Chapter II – Utility Demand-Side Management and Pricing Policies

Option 1: Adopt Energy Savings Standards or Targets for Electric Utility Demand-Side Management Programs

Background

Rocky Mountain Power (RMP), a subsidiary of PacifiCorp previously known as Utah Power, is responsible for 80 percent of electricity sold in Utah and is the only investor-owned utility in the state. RMP has implemented demand-side management (DSM) programs for its residential and business customers in Utah for over 20 years. But these programs declined significantly during the late 1990's. The revitalization of these programs grew out of a stakeholder advisory group set up as part of a 1999 general rate case. The advisory group prepared a report for the Utah Public Service Commission (PSC) in 2001 that showed large potential for cost-effective electricity savings.[5] This report in turn led to the expansion of DSM programs by RMP. DSM programs grew from a budget of about $5 million in 2001 to $12 million in 2003 and then to about $25 million in 2006. Spending on DSM programs as of 2006 was equivalent to about 2.1 percent of RMP's retail sales revenues in Utah. In addition, Utah ranked 18th in the nation in electricity energy efficiency program spending per capita as of 2006.[6]

The operation of utility DSM programs in Utah is related to the preparation of utility Integrated Resource Plans (IRPs) and consideration of energy efficiency resources within these plans. In addition, legislation was adopted in 2002 allowing a tariff rider charge on customers' bills to pay for utility DSM programs. A settlement agreement to put in place a tariff rider mechanism for Rocky Mountain Power's DSM programs was approved by the PSC in 2003. This facilitated DSM program cost recovery and contributed to the ramp up of Rocky Mountain Power's DSM programs in recent years.

RMP's DSM programs have been relatively successful in providing cost-effective electricity savings and peak load reductions. The programs in 2006 alone provided about 29 MW of peak reduction and 120 GWh per year of electricity savings from efficiency measures installed that year alone. In addition, RMP had 86 MW of peak load reduction capability as of 2006 through installation of air conditioner cycling controls. The electricity savings from DSM programs and efficiency measures installed in 2006 was equivalent to about 0.58 percent of the company's total retail electricity sales.

Regarding the cost effectiveness of RMP's DSM programs, RMP estimates that its primary commercial and industrial DSM programs (FinAnswer and FinAnswer Express)

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[5] D. Nichols and D. von Hippel. *An Economic Analysis of Achievable New Demand-Side Management Opportunities in Utah*. Report prepared for the Systems Benefits Charge Stakeholder Advisory Group to the Utah Public Service Commission. Boston, MA: Tellus Institute. March 2001.

[6] See *U.S. Energy Efficiency Programs: A $2.6 Billion Industry.* Boston, MA: Consortium for Energy Efficiency. 2007. http://www.cee1.org/ee-pe/cee_budget_report.pdf.

have a benefit-cost ratio of 2.1-3.0 from a total resource cost (TRC) perspective, with the range due to varying assumptions about future avoided energy supply costs.[7] The programs are even more cost effective from the utility cost and rate impact test perspectives. Regarding residential programs, recent analyses show that the high efficiency air conditioning and evaporative cooling program (known as the Cool Cash program) has a benefit-cost ratio of about 3.4-3.8, the refrigerator recycling program has a benefit-cost ratio of 2.3-3.2, and the home energy savings (retrofit measures) program has a benefit-cost ratio of about 1.2-1.5 when using the TRC test.

RMP is still ramping up its DSM programs in Utah and admits that there is room for further growth both through expanding existing programs and introducing new programs. A new program providing rebates for popular residential energy savings measures began in the second half of 2006. Overall, RMP plans to spend about $33 million or around 2.5 percent of revenues on DSM programs in 2007.[8] In addition, municipal utilities in Utah acknowledge they could do much more to stimulate more efficient electricity use.

RMP's parent company PacifiCorp completed a system-wide DSM potential study in July 2007.[9] The report estimates that it is technically and economically feasible to reduce projected electricity use in 2027 (20 years) by about 13 percent but that only 7 percent savings is achievable through DSM programs. However, the report contains a number of conservative assumptions that limit the achievable potential. Also, the report does not explicitly address the savings potential in ten or 15 years.

