attic R<=19
3 Attic Insulation	Low Income Weatherization	WC HH with attic R<=19
4 Audit and Installed Savings	Direct Install	Retrofit
5 Blower Door-Guided Air Sealing	Home Performance Retrofit	Res HH w/house air leakage >1500 CFM50
6 Blower Door-Guided Air Sealing	Low Income Weatherization	WC HH w/house air leakage >1500 CFM50
7 Blower Door-Guided Duct Sealing	Low Income Weatherization	WC HH w/leaky ducts outside conditioned space
8 Boiler 90% AFUE or More	Rebate	Retrofit, New Construction
9 Boiler Replacement 80%-85%	Rebate	Retrofit, New Construction

The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

Efficient Technology, Measure, or Practice Residential	Efficient Technology, Measure, or Practice Per Unit Efficiency//Use
1 Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to:	Efficient direct install measures and services are identified using the NEAT audit. Additional cost effective measures (with SIR > 1.5) using the NEAT audit where the energy savings pay for the measure over the life of the measure as determined by a standard heat loss/economic calculation (NEAT audit) utilizing the cost of gas and electric (retail) as provided by Duke Energy.
* Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL)	
Bulbs * Low-flow shower heads and aerators * Weather-stripping doors & windows * Installation of Smoke Detectors & CO monitors * Attic insulation * Wall insulation * Crawl space insulation * Floor insulation * Stil box insulation	
2 Attic Insulation 3 Attic Insulation 4 Audit and Installed Savings 5 Blower Door-Guided Air Sealing 6 Blower Door-Guided Air Sealing 7 Blower Door-Guided Duct Sealing 8 Boiler 90% AFUE or More 9 Boiler Replacement 80%-85%	0.034 th/ft ² 0.034 th/ft ² Reduced infiltration (350 Thems/unit) Energy Savings 2600 CFM50 = 182 th/yr 2550 CFM50 = 179 th/yr 5% leakage fraction 90% AFUE (81 Thems/unit) Energy Savings Energy Efficient 85% (40 Thems/ Unit) Energy Savings

The Gas Utilities'
Proposed Values and Protocols
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Deemed Savings Measures	Efficient Technology, Measure, or Practice Residential	Efficient Technology, Measure, or Practice In Service Date	Efficient Technology, Measure, or Practice Effective Life	Efficient Technology, Measure, or Practice installed or recommended by the NEAT audit tool.	Annual Operating Hours
1 Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to:	N/A	Vary by type of measure or equipment installed or recommended by the NEAT audit tool.	Vary by type of measure or equipment installed or recommended by the NEAT audit tool.	N/A	N/A
* Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL)					
Bulbs					
* Low-flow shower heads and aerators * Weather-stripping doors & windows * Installation of Smoke Detectors & CO monitors * Attic insulation * Wall insulation * Crawl space insulation * Floor Insulation * Sill box insulation					
2 Attic Insulation 3 Attic Insulation 4 Audit and Installed Savings 5 Blower Door-Guided Air Sealing 6 Blower Door-Guided Air Sealing 7 Blower Door-Guided Duct Sealing 8 Boiler 90% AFUE or More 9 Boiler Replacement 80%-85%	2010 2010 2010 2010 2010 2010 2010 2010	2010 2010 2010 2010 2010 2010 2010 2010	20 20 20 20 20 20 20 20	N/A N/A N/A N/A N/A N/A N/A N/A	

The Gas Utilities'

Proposed Values and Protocols
Case No. 09-512-GE-JNC

Deemed Savings Measures

	Efficient Technology, Measure, or Practice <u>Residential</u>	Efficient Technology, Measure, or Practice Weather Normalization	Efficient Technology, Measure, or Practice Degree Days	Efficient Technology, Measure, or Practice Seasonal Cooling Degree Days	Efficient Technology, Measure, or Practice Seasonal Heating Degree Days	Efficient Technology, Measure, or Practice Seasonal Heating Degree Days
1	<p>Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to:</p> <ul style="list-style-type: none"> * Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL) 	"NEAT and MHEA use engineering calculations and weather data from one of 216 weather cities in the U.S. to compute the annual heat loss and heat gain of the home, and the annual space heating and space-cooling energy consumption required to keep the home at a specific thermostatic set point. Both programs calculate heat loss and heat gain on a monthly basis using a variable-base degree-day method and ten-year average weather data for the selected city." (2)		Calculated by the NEAT audit tool. (2)	Calculated by the NEAT audit tool. (2)	
2	Attic Insulation	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
3	Attic Insulation	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
4	Audit and Installed Savings	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
5	Blower Door-Guided Air Sealing	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
6	Blower Door-Guided Duct Sealing	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
7	Boiler 90% AFUE or More	Yes, scale w/HDD	N/A	4113 HDD60	4113 HDD60	
8	Boiler Replacement 80%-85%					
9						

The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

	Efficient Technology, Measure, or Practice	Baseline Technology, Measure, or Practice	Baseline Technology, Measure, or Practice	Baseline Technology, Measure, or Practice	Baseline Technology, Measure, or Practice
Residential					
1	<p>Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to:</p> <ul style="list-style-type: none"> * Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL) 	<p>Any currently installed equipment or measures at the time of the weatherization audit.</p>	<p>Calculated by the NEAT audit tool. (2)</p>	N/A	15 years
2	<p>Attic Insulation</p>	<p>Attics: 20% R-0, 40% R-0.118 th/ft²</p>	<p>Attics: 20% R-0, 40% R-0.118 th/ft²</p>	<p>2030</p>	20
3	<p>Attic Insulation</p>	<p>Attics: 20% R-0, 40% R-0.118 th/ft²</p>	<p>Standard infiltration</p>	<p>2030</p>	20
4	<p>Audit and Installed Savings</p>	<p>Leaky Home ~ 3800</p>	<p>3800 CFM50=286 th/yr</p>	<p>2030</p>	15
5	<p>Blower Door-Guided Air Sealing</p>	<p>Leaky Home ~4200</p>	<p>4200 CFM50 = 294 th/yr</p>	<p>2030</p>	20
6	<p>Blower Door-Guided Duct Sealing</p>	<p>Ducts</p>	<p>12% leakage fraction</p>	<p>2030</p>	20
7	<p>Boiler 90% AFUE or More</p>	<p>80% AFUE</p>	<p>Standard 80% AFUE</p>	<p>2030</p>	20
8	<p>Boiler Replacement 80%-85%</p>				20
9					

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Deemed Savings Measures

Efficient Technology, Measure, or Practice Residential	Annual Measure Savings (kWh)	Annual Measure Savings (therms)	Coincidence Factor (electric)	Electric Demand Savings (kW)
1 Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to: * Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL) Bulbs * Low-flow shower heads and aerators * Weather-stripping doors & windows * Installation of Smoke Detectors & CO monitors * Attic insulation * Wall insulation * Craw space insulation * Floor insulation * Sill box insulation	N/A	150 (1)	N/A	N/A
2 Attic Insulation	85	85	N/A	N/A
3 Attic Insulation	85	85	N/A	N/A
4 Audit and Installed Savings	N/A	350	N/A	N/A
5 Blower Door-Guided Air Sealing	84	84	N/A	N/A
6 Blower Door-Guided Air Sealing	115	115	N/A	N/A
7 Blower Door-Guided Duct Sealing	22	45	N/A	N/A
8 Boiler 90% AFUE or More	N/A	81	N/A	N/A
9 Boiler Replacement 80%-85%	N/A	40	N/A	N/A

