

Public Utilities Commission
2011 Report to the Colorado General Assembly on
Demand Side Management (DSM)
Pursuant to HB 07-1037 (§ 40-3.2-105, C.R.S.)

Introduction

In 2007 the General Assembly passed, and the Governor signed into law, legislation directing all Colorado investor-owned gas and electric utilities to implement Demand Side Management (DSM) programs. These programs focus on the demand or consumption component of the utility system instead of the supply side that provides the electricity or natural gas. The directives concerning these DSM activities are codified in § 40-3.2-103 C.R.S. for gas utilities and § 40-3.2-104 C.R.S. for electric utilities.

The Colorado Public Utilities Commission (CPUC) was directed by § 40-3.2-105 C.R.S. to submit to the Business, Labor, and Technology Committee of the Senate, or its successor committee, and the Business Affairs and Labor Committee of the House of Representatives, or its successor committee, a report on the progress made by the utilities in meeting their DSM goals. The report shall also include any recommended statutory changes the commission deems necessary to further the intent of sections 40-3.2-103 and 40-3.2-104. This report is due by April 30 of each year.

The first report was submitted in 2009 and is a summary of the proposed 2009 DSM plans; the DSM plans were approved but had not been implemented at the time of the report. An electronic copy of the 2009 report can be accessed at:

<http://www.dora.state.co.us/puc/rulemaking/HB07-1037/HB07-1037StaffDSM04-28-09ReportToLegislature.pdf>

The second report, submitted in 2010, presents the actual 2009 DSM program results. An electronic copy of the 2010 report can be accessed at:

<http://www.dora.state.co.us/puc/rulemaking/HB07-1037/HB07-1037StaffDSM04-28-10ReportToLegislature.pdf>

Summary

The data presented in this 2011 report summarizes the actual 2010 DSM results. These results indicate that, collectively, the utility DSM plans were cost effective, (e.g., the modified total resource cost (TRC) benefit cost ratio is greater than one). Two utilities that reported modified TRC benefit cost ratios of less than 1.0 in 2009 saw improvements in their DSM Programs that yielded modified TRC benefit cost ratios of greater than 1.0 in 2010. The Black Hills Gas DSM program modified TRC benefit cost ratio increased from 0.71 in 2009 to 1.05 in 2010. The Atmos Energy Corporation Gas DSM program modified TRC benefit cost ratio increased from

0.69 in 2009 to 1.57 in 2010. Still, one of the individual gas DSM plans netted cost-benefit ratios of less than one. Eastern Colorado Utility, the smallest gas utility regulated by the PUC, with only approximately 3,800 customers, realized a cost-benefit ratio of less than 1.0, but saw an increase in its modified TRC benefit cost ratio from 0.15 in 2009 to 0.37 in 2010. Eastern has seen increases in participation and anticipates that in the next program year participation levels will continue to increase and reach a saturation level that is more consistent with its program expectations.

Utility DSM Goals and Accomplishments, and Comments

Each regulated electric and gas utility has filed its 2010 DSM Annual Report with the Commission. The annual reports provide the Commission with a comparison of DSM results to each utilities approved DSM goals. The following tables compare the approved DSM budget with the actual DSM expenditures; the approved energy savings goal with the actual energy savings; the estimated demand savings goal with the actual demand savings (for electric DSM plans only); and the planned benefit to cost ratio with the actual benefit to cost ratio. This information is presented by market segments, as defined by each utility in its DSM Plan, as well as the overall plan.

The benefit-to-cost ratio (cost-effectiveness) of individual DSM market segments and the utility's overall DSM plan is calculated using a modified Total Resource Cost (MTRC) test. The TRC test, before it is modified, measures the net costs and benefits of a DSM program from the perspective of society, therefore costs and benefits to participants, non-participants and the utility are included. To determine the TRC, system benefits, such as avoided generation, transmission and distribution costs, and avoided emission costs, are calculated. Other benefits, such as incremental operations and maintenance savings, are included in the overall benefits calculation. The costs that are subtracted from the benefits include DSM program planning and design, administration costs, equipment and installation costs, and measurement and verification costs. Also, the incremental capital costs paid by the participant are included. The TRC is modified with a percentage adder to represent the non-energy benefits resulting from DSM.

The Planned and Actual Benefit to Cost Ratio values listed in the columns in the tables below are derived from each utility's annual report. These ratios cannot be derived from the information found in the tables themselves.

2010 ELECTRIC DSM PERFORMANCE

Black Hills Energy 2009/2010 Electric DSM								
Market Segment	Proposed (Approved) Expenditure	Actual Expenditure	Energy Savings Goal (kWh)	Actual Energy Savings (kWh)	Demand Reduction Goal (kW)	Actual Demand Reduction (kW)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Residential	\$773,943	\$457,898	5,988,031	2,963,193	1,479	478	3.86	3.92
Nonresidential	\$855,041	\$140,053	3,483,970	667,586	929	95	1.97	1.42
Special (Low-Income/ School Energy Education)	\$423,923	\$423,932	815,174	922,988	441	584	1.50/ 2.23	1.20/ 11.48
Marketing, Promotion & Admin	\$350,000	\$405,590						
Total	\$2,402,916	\$1,386,775	10,287,175	4,553,767	2,849	1,157	2.87	2.31

Pursuant to Decision R09-0542, Docket No. 08A-518E, Black Hills Energy's 2009 DSM plan runs from July 1, 2009 to June 30, 2010. Each plan year is measured from July 1 to June 30. Therefore, Black Hills' performance information from July 1, 2009 to June 30, 2010 is reflected in this report and the Black Hills' performance information from July 1, 2010 to June 30, 2011 will be reflected in the 2012 annual DSM report to the Colorado General Assembly.