According to the Energy Efficiency Task Force convened by the Western Governors' Association, leading electric utilities in the country are investing 2-3 percent of their revenues on DSM programs and these programs in turn are saving the equivalent of around 0.8-1.0 percent of electricity sales each year.[10] For example, investor-owned utilities in California and Connecticut, as well as the municipal utility in Austin, TX, are achieving this level of energy savings.[11] This means that their DSM programs cut electricity use approximately 4-5 percent after five years of effort, 8-10 percent after ten years of effort, etc. More recently, Sierra Pacific Power Co. in Nevada proposed

[7] Memorandum from Brian Hedman, Quantec LLC to Don Jones, Jr., PacifiCorp, Feb. 2, 2007. The TRC test compares the full cost of the efficiency measures to the utility's avoided energy supply costs as a result of the adoption of the efficiency measures, on a net present value basis.
[8] Presentation of Jeff Bumgarner, PacifiCorp to the Demand-Side Management Advisory Group, Feb. 6, 2007.
[9] *Assessment of Long-Term, System-Wide Potential for Demand-Side and Other Supplemental Resources*. Report prepared by Quantec, Summit Blue Consulting, and Nexant, Inc. for PacifiCorp, Portland, OR, July 11, 2007.
[10] Energy Efficiency Task Force Report, Western Governors' Association, Denver, CO, p. 55. http://www.westgov.org/wga/initiatives/cdeac/Energy%20Efficiency-full.pdf.
[11] *National Action Plan on Energy Efficiency*. Washington, DC: U.S. Department of Energy and the Environmental Protection Agency, July 2006. pp. 6-8 – 6-9. http://www.epa.gov/cleanrgy/pdf/napee/napee_report.pdf.

expanding its DSM programs to the level of saving 1.0 percent of retail electricity sales per year during 2008-2010.[12]

Electric utility DSM programs typically save electricity at a total cost of $0.02-0.03 per kWh (utility plus participant costs), meaning improving end-use efficiency is the least-cost electricity resource.[13] Also, many of these programs reduce peak power demand more than they reduce electricity consumption in percentage terms, meaning the programs also improve the overall load factor for the utility system.

One way to stimulate the expansion of DSM programs is to adopt energy savings standards requiring a minimum level of energy savings. This policy has been adopted in a number of states either as stand-alone efficiency standards or combined energy efficiency and renewable energy standards. For example, Texas adopted legislation in 2002 that requires investor-owned utilities to operate energy efficiency programs sufficient to save 10 percent of forecasted energy demand growth. This led the utilities in Texas to increase DSM program funding to the level of about $85 million per year as of 2004, resulting in electricity savings of 370 GWh per year.[14] In 2007, the legislation was amended to require that utilities save 20 percent of forecasted load growth through DSM efforts.

Nevada has incorporated energy savings from DSM programs into the state's renewable energy standards, now renamed as clean energy standards. Utilities are allowed to use energy savings from DSM programs to meet up to 25 percent of their clean energy standard each year. This has resulted in the main utility (Nevada Power Co.) more than doubling its DSM expenditures and energy savings.

Specific Energy Efficiency Proposal

This policy would establish energy savings targets or standards for the DSM programs implemented by RMP. In addition, energy savings targets or standards would be established for the larger municipal utilities and rural electric co-ops in the state. The standards could be expressed in terms of energy savings only, or could also include peak demand reductions.

We suggest that the targets or standards ramp up over a four-year period (2008-2011) to the level of saving approximately 1 percent of projected electricity sales from DSM programs each year. This should be adequate time for both RMP (which already has extensive DSM programs) and the major municipal utilities and rural co-ops to achieve the targets or standards. We suggest that standards or targets apply to municipal utilities and co-ops with 10,000 or more customers, which means that seven municipal utilities and co-ops would be covered, the largest being the utilities operated by the cities of Provo and St. George. The roughly 40 smaller municipal utilities and co-ops would not

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[12] *2007 Integrated Resource Plan, Volume IV Load Forecast and Market Fundamentals and Volume V Demand Side Plan*. Sierra Pacific Power Company, Reno, NV. June 2007.
[13] See Reference 11, p. 6-5. Also, see Reference 10, pp. 55-56.
[14] S. Nadel. 2006. *Energy Efficiency Resource Standards: Experience and Recommendations*. Washington, DC: American Council for an Energy-Efficient Economy, March. http://aceee.org/pubs/e063.pdf

be covered. RMP along with the covered municipal utilities and rural co-ops account for about 92 percent of electricity use in the state.