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Deemed Savings Measures	Efficient Technology, Measure, or Practice	Gas Demand Savings (therms/day)	Carbon Dioxide Emissions Reductions (Tons/Year)	Incremental Capital Cost (\$/Unit)	Incremental Annual O&M Cost (\$/Unit)
	Residential				
1	Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to:	150/151=.99 for the heating season	N/A	To Be Determined	To Be Determined
	* Furnace Tune-up & Cleaning				
	* Furnace replacement if investment in repair over \$500				
	* Venting check & repair				
	* Waterbed mattress covers				
	* Water Heater Wrap for Duke supplied water heaters				
	* Pipe Wrap				
	* Cleaning of refrigerator coils				
	* Cleaning of dryer vents				
	* Energy Star Compact Fluorescent Light (CFL)				
	Bulbs				
	* Low-flow shower heads and aerators				
	* Weather-stripping doors & windows				
	* Installation of Smoke Detectors & CO monitors				
	* Attic insulation				
	* Wall insulation				
	* Crawl space insulation				
	* Floor insulation				
	* Sill box insulation				
2	Attic insulation	N/A	0.47	\$600	\$0
3	Attic insulation	N/A	0.47	\$600	\$0
4	Audit and Installed Savings	0.96	N/A	\$900.00	
5	Blower Door-Guided Air Sealing	0.46	N/A	\$450	\$0
6	Blower Door-Guided Air Sealing	0.63	N/A	\$450	\$0
7	Blower Door-Guided Duct Sealing	0.25	N/A	\$350	\$0
8	Boiler 90% AFUE or More	0.22	N/A	\$130.95	?
9	Boiler Replacement 80%-85%	0.11			

**The Gas Utilities'
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Deemed Savings Measures

Efficient Technology, Measure, or Practice <u>Residential</u>	Incremental Periodic Capital Replacement Cost & Schedule	Sources of Information
1 Low Income Weatherization Program: Offers Tier 1 and Tier 2 weatherization services to qualifying gas customers. Measures may include but not be limited to: * Furnace Tune-up & Cleaning * Furnace replacement if investment in repair over \$500 * Venting check & repair * Waterbed mattress covers * Water Heater Wrap for Duke supplied water heaters * Pipe Wrap * Cleaning of refrigerator coils * Cleaning of dryer vents * Energy Star Compact Fluorescent Light (CFL) Bulbs * Low-flow shower heads and aerators * Weather-stripping doors & windows * Installation of Smoke Detectors & CO monitors * Attic insulation * Wall insulation * Crawl space insulation * Floor insulation * Sill box insulation	To Be Determined	(1): "Evaluation of Cinergy's Low Income Natural Gas Weatherization Program" provided by TecMRKT Works for Cinergy. (2): http://weatherization.ornl.gov/WeatherizationAssistantFeatures.htm
2 Attic Insulation 3 Attic Insulation 4 Audit and Installed Savings 5 Blower Door-Guided Air Sealing 6 Blower Door-Guided Duct Sealing 7 Blower 90% AFUE or More 8 Boiler Replacement 80%-85% 9	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Engineering Modelling by M Blasnik Engineering Modeling by M Blasnik Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep Engineering Modelling by M Blasnik Engineering Modelling by M Blasnik Engineering Modelling by M Blasnik (WECC) & Centerpoint Energy-Triennial CIP/DSM 2010-2012 CenterpointEnergy-Triennial CIP/DSM Plan 2010-2012

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Deemed Savings Measures

Efficient Technology, Measure, or Practice	Program Delivery Mechanism	Applicability Conditions Required for Use of Values
10 Ceiling Insulation R11-R38	Direct Install	Retrofit
11 Ceiling Insulation R30-R38	Direct Install	Retrofit
12 Condensing Gas Water Heater	Rebate	Retrofit, New Construction
13 Duct Insulation	Low Income Weatherization Rebate	WC HH w/uninsulated ducts outside conditioned space New Construction
14 Energy Efficiency New Construction ES 70	Rebate	New Construction
15 Energy Efficiency New Construction ES 85	Rebate	Retrofit, New Construction
16 Energy Efficient Clothes Dryer	Rebate	Retrofit, New Construction
17 Energy Efficient Clothes Washer	Rebate	Retrofit, New Construction
18 Energy Efficient Water heating .60 to .65	Rebate	Retrofit, New Construction
19 Energy Efficient water heating .60 to .67	Rebate	Retrofit, New Construction
20 Energy Efficient Windows 100 sf Windows	Rebate	Retrofit
21 Floor Basement Insulation	Direct Install	WC HH w/uninsulated floor over crawlspace
22 Floor Insulation	Low Income Weatherization	Retrofit, New Construction
23 Furnace 80% to 94% AFUE	Rebate	Retrofit, New Construction
24 Furnace 80% to 96% AFUE	Rebate	Retrofit, New Construction
25 Furnace 92% AFUE or More	Rebate	Retrofit, New Construction
26 Furnace Tune-up	Rebate	WC HH w/unsafe irreparable gas boiler
27 High-efficiency Gas Boilers	Low Income Weatherization	Res HH planning to replace older gas furnace
28 High-efficiency Gas Furnace	Home Performance Retrofit	WC HH w/unsafe irreparable gas furnace
29 High-efficiency Gas Furnaces	Low Income Weatherization	Retrofit
30 Home Performance Base Pkg	Direct Install	Retrofit
31 Home Performance Extensive Pkg	Direct Install	Retrofit
32 Low Flow Fixtures Aerators	Direct Install	Retrofit
33 New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	Residential New Construction Rebate/Kit	New SF home at design stage
34 Online Audit and Water Heating Savings Kit		Retrofit
35 Power Vented Water Heater	Low Income Weatherization	WC HH w/unsafe/inoperable irreparable gas DHW and poor vent
36 Programmable Thermostat	Direct Install	Retrofit, New Construction
37 Programmable Thermostat	Home Performance Retrofit	Res HH w/ interest in setback thermostat
38 Programmable Thermostat	Law Cost Rebate Program	Res HH w/ interest in setback thermostat
39 Programmable Thermostat	Low Income Weatherization	WC HH w/ interest in setback thermostat