Total Financial Incentive: \$0

Public Service Company of Colorado 2010 Electric DSM								
Market Segment	Proposed (Approved) Expenditure	Actual Expenditure	Energy Savings Goal (kWh)	Actual Energy Savings (kWh)	Demand Reduction Goal (kW)	Actual Demand Reduction (kW)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Business	\$32,191,888	\$27,407,608	166,138,016	160,043,540	35,053	31,356	3.35	3.28
Residential	\$24,778,527	\$20,336,596	65,746,200	78,951,945	31,479	35,072	4.44	3.82
Low Income	\$1,695,693	\$2,149,531	5,580,746	13,018,931	417	946	2.38	4.89
Indirect	\$4,981,038	\$4,775,524						
Total	63,650,147	54,669,260	237,464,291	252,014,416	66,949	67,373	3.39	3.33

Total Financial Incentive: \$17,525,700

2010 GAS DSM PERFORMANCE

Atmos Energy Corporation 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Residential Energy Audit	\$190,442	\$26,868	3,575	649	1.64	1.10
Efficient Equipment	\$348,179	\$484,710	12,876	13,782	2.49	1.35
Low-Income	\$152,720	\$168,838	2,934	3,874	1.73	1.57
TOTAL	\$691,341	\$680,416	19,385	18,305	2.09	1.38

Total Financial Incentive: \$0

Black Hills Energy 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Residential	\$761,500	\$467,150	19,738	11,106	1.11	1.33
Non-Residential	\$189,000	\$61,043	6,900	534	2.52	0.59
Special (Low- Income/School Energy Education)	\$265,500	\$56,895	2,471	1,168	0.63/ 1.14	1.00/ 1.11
Training, Marketing and Administration	\$200,000	\$207,094				
TOTAL	\$1,416,000	\$792,182	29,109	12,808	1.22	1.05

Total Financial Incentive: \$0

Colorado Natural Gas 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Residential Energy Audit	\$48,090	\$17,502	898	87	2.05	1.46
Efficient Equipment	\$83,321	\$143,367	6,653	11,918	1.93	0.39
Low-Income Kits	\$6,072	\$1,614	1,423	-	1.98	1.04
Low-Income Fuel Conversion	\$5,839	\$6,453	N/A	N/A	47.49 ¹	-
TOTAL	\$143,332	\$168,935	8,974	12,002	6.74	1.46

Total Financial Incentive: \$0

Eastern Colorado Utility 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Efficient Equipment	\$11,146	\$16,569	333	162	1.72	0.48
Low-Income	\$6,381	\$7,062	93	2	1.02	0.01
Planning and Design	\$9,500	\$10,186				
TOTAL	\$27,325	\$33,814	426	164	1.02	0.37

Total Financial Incentive: \$0

Public Service Company of Colorado 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Business	\$1,505,522	\$1,806,512	96,956	79,868	2.84	1.63
Residential	\$7,916,965	\$7,977,950	196,828	298,647	1.60	1.45
Low-Income	\$3,795,193	\$4,244,658	109,024	75,724	1.59	1.39
Indirect	\$3,301,713	\$2,900,906				
TOTAL	\$16,516,394	\$16,930,026	402,808	454,238	1.61	1.37

Total Financial Incentive: \$2,948,876

¹ Calculating the cost effectiveness of fuel conversions is problematic, from a DSM perspective, since it is increasing the use of natural gas, yet, is decreasing the use of another fuel (propane in this case).

SourceGas Distribution LLC 2010 Gas DSM						
Market Segment	Proposed (Approved Expenditure)	Actual Expenditure	Energy Savings Goal (Dth)	Actual Energy Savings (Dth)	Planned Benefit to Cost Ratio	Actual Benefit to Cost Ratio
Residential Energy Audit	\$172,713	\$59,492	3,111	1,330	1.82	1.31
Efficient Equipment	\$407,025	\$548,941	14,048	15,216	2.55	1.70
Low-Income	\$134,165	\$195,340	2,401	3,102	1.80	1.45
Custom Program	\$183,408	\$80,934	4,083	4,279	2.02	3.63
TOTAL	\$897,311	\$884,707	23,643	23,927	2.20	1.82

Total Financial Incentive: \$0

Overall Cost-Effectiveness

a. Cost Effectiveness of the 2009/2010 Electric DSM Programs

The total benefit of the 2010 Public Service Company of Colorado Electric DSM program and the 2009 Black Hills Energy Electric DSM programs was \$369,174,804. The total cost of these two programs was \$111,158,837, which net a benefit of \$258,015,967.

For each \$1 invested in electric DSM, \$3.32 in benefits resulted.

b. Cost Effectiveness of the 2010 Gas DSM Programs

The total 2010 benefit of the six gas DSM programs was \$61,094,111. The total cost of these six programs was \$44,623,929, which net a benefit of \$16,470,182.

For each \$1 invested in gas DSM, \$1.37 in benefits resulted.

Comments and Recommendations

As noted previously, each annual report is to include any recommended statutory changes the Commission deems necessary to further the intent of the gas and electric demand side management programs, as required by § 40-3.2-105 C.R.S. Based upon the Commission and Commission Staff's experience to date implementing the existing statute, we do not recommend any statutory changes at this time.