In order to meet the energy savings targets or standards, the utilities could implement a comprehensive set of DSM programs, including:

- free or deeply-discounted electricity savings measures for low-income households,
- rebates for consumers that purchase ENERGY STAR products or undertake home retrofits,
- incentives for high-efficiency evaporative coolers and air conditioners, air conditioner tune-ups, and proper air conditioner sizing and installation,
- audits for and rebates to businesses that upgrade the efficiency of their heating, cooling, and lighting equipment as well as their building envelope,
- technical and financial assistance to industries that are interested in improving the energy efficiency of their processes as well as an industrial self-direction program (as RMP is currently implementing),
- grants to pay a portion of the cost for energy savings projects, including daylighting projects, in local government buildings and schools,
- training, certification, and outreach to increase the skills of builders, contractors, and energy efficiency service providers in Utah,
- advertising and incentives to increase the availability and purchase of innovative energy-efficiency measures such as modern evaporative cooling systems or super-efficient windows,
- home energy usage display and feedback devices,
- promotion of low-cost conservation measures such as enabling the power management capability of computer monitors,
- installation of load control devices, smart thermostats, and more sophisticated energy meters to facilitate pricing-related DSM initiatives, and
- design assistance and incentives to builders and/or owners that construct highly energy-efficient new homes and commercial buildings.

Some of these programs are in place now but could be expanded; others would be new programs. All of the programs should pass the Total Resource Cost (TRC) test in order to provide economic benefits for consumers and businesses in addition to energy savings. In order to facilitate achievement of the targets or standards on the part of RMP, we recommend consideration of performance-based financial incentives for utility shareholders in conjunction with adoption of the standards (see Option 2). In addition, the state could provide some technical assistance to help affected municipal utilities and co-ops plan and analyze potential DSM program options, particularly those utilities with limited DSM experience.

The energy savings standards or targets suggested above are admittedly ambitious. Achieving them will require a very concerted effort on the part of utilities as well as strong support from key parties such as the Governor’s office and state utility regulatory commission. Effectively implementing some of the options described below, such as tax credits for innovative energy efficiency technologies and public education, will help utilities achieve the goals presented above. In addition, the development and commercialization of some new energy efficiency technologies in coming years should help utilities to achieve the standards or targets. While it is impossible to know in advance which new technologies will become available, the pace of technological advance is rapid and numerous new energy efficiency measures are likely to reach the marketplace during the next 13 years.

Energy Savings

In order to estimate energy savings and peak load reduction potential, it is first necessary to project future electricity use in the absence of utility DSM programs implemented in 2006 and beyond. In its 2007 Integrated Resource Plan, PacifiCorp estimated that its Utah service area will experience energy demand growth of 2.7 percent per year on average during 2007-2016, while peak demand will grow even faster.[15] These projections include the impacts of planned DSM programs which reduce energy growth by about 0.5 percent per year on average. So without DSM programs, it is reasonable to assume energy load growth of about 3.2 percent per year. This growth rate is applied statewide through 2020 to produce a "baseline" (no new efficiency efforts case) energy forecast for this study. Note that DSM programs implemented prior to 2006 are included in the baseline scenario and not in the policy scenario.

In projecting energy savings, we assume that utilities achieve electricity savings equivalent to 0.5 percent of sales in 2006 (RMP achieves slightly more than this, the affected municipal utilities and rural co-ops less), 0.6 percent in 2007, 0.7 percent in 2008, 0.8 percent in 2009, 0.9 percent in 2010, and 1.0 percent of sales in 2011 and thereafter. In order to estimate summer peak demand reduction, we use a coefficient of 0.33 MW of peak reduction per 1 GWh/yr of electricity savings from DSM programs. This coefficient is similar to what RMP as well as utilities in California, Nevada, and Colorado have achieved in the past. It implies that there is some emphasis on peak demand reduction within a comprehensive set of energy efficiency programs.