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Deemed Savings Measures

		Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice Per Unit Efficiency/Use
10	Ceiling Insulation R11-R38	Upgrade to R-38 (78 Thems/unit) Energy savings	
11	Ceiling Insulation R30-R38	Upgrade to R-38 (39 Thems/ unit) Energy Savings	
12	Condensing Gas Water Heater	Condensing storage unit .86EF (.76 Thems/unit) energy savings	
13	Duct Insulation	93% conduction efficiency	
14	Energy Efficiency New Construction ES 70	Energy Star home (416 Thems/unit) Energy savings ES 70	
15	Energy Efficiency New Construction ES 85	Energy Star home (208 Thems/unit) Energy savings ES 85	
16	Energy Efficient Clothes Dryer	Energy efficient clothes dryer (13 Thems/ unit) Energy Savings	
17	Energy Efficient Clothes Washer	Energy efficient clothes washer (.30 Thems/ Unit) Energy savings	
18	Energy Efficient Water heating .60 to .65	Energy efficient gas water heater .65 EF (20 Thems/unit) Energy Savings	
19	Energy Efficient water heating .60 to .67	Energy efficient gas water heater .67 EF (26 Thems/ unit) energy savings	
20	Energy Efficient Windows 100 sf Windows	U Value .45 BTU/SF (98 Thems/ unit) Energy Savings	
21	Floor Basement Insulation	Basement floor insulation (98 Thems/ Unit) Energy Savings 0.05 th/ft ²	
22	Floor Insulation	Energy Efficient 94% AFUE (102 Thems/ unit) Energy Savings	
23	Furnace 80% to 94% AFUE	Energy Efficient 96% AFUE (115 Thems / unit) Energy Savings	
24	Furnace 80% to 96% AFUE	92% AFUE (90 Thems/unit) Energy Savings	
25	Furnace 92% AFUE or More	Annual Tune-up (40 Thems/ unit) Energy Savings	
26	Furnace Tune-up	86% AFUE	
27	High-efficiency Gas Boilers	92% AFUE	
28	High-efficiency Gas Furnace	92% AFUE	
29	High-efficiency Gas Furnaces	Energy Star home (200 Thems/unit) Energy Savings	
30	Home Performance Base Pkg	Energy Star home (250 Thems/unit) Energy Savings	
31	Home Performance Extensive Pkg		
32	Low Flow Fixtures Aerators	Low flow fixtures, showerheads rated at 2. gpm (29 Thems/unit) Energy savings	
33	New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	575 th/yr	
34	Online Audit and Water Heating Savings Kit	Water savings kit/On-line Audit (30 Thems/ unit) Energy Savings	
35	Power Vented Water Heater	EF 0.61	
36	Programmable Thermostat	Programmable thermostat (35 Thems/unit) Energy Savings	
37	Programmable Thermostat	N/A	
38	Programmable Thermostat	N/A	
39	Programmable Thermostat	N/A	

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Deemed Savings Measures

Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice In Service Date	Efficient Technology, Measure, or Practice Effective Life	Efficient Technology, Measure, or Practice Annual Operating Hours
Efficient Technology, Measure, or Practice			
10 Ceiling Insulation R11-R38			
11 Ceiling Insulation R30-R38			
12 Condensing Gas Water Heater			
13 Duct Insulation	2010	20	N/A
14 Energy Efficiency New Construction ES 70			
15 Energy Efficiency New Construction ES 85			
16 Energy Efficient Clothes Dryer			
17 Energy Efficient Clothes Washer			
18 Energy Efficient Water heating .60 to .65			
19 Energy Efficient water heating .60 to .67			
20 Energy Efficient Windows 100 sf Windows			
21 Floor Basement Insulation	2010	20	N/A
22 Floor Insulation			
23 Furnace 80% to 94% AFUE			
24 Furnace 80% to 96% AFUE			
25 Furnace 92% AFUE or More			
26 Furnace Tune-up			
27 High-efficiency Gas Boilers	2010	20	N/A
28 High-efficiency Gas Furnace	2010	20	N/A
29 High-efficiency Gas Furnaces	2010	20	N/A
30 Home Performance Bass Pkg			
31 Home Performance Extensive Pkg			
32 Low Flow Fixtures Aerators			
33 New Home Designed 50% of 2004 IECC Use / Tax Credit Quality	2010	20	N/A
34 Online Audit and Water Heating Savings Kit			
35 Power Vented Water Heater	2010	12	N/A
36 Programmable Thermostat			
37 Programmable Thermostat	2010	10	N/A
38 Programmable Thermostat	2010	10	N/A
39 Programmable Thermostat	2010	10	N/A

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Deemed Savings Measures

	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice Weather Normalization	Efficient Technology, Measure, or Practice Seasonal Cooling Degree Days	Efficient Technology, Measure, or Practice Seasonal Heating Degree Days
10	Efficient Technology R11-R38			
11	Ceiling Insulation R30-R38			
12	Condensing Gas Water Heater			
13	Duct Insulation	Yes, scale w/HDD	N/A	4113 HDD60
14	Energy Efficiency New Construction ES 70			
15	Energy Efficiency New Construction ES 85			
16	Energy Efficient Clothes Dryer			
17	Energy Efficient Clothes Washer			
18	Energy Efficient Water heating .60 to .65			
19	Energy Efficient water heating .60 to .67			
20	Energy Efficient Windows 100 sf Windows			
21	Floor Basement Insulation	Yes, scale w/HDD	N/A	4113 HDD60
22	Floor Insulation			
23	Furnace 80% to 94% AFUE			
24	Furnace 80% to 96% AFUE			
25	Furnace 92% AFUE or More			
26	Furnace Tune-up			
27	High-efficiency Gas Boilers	Yes, scale w/HDD	N/A	4113 HDD60
28	High-efficiency Gas Furnace	Yes, scale w/HDD	N/A	4113 HDD60
29	High-efficiency Gas Furnaces	Yes, scale w/HDD	N/A	4113 HDD60
30	Home Performance Base Pkg			
31	Home Performance Extensive Pkg			
32	Low Flow Fixtures Aerators			
33	New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	Yes, scale w/HDD	N/A	4113 HDD60
34	Online Audit and Water Heating Savings Kit			
35	Power Vented Water Heater	No	N/A	4113 HDD60
36	Programmable Thermostat	Yes, scale w/HDD	N/A	4113 HDD60
37	Programmable Thermostat	Yes, scale w/HDD	N/A	4113 HDD60
38	Programmable Thermostat	Yes, scale w/HDD	N/A	4113 HDD60
39	Programmable Thermostat	Yes, scale w/HDD	N/A	4113 HDD60

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Deemed Savings Measures

		Baseline Technology, Measure, or Practice			
		Baseline Technology, Measure, or Practice	Measure, or Practice	Retirement/Replaceme nt Date	Measure, or Practice
		Per Unit Efficiency/Use			Effective Life
10	Ceiling Insulation R11-R38	R11 Insulation		20	
11	Ceiling Insulation R30-R38	R-30 Insulation		20	
12	Condensing Gas Water Heater	Conventional gas		13	
13	Duct Insulation	Uninsulated ducts outside conditioned	86% conduction efficiency	2030	20
14	Energy Efficiency New Construction ES 70	Standard Home		20	
15	Energy Efficiency New Construction ES 85	Standard Home		20	
16	Energy Efficient Clothes Dryer	Standard Dryer		15	
17	Energy Efficient Clothes Washer	Standard Washer		15	
18	Energy Efficient Water heating .60 to .65	Conventional gas		13	
19	Energy Efficient water heating .60 to .67	Conventional gas		13	
20	Energy Efficient Windows 100 sf Windows	U value 1.1 BTU/SF		20	
21	Floor Basement Insulation	No basement insulation		20	
22	Floor Insulation	Uninsulated floor over	0.08 th/ft ²	2030	20
23	Furnace 80% to 94% AFUE	Standard 80% AFUE		20	
24	Furnace 80% to 96% AFUE	Standard 80% AFUE		20	
25	Furnace 92% AFUE or More	80% AFUE		20	
26	Furnace Tune-up	No Tune up		2	
27	High-efficiency Gas Boilers	75% efficient existing	75% AFUE	2030	20
28	High-efficiency Gas Furnace	new AFUE 80% furnace	80% AFUE	2030	20
29	High-efficiency Gas Furnaces	75% efficient existing	75% AFUE	2030	20
30	Home Performance Base Pkg	Standard performance		20	
31	Home Performance Extensive Pkg	Standard performance		20	
32	Low Flow Fixtures Aerators	Standard fixtures		10	
33	New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	Code compliant new home	949 th/yr	2030	20
34	Online Audit and Water Heating Savings Kit	No online kit or audit		10	
35	Power Vented Water Heater	old faulty water heater	EF 0.52	2022	12
36	Programmable Thermostat	Old thermostat			10
37	Programmable Thermostat	No setback thermostat,	N/A	2030	10
38	Programmable Thermostat	No setback thermostat,	N/A	2020	10
39	Programmable Thermostat	No setback thermostat,	N/A	2020	10