To project DSM budgets, we assume an initial energy savings to DSM program budget ratio of 5 kWh/yr of savings per DSM program dollar. This is approximately the value achieved by RMP in 2005-06. We assume this value decreases slightly over time to a minimum level of 4.3 kWh/yr of savings per DSM program dollar as "low hanging fruit" is exhausted and savings become more difficult and costly to achieve. Also, we assume that the energy savings measures persist throughout the evaluation period. Most energy efficiency measures have a 15-year or longer lifetime. Those with less than a 15-year lifetime would likely be replaced with additional efficiency measures at the end of their useful life.

Table 1 shows the projected DSM program budgets and resulting levels of energy savings during 2006-2020, given the assumptions listed above. Once again, these values apply to RMP along with the seven largest municipal utilities and rural electric co-ops, together accounting for 92 percent of electricity use in the state. Starting with DSM

[15] *2007 Integrated Resource Plan*. Portland, OR: PacifiCorp. May 2007.

programs in 2006, cumulative DSM efforts would yield about 894 GWh/yr of electricity savings by 2010, 2,375 GWh/yr by 2015, and 4,108 GWh/yr of savings by 2020. The peak demand reductions (not shown in the table) reach 295 MW by 2010, 784 MW by 2015, and about 1,356 MW by 2020. Savings from DSM programs implemented before 2006 are not included in these estimates since these programs occurred prior to the announcement of Governor Huntsman's energy efficiency goal.

Overall, this DSM effort would save about 6.9 percent of Utah's projected electricity use in 2015 in the absence of DSM programs, and 10.2 percent of projected electricity use in the state in 2020. The energy savings targets or standards would not eliminate all load growth, but they would reduce load growth to a more manageable level; i.e., from about 3.2 percent to 2.2 percent per year once the programs ramp up. Furthermore, the peak demand reduction would be greater than the reduction in energy use in percentage terms, thereby helping utilities increase their average system load factor.

Table 1 – Projected Electricity Savings and Corresponding DSM Budget Levels for Proposed Energy Savings Standards or Targets

Year	DSM funding level (million 2006 $)	Electricity Savings from Programs each Year (GWh/yr)	Electricity Savings from Cumulative Programs (GWh/yr)	Savings from Cumulative Programs as a Fraction of Sales (%)
2006	23.7	118.7	118.7	0.46
2007	30.0	147.0	265.7	1.00
2008	36.9	177.0	442.6	1.61
2009	44.4	208.7	651.3	2.30
2010	**52.7**	**242.3**	**893.6**	**3.05**
2011	61.7	277.8	1,171	3.88
2012	63.7	286.7	1,458	4.68
2013	65.8	295.9	1,754	5.45
2014	69.4	305.4	2,060	6.20
2015	**71.6**	**315.2**	**2,375**	**6.93**
2016	73.9	325.2	2,700	7.64
2017	78.1	335.6	3,036	8.32
2018	80.6	346.4	3,382	8.98
2019	83.1	357.5	3,739	9.62
2020	**85.8**	**368.9**	**4,108**	**10.25**

Cost and Cost Effectiveness

Implementing this policy would cost the state government little or no money since the PSC is already involved in approving and monitoring RMP's DSM programs. The state could benefit from expansion of DSM programs, including those targeted to commercial buildings, through additional technical assistance and/or incentive dollars.

Note that this does not include the cost of DSM programs which will be recovered from all customers including public sector customers.

Table 1 includes the estimated DSM program funding levels in order to meet the proposed energy savings targets or standards. DSM funding ramps up from about $24 million per year in 2006 to about $53 million per year by 2010, $72 million by 2015, and over $80 million per year in the final years of the analysis period (in 2006 dollars). At the $72 million annual funding level, utilities would be spending about 3.5 percent of their projected retail sales revenues on DSM programs. The proposed DSM spending level of about $22.00 per capita as of 2015 would place Utah among the top states in the nation in terms of DSM program spending per capita.[16]

These are significant expenditures of what ultimately is customers' money, but the increase in DSM funding is justified by the benefits. DSM programs enable utilities to purchase less fuel (and/or electricity) and reduce their investment in new power plants as well as transmission and delivery facilities over the lifetime of the efficiency measures. The projected electricity savings by 2020 is equivalent to the electricity output of approximately 600 MW of baseload power capacity. These avoided costs are substantial and should exceed the cost of the efficiency measures and the programs by a wide margin. Based on the experience of RMP and the work of the Energy Efficiency Task Force of the Western Governors' Association, we assume that future DSM programs in Utah have a benefit-cost ratio of 2.4 on average using the Total Resource Cost (TRC) test.[17]

Based on these assumptions, the proposed level of DSM program activity during 2006-2015 would stimulate about $796 million of investment in energy efficiency measures (discounted net present value). With an overall benefit-cost ratio of 2.4, the efficiency measures would produce $1.91 billion in gross economic benefits and $1.12 billion in net economic benefits over their lifetime. To put the net economic benefit figure in perspective, it is equivalent to about $1,140 for every household served by RMP and the seven municipal utilities and rural co-ops covered by the proposal. Even greater economic benefits result from efficiency measures installed during the 2016-2020 time period.

Environmental and Social Benefits

The DSM programs would lead to reduced operation of coal-fired and natural gas-fired power plants. This in turn will reduce water use and pollutant emissions by power plants. Assuming the avoided electricity generation comes from a mix of coal- and natural gas-fired plants, the water savings in Utah would be about 0.5 gallons per kWh of avoided power generation.[18] Thus the savings standards suggested above would save approximately 1.2 billion gallons of water per year by 2015 and 2.1 billion gallons of

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[16] Five states, California, Massachusetts, Rhode Island, Connecticut and Vermont, were at or above this funding level in 2006. See *U.S. Energy Efficiency Programs: A $2.6 Billion Industry.* Boston, MA: Consortium for Energy Efficiency. 2007. http://www.cee1.org/ee-pe/cee_budget_report.pdf.
[17] See Reference 10, p. 52.
[18] See Reference 4, pp. 3-23 – 3-24.

water per year by 2020. A total of about 14.6 billion gallons of water would be saved during 2008-2020.

The energy savings targets or standards would also reduce SO_2, NOx, mercury, and CO_2 emissions by power plants. We estimate these impacts based on the regional electricity conservation potential study that SWEEP completed in 2002.[19] Table 2 shows the estimated emissions reductions in 2015 and 2020 assuming the electricity savings displace the operation of a combination of gas-fired and new coal-fired power plants. The SO_2 and NOx emissions reductions are relatively limited because these newer power plants are cleaner than older power plants. However, the reduction in CO_2 emissions is very large because CO_2 is not a regulated or controlled pollutant at the present time. CO_2 emissions are of growing concern because they are the primary cause of the greenhouse effect and global warming. The estimated reduction in mercury emissions is relatively small in physical terms, but mercury is a highly toxic substance.

Table 2 – Estimated Emissions Reduction from the Proposed Energy Savings Standards or Targets

Pollutant	Avoided Emissions in 2010	Avoided Emissions in 2015	Avoided Emissions in 2020
Carbon dioxide (thousand metric tons)	600	1,595	2,757
SO_2 (short tons)	40	107	185
NOx (short tons)	250	665	1,150
Mercury (pounds)	3.6	9.5	16.4

The energy savings targets or standards will also provide social benefits. First, robust DSM programs will improve the quality of the housing and commercial building stock in Utah and lead to homes and work places that are more comfortable. For example, sealing leaky HVAC ducts will improve cooling ability and reduce hot zones within a building. Likewise, sealing the building envelope will reduce drafts.

Second, improving the energy efficiency of low-income housing will help occupants stretch their disposable income and will make it easier for them to pay their utility bills. This in turn will result in less utility arrearages, less bad debt, and fewer consumer shut-offs, thereby benefiting both utilities and low-income households.