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Deemed Savings Measures

		Annual Measure Savings (kWh)	Annual Measure Savings (therms)	Coincidence Factor (electric)	Electric Demand Savings (kW)
Efficient Technology, Measure, or Practice					
10 Ceiling Insulation R11-R38	N/A	78		N/A	N/A
11 Ceiling Insulation R30-R38	N/A	39		N/A	N/A
12 Condensing Gas Water Heater	N/A	76		N/A	N/A
13 Duct Insulation	22	45		N/A	N/A
14 Energy Efficiency New Construction ES .70	N/A	416		N/A	N/A
15 Energy Efficiency New Construction ES .85	N/A	208		N/A	N/A
16 Energy Efficient Clothes Dryer	N/A	13		N/A	N/A
17 Energy Efficient Clothes Washer	N/A	30		N/A	N/A
18 Energy Efficient Water heating .60 to .65	N/A	20		N/A	N/A
19 Energy Efficient water heating .60 to .67	N/A	26		N/A	N/A
20 Energy Efficient Windows 100 sf Windows	N/A	98		N/A	N/A
21 Floor Basement Insulation	N/A	98		N/A	N/A
22 Floor Insulation	15	30		N/A	N/A
23 Furnace 80% to 94% AFUE	N/A	102		N/A	N/A
24 Furnace 80% to 98% AFUE	N/A	115		N/A	N/A
25 Furnace 92% AFUE or More	N/A	90		N/A	N/A
26 Furnace Tune-up	N/A	40		N/A	N/A
27 High-efficiency Gas Boilers	0	115		N/A	N/A
28 High-efficiency Gas Furnace	0	104		N/A	N/A
29 High-efficiency Gas Furnaces	0	166		N/A	N/A
30 Home Performance Base Pkg	N/A	200		N/A	N/A
31 Home Performance Extensive Pkg	N/A	250		N/A	N/A
32 Low Flow Fixtures Aerators	N/A	29		N/A	N/A
33 New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	374	374		N/A	N/A
34 Online Audit and Water Heating Savings Kit	N/A	30		N/A	N/A
35 Power Vented Water Heater	0	31		N/A	N/A
36 Programmable Thermostat	N/A	35		N/A	N/A
37 Programmable Thermostat	19	39		N/A	N/A
38 Programmable Thermostat	19	39		N/A	N/A
39 Programmable Thermostat	22	45		N/A	N/A

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Deemed Savings Measures

	Efficient Technology, Measure, or Practice	Gas Demand Savings (tHerrns/day)	Emissions Reductions (Tons/Year)	Carbon Dioxide Emissions	Incremental Capital Cost (\$/Unit)	Incremental Annual O&M Cost (\$/Unit)
10	Ceiling Insulation R11-R38	0.21			?	?
11	Ceiling Insulation R30-R38	0.11			?	?
12	Condensing Gas Water Heater	0.21			?	?
13	Duct Insulation	N/A	0.25	\$300	\$0	\$808.57
14	Energy Efficiency New Construction ES 70	1.14			\$808.57	\$808.57
15	Energy Efficiency New Construction ES 85	0.57			?	?
16	Energy Efficient Clothes Dryer	0.04			?	?
17	Energy Efficient Clothes Washer	0.08			?	?
18	Energy Efficient Water heating .60 to .65	0.055			?	?
19	Energy Efficient water heating .60 to .67	0.071			?	?
20	Energy Efficient Windows 100 sf Windows	0.27			?	?
21	Floor Basement Insulation	0.27			?	?
22	Floor Insulation	N/A	0.17	\$1,000	\$0	?
23	Furnace 80% to 94% AFUE	0.28			?	?
24	Furnace 80% to 96% AFUE	0.32			?	?
25	Furnace 92% AFUE or More	0.25			\$39.31	?
26	Furnace Tune-up	0.11			?	?
27	High-efficiency Gas Boilers	N/A			\$5,000	\$0
28	High-efficiency Gas Furnace	N/A			\$900	\$0
29	High-efficiency Gas Furnaces	N/A			\$3,500	\$0
30	Home Performance Base Pkg	0.55			?	?
31	Home Performance Extensive Pkg	0.68			?	?
32	Low Flow Fixtures Aerators	0.08			?	?
33	New Home Designed 50% of 2004 IECC Use / Tax Credit Qualify	N/A	2.06	\$3,500	\$0	\$56.84
34	Online Audit and Water Heating Savings Kit	0.08				
35	Power Vented Water Heater	N/A	0.17	\$1,700	\$0	?
36	Programmable Thermostat	0.10			\$50	\$0
37	Programmable Thermostat	N/A	0.21		\$50	\$0
38	Programmable Thermostat	N/A	0.21		\$50	\$0
39	Programmable Thermostat	N/A	0.25		\$50	\$0

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Deemed Savings Measures

Efficient Technology, Measure, or Practice	Incremental Periodic Capital	Replacement Cost & Schedule	Sources of Information
10 Ceiling Insulation R11-R38			Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
11 Ceiling Insulation R30-R38			Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
12 Condensing Gas Water Heater			American Council for an Energy-Efficient Economy (ACEEE)
13 Duct Insulation	\$0		Engineering Modeling by M Blasnik
14 Energy Efficiency New Construction ES 70			Wisconsin Energy Conservation Corporation (WECC)
15 Energy Efficiency New Construction ES 85			Wisconsin Energy Conservation Corporation (WECC)
16 Energy Efficient Clothes Dryer			Citizens Gas & Coke Utility-DSM Potential Study & Action Plan &
17 Energy Efficient Clothes Washer			Citizens Gas & Coke Utility-DSM Potential Study & Action Plan &
18 Energy Efficient Water heating .60 to .65			CenterpointEnergy, Citizens Gas & Coke Utility DSM Potential
19 Energy Efficient water heating .60 to .67			CenterpointEnergy, Citizens Gas & Coke Utility DSM Potential
20 Energy Efficient Windows 100 sf Windows			Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
21 Floor Basement Insulation	\$0		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
22 Floor Insulation	\$0		Engineering Modeling by M Blasnik
23 Furnace 80% to 94% AFUE			CenterpointEnergy, Citizens Gas & Coke Utility DSM Potential
24 Furnace 80% to 96% AFUE			CenterpointEnergy, Citizens Gas & Coke Utility DSM Potential
25 Furnace 92% AFUE or More			(WECC) & Centerpoint Energy-Triennial CIP/DSM 2010-2012
26 Furnace Tune-up	\$0		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
27 High-efficiency Gas Boilers	\$0		Engineering Modeling by M Blasnik
28 High-efficiency Gas Furnace	\$0		Engineering Modeling by M Blasnik
29 High-efficiency Gas Furnaces	\$0		(WECC) & ICF Energy Star Presentation
30 Home Performance Base Pkg			(WECC) & ICF Energy Star Presentation
31 Home Performance Extensive Pkg			
32 Low Flow Fixtures Aerators			CA-Database for energy efficient resources (DEER)
33 New Home Designed 50% of 2004 IECC Use / Tax Credit Quality			Engineering Modeling by M Blasnik
34 Online Audit and Water Heating Savings Kit			Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
35 Power Vented Water Heater	\$0		Engineering Modeling by M Blasnik
36 Programmable Thermostat	\$0		Citizens Gas & Coke Utility-DSM Potential Study & Action Plan &
37 Programmable Thermostat	\$0		Engineering Modeling by M Blasnik
38 Programmable Thermostat	\$0		Engineering Modeling by M Blasnik
39 Programmable Thermostat	\$0		Engineering Modeling by M Blasnik