Third, energy efficiency improvements such as better lighting, better ventilation, or better controls for HVAC systems can result in productivity improvements in the workplace, including reductions in worker absenteeism and increased output per worker.[20] In addition, energy efficiency improvements in schools, particularly increased

[19] See Reference 4, pp. 3-18 – 3-21.
[20] J.J. Romm. 1999. *Cool Companies: How the Best Businesses Boost Profits and Productivity by Cutting Greenhouse Gas Emissions*. Washington, DC: Island Press. Also, K. Imbierowicz and L.A. Skumatz. 2004.

use of daylighting, enhances the learning environment and has been shown to produce better student performance on standardized tests.[21] Likewise, there is good evidence that use of daylighting helps to increase sales in the retail sector.[22]

Fourth, achieving the energy savings standards or targets will lead to a net increase in employment in Utah. Selling and installing energy efficiency measures is relatively labor-intensive, while producing fossil fuels and electricity is not. In addition, consumers and businesses will re-spend their energy bill savings after efficiency measures are installed in ways that support more jobs in the local economy. For example, households will purchase a little more food, clothing, housing, entertainment, etc. on average, and these expenditures support more jobs than do electricity purchases. We estimate that the proposed savings standards would result in a net increase of 1,315 jobs in the state by 2015 and 2,260 jobs by 2020[23].

Political and Other Considerations

There has been broad support for RMP's DSM programs in recent years. The PSC has approved all of RMP's requests for new or modified DSM programs after demonstration that such programs are likely to be cost-effective. There has been minimal opposition to growth in funding for cost-effective DSM programs from stakeholders such as low-income advocates or industrial consumer representatives. Thus, there is not likely to be major opposition to continued growth in RMP's DSM programs as long as the programs are effective, well-managed, and producing clear benefits for the utility and its customers. Demonstrating that the programs provide economic benefits that are greater than the cost of the programs is critical for achieving this consensus.

Establishing energy savings targets or standards for RMP at the levels suggested above is likely to be more controversial. In particular, RMP could object to this policy. It may be more acceptable to adopt the targets or standards but include the caveat that the targets or standards would be relaxed if there are insufficient cost-effective programs and measures for meeting them.

Establishing energy savings targets or standards for municipal utilities and rural electric co-ops also would be controversial. Municipal utilities are currently not regulated by the PSC. However, the PSC does have the authority to adopt regulations other than those pertaining to rates or charges for electric co-ops. It might be politically feasible to

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"The Most Volatile Non-Energy Benefits: New Research Results 'Honing In' on Environmental and Economic Impacts." *Proceedings of the 2004 ACEEE Summer Study on Energy Efficiency in Buildings.* Washington, DC: American Council for an Energy-Efficient Economy.

[21] L. Heschong and R. Wright. 2002. "Daylighting and Human Performance: Latest Findings." *Proceedings of the 2002 ACEEE Summer Study on Energy Efficiency in Buildings.* Washington, DC: American Council for an Energy-Efficient Economy.

[22] R. Peet, L. Heschong, R. Wright, D. Aumann. 2004. "Daylighting and Productivity in the Retail Sector." *Proceedings of the 2004 ACEEE Summer Study on Energy Efficiency in Buildings.* Washington, DC: American Council for an Energy-Efficient Economy.

[23] These estimates are derived from a previous study that includes analysis of employment impacts from increasing the efficiency of electricity use in Utah. See Reference 4, pp. 4-1 – 4-18.

establish energy savings targets for the municipal utilities and co-ops, but leave the implementation (and hence compliance) up to each individual utility. This means there would not be enforcement of the targets in the case of the municipal utilities and co-ops. A number of municipal utilities in western states including utilities in Austin, Seattle, Sacramento, and Fort Collins are implementing exemplary energy efficiency programs, without state regulation. Adopting energy savings targets for larger municipal utilities and co-ops in Utah should have a positive effect even if there is no PSC oversight or enforcement.

Measurement and verification of energy savings will be an important issue if energy savings targets or standards are adopted. In particular, it will be important not to overstate energy savings from utility DSM programs. For example, the utilities should evaluate the net impacts of their programs taking into account both "free riders" and the spillover effect. The utilities should undertake thorough energy savings analyses of their DSM programs using well-established procedures such as the International Performance Measurement and Verification Protocol.[24]

Priority

This policy would yield large electricity savings as well as substantial economic, environmental, and social benefits. The energy savings targets or standards we suggest are ambitious but are not unprecedented considering DSM experience nationwide. We recommend that this option be viewed by the Governor, Legislature, and PSC as a **high priority.**

Case Study 1:

Energy Efficiency Retrofit at a Turkey Processing Plant: Moroni Feed Company, Moroni

Moroni Feed Company is a fully integrated turkey producing and processing cooperative. Five million commercially grown turkeys are raised by 64 independent members of the cooperative every year. The turkeys are processed at Moroni's central plant. Moroni Feed Company utilized Rocky Mountain Power's Energy FinAnswer program to facilitate upgrading the energy efficiency of condensers and compressors at the plant. Participation in this program cut the cost of the retrofit in half, resulting in an acceptable payback period.