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Deemed Savings Measures

Efficient Technology, Measure, or Practice	Program Delivery Mechanism	Applicability Conditions Required for Use of Values
40 Showerhead <=1.8gpm	Home Performance Retrofit	Res HH w/ standard showerhead
41 Showerhead <=1.8gpm	Low Cost Rebate Program	Res HH w/ standard showerhead
42 Showerhead <=1.8gpm	Low Income Weatherization	WC HH w/ standard showerhead
43 Solar Water Heater		Retrofit, New Construction
44 Standard Gas Water Heater	Low Income Weatherization	WC HH w/unsafe/inoperable gas DHW and OK vent
45 Storage Tank Water Heater .62 EF or More	Rebate	Retrofit, New Construction
46 Tankless Water Heater .82EF or More	Rebate	Retrofit, New Construction
47 Wall Insulation	Home Performance Retrofit	Res HH w/uninsulated walls
48 Wall Insulation	Low Income Weatherization	WC HH w/uninsulated walls
49 Wall Insulation R11-R19	Direct Install	Retrofit
50 Water Heater Insulation	Low Income Weatherization	WC HH w/underinsulated gas DHW tank
51 Water Heater Temperature Setback	Low Income Weatherization	WC HH w/gas DHW temperature >130F
52 Water Pipe Insulation	Low Income Weatherization	WC HH w/uninsulated DHW pipes within 6' of tank
BOLD = Proposed Measures		
Commercial		
53 92% AFUE Furnace or More	Rebate	Retrofit, New Construction
54 Attic Insulation	Small Commercial Retrofit	Sm Comm customer with attic <=R-19
55 Blower Door-Guided Air Sealing	Small Commercial Retrofit	Sm Comm cust with excess air leakage
56 Boiler 90% AFUE or Less Than 300,000 btu/hr	Rebate	Retrofit, New Construction
57 Boiler 90% AFUE or More 300,000 btu/hr	Rebate	Retrofit, New Construction
58 Boiler Maintenance	Rebate	Retrofit
59 Ceiling Insulation R11-R38	Direct Install	Retrofit
60 Ceiling Insulation R30-R38	Direct Install	Retrofit
61 Commissioning New Construction	Rebate	New Construction
62 Duct Sealing	Small Commercial Retrofit	Sm Comm cust heat>200 Mcf, leaky ducts outside cond. space
63 Energy Efficiency Boiler Large	Rebate	Retrofit, New Construction

The Gas Utilities'

Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

Efficient Technology, Measure, or Practice		Efficient Technology, Measure, or Practice Per Unit Efficiency/Use
40	Showerhead <=1.8gpm	33 th/yr
41	Showerhead <=1.8gpm	33 th/yr
42	Showerhead <=1.8gpm	33 th/yr
43	Solar Water Heater	Solar Water heater 40% to 50% of load (125 Therms/unit) energy savings
44	Standard Gas Water Heater	EF 0.59
45	Storage Tank Water Heater .62 EF or More	.62 EF (16 Therms/unit) Energy Savings
46	Tankless Water Heater .82EF or More	.82 EF (63 Therms/unit) Energy Savings
47	Wall Insulation	0.089 th/ft ²
48	Wall Insulation	0.099 th/ft ²
49	Wall Insulation R11-R19	Upgrade to R-19 (195 Therms/unit) Energy Savings
50	Water Heater Insulation	62 th/yr standby
51	Water Heater Temperature Setback	Tank set at 135F
52	Water Pipe Insulation	1 th/yr net losses
BOLD = Proposed Measures		
<u>Commercial</u>		
53	92% AFUE Furnace or More	92% AFUE (215 Therms/unit) energy savings
54	Attic Insulation	0.034 th/ft ²
55	Blower Door-Guided Air Sealing	2500 CFM50 =174 th/yr
56	Boiler 90% AFUE or Less Than 300,000 btu/hr	90% AFUE (296 Therms/unit) energy savings
57	Boiler 90% AFUE or More 300,000 btu/hr	90% AFUE (2560 Therms/unit) energy savings
58	Boiler Maintenance	Annual boiler maintenance (430 Therms/unit) energy savings
59	Ceiling Insulation R11-R38	Ceiling insulation upgraded to R30 (600 Therms/ unit) energy savings
60	Ceiling Insulation R30-R38	Ceiling insulation upgraded to R38 (69 Therms/unit) energy savings
61	Commissioning New Construction	Commissioning plan for small & medium buildings (1000 Therms/unit) energy savings
62	Duct Sealing	2% leakage fraction
63	Energy Efficiency Boiler Large	84% Thermal efficiency 5 million BTUH (6100 Therms/unit) energy savings

**The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UN**

Deemed Savings Measures					
	Efficient Technology, Measure, or Practice	Measure, or Practice In	Measure, or Practice	Efficient Technology,	Efficient Technology,
	Service Date	Effective Life	Annual Operating Hours	Measure, or Practice	Measure, or Practice
40	Showerhead <=1.8gpm	2010	10	73	N/A
41	Showerhead <=1.8gpm	2010	10	73	N/A
42	Showerhead <=1.8gpm	2010	10	73	N/A
43	Solar Water Heater				
44	Standard Gas Water Heater	2010	12	N/A	
45	Storage Tank Water Heater .62 EF or More				
46	Tankless Water Heater .82EF or More				
47	Wall Insulation	2010	20	N/A	N/A
48	Wall Insulation	2010	20	N/A	N/A
49	Wall Insulation R11-R19				
50	Water Heater Insulation	2010	8	N/A	N/A
51	Water Heater Temperature Setback	2010	8	N/A	N/A
52	Water Pipe Insulation	2010	10		
BOLD = Proposed Measures					
	Commercial				
53	92% AFUE Furnace or More	2010	20	N/A	N/A
54	Attic Insulation	2010	20	N/A	N/A
55	Blower Door-Guided Air Sealing				
56	Boiler 90% AFUE or Less Than 300,000 btu/hr				
57	Boiler 90% AFUE or More 300,000 btu/hr				
58	Boiler Maintenance				
59	Ceiling Insulation R11-R38				
60	Ceiling Insulation R30-R38				
61	Commissioning New Construction				
62	Duct Sealing	2010	20		
63	Energy Efficiency Boiler Large				

The Gas Utilities' Proposed Values and Priorities

Deemed Savings Measures		Case No. 09-512-GE-UNC	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice
			Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice
40	Efficient Technology, Measure, or Practice				
40	Showerhead <=1.8gpm				
41	Showerhead <=1.8gpm				
42	Showerhead <=1.8gpm				
43	Solar Water Heater				
44			No	N/A	4113 HDD60
45	Standard Gas Water Heater				
46	Storage Tank Water Heater .62 EF or More				
46	Tankless Water Heater .82EF or More				
47	Wall Insulation		Yes, scale w/HDD	N/A	4113 HDD60
48	Wall Insulation		Yes, scale w/HDD	N/A	4113 HDD60
49	Wall Insulation R11-R19				
50	Water Heater Insulation		No	N/A	4113 HDD60
51	Water Heater Temperature Setback		No	N/A	4113 HDD60
52	Water Pipe Insulation		No	N/A	4113 HDD60
			BOLD = Proposed Measures		
			Commercial		
53	92% AFUE Furnace or More		Yes, scale w/HDD	N/A	4113 HDD60
54	Attic Insulation		Yes, scale w/HDD	N/A	4113 HDD60
55	Blower Door-Guided Air Sealing				
56					
57	Boiler 90% AFUE or Less Than 300,000 btu/hr				
58	Boiler 90% AFUE or More 300,000 btu/hr				
59	Ceiling Insulation R11-R38				
60	Ceiling Insulation R30-R38				
61	Commissioning New Construction				
62	Duct Sealing				
63	Energy Efficiency Boiler Large				4113 HDD60

The Gas Utilities' Proposed Values and Principles

**Proposed Values and Protocols
Case No. 09-512-GE-UNC**

Deemed Savings Measures

	Baseline Technology, Measure, or Practice			
Efficient Technology, Measure, or Practice				
40 Showerhead <=1.8gpm	home w/ 2.2 gpm	46 th/yr	46 th/yr	10
41 Showerhead <=1.8gpm	home w/ 2.2 gpm	46 th/yr	46 th/yr	10
42 Showerhead <=1.8gpm	home w/ 2.2 gpm	46 th/yr	46 th/yr	10
43 Solar Water Heater	Conventional gas			20
44				
Standard Gas Water Heater	old faulty water heater	EF 0.52	2022	12
45 Storage Tank Water Heater .62 EF or More	.60 EF			13
46 Tankless Water Heater .82EF or More	.60 EF			20
47 Wall Insulation	Wall without insulation	0.287 th/ft ²	2030	20
48 Wall Insulation	Wall with insulation	0.287 th/ft ²	2030	20
49 Wall Insulation R11-R19	R11 Insulation			20
50 Water Heater Insulation	Untinsulated older gas	70 th/yr standby loss	2018	8
51 Water Heater Temperature Setback	gas DHW tank w/	Tank set at 120F	2018	8
52 Water Pipe Insulation	uninsulated DHW pipes	4 th/yr net losses	2020	10
BOLD = Proposed Measures				
Commercial				
53 92% AFUE Furnace or More	82% AFUE			15
54 Attic Insulation	Attic w/ R-13	0.099 th/ft ²	2030	20
55 Blower Door-Guided Air Sealing	Leaky Building ~ 3400	3400 CFM50=237 th/yr	2030	20
56				
57 Boiler 90% AFUE or Less Than 300,000 btu/hr	80% AFUE			20
58 Boiler 90% AFUE or More 300,000 btu/hr	80% AFUE	No maintenance		20
		program		
59 Ceiling Insulation R11-R38	Ceiling Insulation R11			2
60 Ceiling Insulation R30-R38	Ceiling insulation R30			15
61	No Commissioning Plan			15
Commissioning New Construction				
62 Duct Sealing	Leaky Ducts	15% leakage fraction	2030	20
63 Energy Efficiency Boiler Large	78% Thermal Efficiency			20
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The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

	Efficient Technology, Measure, or Practice	Annual Measure Savings (kWh)	Annual Measure Savings (therms)	Coincidence Factor (electric)	Electric Demand Savings (kW)
40	Showerhead <=1.8gpm	0	13	N/A	N/A
41	Showerhead <=1.8gpm	0	13	N/A	N/A
42	Showerhead <=1.8gpm	0	13	N/A	N/A
43	Solar Water Heater	N/A	125	N/A	N/A
44	Standard Gas Water Heater	0	24	N/A	N/A
45	Storage Tank Water Heater .62 EF or More	N/A	16	N/A	N/A
46	Tankless Water Heater .82EF or More	N/A	63	N/A	N/A
47	Wall Insulation	112	187	N/A	N/A
48	Wall Insulation	112	187	N/A	N/A
49	Wall Insulation R11-R19	N/A	195	N/A	N/A
50	Water Heater Insulation	0	8	N/A	N/A
51	Water Heater Temperature Setback	0	20	N/A	N/A
52	Water Pipe Insulation	0	3	N/A	N/A
BOLD = Proposed Measures					
	Commercial				
53	92% AFUE Furnace or More	N/A	215	N/A	N/A
54	Attic Insulation	65	66	N/A	N/A
55	Blower Door-Guided Air Sealing	63	63	N/A	N/A
56	Boiler 90% AFUE or Less Than 300,000 btu/hr	N/A	296	N/A	N/A
57	Boiler 90% AFUE or More 300,000 btu/hr	N/A	2580	N/A	N/A
58	Boiler Maintenance	N/A	430	N/A	N/A
59	Ceiling Insulation R11-R38	N/A	600	N/A	N/A
60	Ceiling Insulation R30-R38	N/A	69	N/A	N/A
61	Commissioning New Construction	N/A	1000	N/A	N/A
62	Duct Sealing	172	344	N/A	N/A
63	Energy Efficiency Boiler Large	N/A	6100	N/A	N/A

The Gas Utilities'
Proposed Values and Protocols

Case No. 09-512-GE-JNC

Deemed Savings Measures

		Carbon Dioxide Emissions	Reductions (Tons/Year)	Incremental Capital Cost (\$/Unit)	Incremental Annual O&M Cost (\$/Unit)
	Efficient Technology, Measure, or Practice				
40	Showerhead <=1.8gpm	N/A	0.07	\$15	\$0
41	Showerhead <=1.8gpm	N/A	0.07	\$15	\$0
42	Showerhead <=1.8gpm	N/A	0.07	\$15	\$0
43	Solar Water Heater	0.34	?	?	?
44					
	Standard Gas Water Heater	N/A	0.13	\$1,100	\$0
45	Storage Tank Water Heater .62 EF or More	0.04	0.04	\$51.04	\$9.60
46	Tankless Water Heater .82EF or More	0.17	1.03	\$1,000	\$0
47	Wall Insulation	N/A	1.03	\$1,000	\$0
48	Wall Insulation	N/A	1.03	\$1,000	\$0
49	Wall Insulation R11-R19	0.53	?	?	?
50	Water Heater Insulation	N/A	0.04	\$20	\$0
51	Water Heater Temperature Setback	N/A	0.11	\$5	\$0
52	Water Pipe Insulation	N/A	0.02	\$10	\$0
	BOLD = Proposed Measures				
	Commercial				
53	92% AFUE Furnace or More	0.52	0.36	\$353.13	\$0
54	Attic Insulation	N/A	0.35	\$894	\$0
55	Blower Door-Guided Air Sealing	N/A	0.35	\$5,000.00	\$671.42
56					
57	Boiler 90% AFUE or Less Than 300,000 btu/hr	0.81	?	?	?
58	Boiler 90% AFUE or More 300,000 btu/hr	3.45	?	?	?
59	Boiler Maintenance	1.18	?	?	?
60	Ceiling Insulation R11-R38	1.64	?	?	?
61	Ceiling Insulation R30-R38	0.19	?	?	?
62	Commissioning New Construction	2.74	?	?	?
63	Duct Sealing	N/A	1.89	\$1,118	\$0
	Energy Efficiency Boiler Large	16.71	?	?	?

The Gas Utilities'
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Deemed Savings Measures

Efficient Technology, Measure, or Practice		Incremental Periodic Capital Replacement Cost & Schedule	Sources of Information
40	Showerhead <=1.8gpm	\$0	Engineering Modeling by M Blesnik
41	Showerhead <=1.8gpm	\$0	Engineering Modeling by M Blesnik
42	Showerhead <=1.8gpm	\$0	Engineering Modeling by M Blesnik
43	Solar Water Heater		American Council for an Energy-Efficient Economy (ACEEE)
44			
45	Standard Gas Water Heater	\$0	Engineering Modeling by M Blesnik
46	Storage Tank Water Heater .62 EF or More		Centerpoint Energy- Triennial CIP/DSM plan 2010-2012 report
47	Tankless Water Heater .82EF or More		American Council for an Energy-Efficient Economy (ACEEE) &
48	Wall Insulation	\$0	Engineering Modeling by M Blesnik
49	Wall Insulation R11-R19		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
50	Water Heater Insulation	\$0	Engineering Modeling by M Blesnik
51	Water Heater Temperature Setback	\$0	Engineering Modeling by M Blesnik
52	Water Pipe Insulation	\$0	Engineering Modeling by M Blesnik
53			
54	Commercial		
55	92% AFUE Furnace or More	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
56	Attic Insulation	\$0	Engineering Modeling by M Blesnik
57	Blower Door-Guided Air Sealing		Engineering Modeling by M Blesnik, additional analysis by KEMA
58	Boiler 90% AFUE or Less Than 300,000 btu/hr		CenterPoint Energy- Triennial CIP/DSM Plan 2010-2012 Report
59	Boiler 90% AFUE or More 300,000 btu/hr		E-Source/U.S. Department of Energy
60	Boiler Maintenance		CenterPoint Managers Angie Kline, Shawn White, Xcel Energy-Industrial EE Marketing
61	Ceiling Insulation R11-R38		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
62	Ceiling Insulation R30-R38		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
63	Duct Sealing		Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
64	Energy Efficiency Boiler Large		Engineering Modeling by KEMA
65			U. S. Department of Energy-Federal Energy Management

The Gas Utilities'
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Deemed Savings Measures

Efficient Technology, Measure, or Practice	Program Delivery Mechanism	Applicability Conditions Required for Use of Values
64 Energy Efficiency Water Heating Small App	Rebate	Retrofit
65 Energy Efficiency- Windows	Rebate	Retrofit
66 Energy Efficiency-New Construction	Rebate	New Construction
67 High-efficiency Gas Furnaces	Small Commercial Retrofit	Sm Comm cust heat>200 Mcf, planning to replace furnace
68 High-efficiency Gas Water Heater	Small Commercial Retrofit	Sm Comm cust w/ std eff water heater needing replacement
69 High-efficiency Infrared Gas Fryer	Small Commercial Retrofit	Sm Comm food service cust w/ std fryer
70 IR Gas Heater	Convection Gas heater	Sm Comm garages/warehouses w/ conv htr
71 Programmable Thermostats	Rebate	Retrofit, New Construction
72 Programmable Thermostat	Small Commercial Retrofit	Sm Comm cust w/ Interest in setback thermostat
73 Retro Commissioning Audit/Technical Assist	Rebate	Retrofit
74 Roof Insulation	Direct Install	Rebate
75 Solar Water Heating	Rebate	Retrofit, New Construction
76 Stack Damper	Rebate	Retrofit, New Construction
77 Storage Water Heater .62EF or More	Rebate	Retrofit, New Construction
78 Tankless Water Heater .82EF or More	Rebate	Retrofit, New Construction
79 Thermal Efficiency .88TE or more 75 Gallons	Rebate	Retrofit, New Construction
80 Wall Insulation	Small Commercial Retrofit	Sm Comm cust w/uninsulated walls
81 Wall/Floor Insulation	Direct Install	Retrofit
82 Water Heater Insulation	Small Commercial Retrofit	Sm Comm cust w/underinsulated gas DHW tank

BOLD = Proposed Measures

The Gas Utilities'
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Deemed Savings Measures

Efficient Technology, Measure, or Practice		Efficient Technology, Measure, or Practice Per Unit Efficiency/Use
64	Energy Efficiency Water Heating Small App	90% Water heater (20 Therms/unit) energy savings
65	Energy Efficiency- Windows	Energy efficient windows U value .45 (400 Therms/unit) energy savings
66	Energy Efficiency-New Construction	Energy efficient construction on practice (230 Therms/unit) energy savings
67	High-efficiency Gas Furnaces	
68	High-efficiency Gas Water Heater	93% AFUE
69	High-efficiency Infrared Gas Fryer	
70	IR Gas Heater	
71	Programable Thermostats	
72	Programmable Thermostat	
73	Retro Commissioning Audit/Technical Assist	Commissioning plan for small & medium buildings (1600 Therms/unit) energy savings
74	Roof Insulation	Roof with added insulation (300 Therms/unit) energy savings
75	Solar Water Heating	Solar water heater 128ft solar collector (300 Therms/unit) energy savings
76	Stack Damper	Stack Dampers on boilers (1000 Therms/unit) energy savings
77	Storage Water Heater .62EF or More	.62 EF
78	Tankless Water Heater .82EF or More	.82 EF
79	Thermal Efficiency .88TE or more 75 Gallons	88% Thermal Efficiency (600 Therms/unit) energy savings 0.099 therms/gal
80	Wall Insulation	
81	Wall/Floor Insulation	Wall insulation of R19 & Floor basement insulation (700 Therms/unit) energy savings
82	Water Heater Insulation	68 therms standby

BOLD = Proposed Measures

The Gas Utilities'
Proposed Values and Protocols
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Deemed Savings Measures

	Efficient Technology, Measure, or Practice	Service Date	Effective Life	Efficient Technology, Measure, or Practice	Service Date	Annual Operating Hours	Efficient Technology, Measure, or Practice	Annual Operating Hours
64	Energy Efficiency Water Heating Small App							
65	Energy Efficiency- Windows							
66	Energy Efficiency-New Construction							
67	High-efficiency Gas Furnaces	2010	20				N/A	
68	High-efficiency Gas Water Heater	2010	12				N/A	
69	High-efficiency Infrared Gas Fryer	2010	10				N/A	
70	IR Gas Heater	2010	15				N/A	
71	Programable Thermostats							
72	Programmable Thermostat	2010	10				N/A	
73	Retro Commissioning Audit/Technical Assist							
74	Roof Insulation							
75	Solar Water Heating							
76	Stack Damper							
77	Storage Water Heater .62EF or More							
78	Tankless Water Heater .82EF or More							
79	Thermal Efficiency .88TE or more 75 Gallons	2010	20				N/A	
80	Wall Insulation							
81	Wall/Floor Insulation							
82	Water Heater Insulation	2010	8				N/A	

BOLD = Proposed Measures

The Gas Utilities'

Proposed Values and Protocols
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Deemed Savings Measures	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice Weather Normalization	Efficient Technology, Measure, or Practice	Efficient Technology, Measure, or Practice
64 Energy Efficiency Water Heating Small App				
65 Energy Efficiency - Windows				
66 Energy Efficiency-New Construction				
67 High-efficiency Gas Furnaces	Yes, scale w/HDD		N/A	4113 HDD60
68 High-efficiency Gas Water Heater	No		N/A	4113 HDD60
69 High-efficiency Infrared Gas Fryer	No		N/A	4113 HDD60
70 IR Gas Heater	Yes, scale w/HDD		N/A	4113 HDD60
71 Programable Thermostats				
72 Programmable Thermostat	Yes, scale w/HDD		N/A	4113 HDD60
73 Retro Commissioning Audit/Technical Assist				
74 Roof Insulation				
75 Solar Water Heating				
76 Stack Damper				
77 Storage Water Heater .62EF or More				
78 Tankless Water Heater .82EF or More				
79 Thermal Efficiency .88TE or more 75 Gallons				
80 Wall Insulation	Yes, scale w/HDD		N/A	4113 HDD60
81 Wall/Floor Insulation				
82 Water Heater Insulation	No		N/A	4113 HDD60

BOLD = Proposed Measures

The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

		Baseline Technology, Measure, or Practice			
64	Efficient Technology, Measure, or Practice	Standard commercial storage water heater	Baseline Technology, Measure, or Practice	Baseline Technology, Measure, or Practice	Baseline Technology, Measure, or Practice
65	Energy Efficiency Water Heating Small App	Standard Windows	Per Unit Efficiency/Use	Retirement/Replaceme nt Date	Effective Life
66	Energy Efficiency- New Construction	Standard construction			
67	High-efficiency Gas Furnaces	std efficiency new gas furnace	80% AFUE	2030	20
68	High-efficiency Gas Water Heater	std efficiency new gas water heater	EF .58	2022	12
69	High-efficiency Infrared Gas Fryer	Standard gas fryer	ASTM 35% efficiency	2020	10
70	IR Gas Heater	standard convection	75kbtu/hr*760 hrs=570	2025	15
71	Programmable Thermostats	No or old			
72	Programmable Thermostat	No setback thermostat	N/A	2030	10
73	Retro Commissioning Audit/Technical Assist	No Commissioning Plan			
74	Roof Insulation	Standard roof needing			
75	Solar Water Heating	Small commercial			
76	Stack Damper	No stack damper on			
77	Storage Water Heater .62EF or More	.60 EF			
78	Tankless Water Heater .82EF or More	.60 EF			
79	Thermal Efficiency .88TE or more 75 Gallons	78% Thermal Efficiency			
80	Wall Insulation	Wall without insulation	0.287 th/ft ²	2030	20
81	Wall/Floor Insulation	No wall, no floor			
82	Water Heater Insulation	Insulation			
		Uninsulated older gas	85 th/yr standby	2018	15
					8

BOLD = Proposed Measures

The Gas Utilities'
Proposed Values and Protocols
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Deemed Savings Measures

		Annual Measure Savings (kWh)	Annual Measure Savings (therms)	Coincidence Factor (electric)	Electric Demand Savings (kW)
64	Efficient Technology, Measure, or Practice				
65	Energy Efficiency Water Heating Small App	N/A	20	N/A	N/A
66	Energy Efficiency- Windows	N/A	400	N/A	N/A
67	Energy Efficiency-New Construction	N/A	230	N/A	N/A
68	High-efficiency Gas Furnaces	0	154	N/A	N/A
69	High-efficiency Gas Water Heater	0	23	N/A	N/A
70	High-efficiency Infrared Gas Fryer	0	134	N/A	N/A
71	IR Gas Heater	0	114	N/A	N/A
72	Programmable Thermostats	N/A	207	N/A	N/A
73	Programmable Thermostat	31	63	N/A	N/A
74	Retro Commissioning Audit/Technical Assist	N/A	1600	N/A	N/A
75	Roof Insulation	N/A	300	N/A	N/A
76	Solar Water Heating	N/A	300	N/A	N/A
77	Stack Damper	N/A	1000	N/A	N/A
78	Storage Water Heater .62EF or More	N/A	16	N/A	N/A
79	Tankless Water Heater .82EF or More	N/A	63	N/A	N/A
80	Thermal Efficiency .88TE or more	N/A	600	N/A	N/A
81	75 Gallons Wall Insulation	112	187	N/A	N/A
82	Wall/Floor Insulation	N/A	700	N/A	N/A
	Water Heater Insulation	0	17	N/A	N/A

BOLD = Proposed Measures

The Gas Utilities'
Proposed Values and Protocols

Case No. 09-512-GE-UNC

Deemed Savings Measures

			Gas Demand Savings (therms/day)	Carbon Dioxide Emissions	Reductions (Tons/Year)	Incremental Capital Cost (\$/Unit)	Incremental Annual O&M Cost (\$/Unit)
64	Efficient Technology, Measure, or Practice						
64	Energy Efficiency Water Heating Small App	0.05					?
65	Energy Efficiency- Windows	1.10					?
66	Energy Efficiency-New Construction	0.63					?
67							
67	High-efficiency Gas Furnaces	N/A					
68							
68	High-efficiency Gas Water Heater	N/A					
69	High-efficiency Infrared Gas Fryer	N/A					
70	IR Gas Heater	N/A					
71	Programable Thermostats	0.57					
72	Programmable Thermostat	N/A					
73							
73	Retro Commissioning Audit/Technical Assist	1.09					\$4,437.50
74	Roof Insulation	0.82					?
75	Solar Water Heating	0.82					?
76	Stack Damper	2.74					?
77	Storage Water Heater .62EF or More	0.04					\$406.20
78	Tankless Water Heater .82EF or More	0.17					\$9.60
79	Thermal Efficiency .88TE or more 75 Gallons	1.64					\$750.00
80	Wall Insulation	N/A					
81	Wall/Floor Insulation	1.92					?
82	Water Heater Insulation	N/A					\$0

BOLD = Proposed Measures

The Gas Utilities'
Proposed Values and Protocols
Case No. 09-512-GE-UNC

Deemed Savings Measures

Efficient Technology, Measure, or Practice	Incremental Periodic Capital Replacement Cost & Schedule	Sources of Information
64 Energy Efficiency Water Heating Small App	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
65 Energy Efficiency- Windows	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
66 Energy Efficiency-New Construction	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
67 High-efficiency Gas Furnaces	\$0	Engineering Modeling by M Blasnik, additional analysis by KEMA
68 High-efficiency Gas Water Heater	\$0	Engineering Modeling by KEMA
69 High-efficiency Infrared Gas Fryer	\$0	Engineering Modeling by KEMA
70 IR Gas Heater	\$0	Engineering Modeling by GSE
71 Programmable Thermostats	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
72 Programmable Thermostat	\$0	Engineering Modeling by M Blasnik, additional analysis by KEMA
73 Retro Commissioning Audit/Technical Assist	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
74 Roof Insulation	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
75 Solar Water Heating	\$0	Centerpoint Energy-Triennial CIP/DSM Plan 2010-2012 report
76 Stack Damper	\$0	CenterPoint Energy-Triennial CIP/DSM Plan 2010-2012 Report
77 Storage Water Heater .62EF or More	\$0	American Council for an Energy-Efficient Economy (ACEEE) &
78 Tankless Water Heater .82EF or More	\$0	CenterPoint Energy-Triennial CIP/DSM Plan 2010-2012 Report
79 Thermal Efficiency .88TE or more 75 Gallons	\$0	Engineering Modeling by M Blasnik
80 Wall Insulation	\$0	Citizens Gas&Coke Utility-DSM Potential Study&Action Plan Rep
81 Wall/Floor Insulation	\$0	Engineering Modeling by M Blasnik, additional analysis by KEMA
82 Water Heater Insulation	\$0	
BOLD = Proposed Measures		