The project involved replacing a less efficient shell-and-tube condenser with a high efficiency evaporative condenser and variable speed fan controls. A computer control system was also installed for the processing plant's refrigeration system. The facility previously used manually operated compressors and condensers. The new control system was installed in order to automatically sequence and unload compressors to optimize energy efficiency.

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[24] See www.ipmvp.org.

Quick Facts

Total Project Cost: $464,000 ($232,000 after the utility incentive)
Annual Energy Savings: $78,940 (2.1 million kWh/year)
Equipment: High efficiency condensers, compressors and automated control system.
Simple Payback: 2.9 yrs (5.9 yrs before incentive)
Benefits:

- reduced electricity use
- increased equipment longevity
- increased process reliability
- reduced equipment downtime
- shorter compressor operating hours
- lower peak summer condensing pressures
- better access to system data

Source: Rocky Mountain Power, 2006

Case Study 2:

Lighting Retrofit:
Utah Indoor Soccer, Woods Cross

Utah Indoor Soccer keeps the lights on for 9 to 15 hours a day, seven days a week at its 20,000 square foot indoor soccer facility. With funding from Rocky Mountain Power's Energy FinAnswer Express DSM program, Utah Indoor Soccer replaced older high bay metal halide light fixtures with energy-efficient T5 high output fluorescent light fixtures. The new fixtures improved lighting on the soccer fields and cut electricity use by more than 50 percent.

Regarding the utility incentive program, the lighting contractor responsible for implementing this project had this to say, "You can't beat it. It was the difference between doing and not doing this project." And in addition to the electricity savings, the new lamps last longer meaning reduced maintenance costs.

Quick Facts

Efficiency measures: T5 high output fluorescent light fixtures
Total project cost: $15,060 ($10,025 after the utility incentive)
Annual energy bill savings: $6,070 (88, 700 kWh/year)
Simple payback period: 1.7 years (2.5 years before incentive)
Benefits:

- reduced electricity use
- better lighting quality
- better light control
- longer lamp life and less maintenance

Source: Rocky Mountain Power, 2004

Option 2: Adopt Decoupling and/or Shareholder Incentives to Stimulate Greater Utility Support for Energy Efficiency Improvements

Background

Currently Rocky Mountain Power (RMP) receives dollar-for-dollar cost recovery for its DSM programs through a tariff rider mechanism. A number of states, including California, Idaho, Maryland, and Oregon, have adopted decoupling policies that break the link between electric or natural gas utility sales and recovery of fixed costs.[25] The amount of allowed fixed cost recovery is determined ahead of time in a rate case, and a true-up mechanism is used to ensure the utility received no more (or no less) than the determined amount. This removes the financial incentive that utilities traditionally have of promoting more energy consumption (and ineffective conservation programs) in-between rate cases. It also removes the disincentive that utilities have for supporting adoption of combined heat and power systems by their customers.

In 2006, the Utah Public Service Commission (PSC) approved a three-year pilot decoupling mechanism for Questar Gas Company (QGC), in conjunction with initiating natural gas DSM programs.[26] This policy, known as the Conservation Enabling Tariff, addresses the issue of declining natural gas usage per customer while removing the disincentive for QGC to implement effective natural gas DSM programs. The basic approach is to determine allowable non-gas revenue per customer and use a balancing account with periodic true-ups to meet pre-established fixed cost recovery requirements. Shortly after this policy was adopted, QGC developed and received approval from the PSC to implement five natural gas DSM programs starting in 2007 (see Option 4 below).

Other states including Arizona, Connecticut, Massachusetts, Minnesota, and Nevada have adopted performance incentives (also known as shareholder incentives) to reward utilities for implementing effective DSM programs and overcome their historical reluctance for doing so. Various approaches to performance incentives exist, including allowing utilities to earn a higher-than-normal rate of return on some or all DSM expenditures, allowing utilities to earn a bonus if they meet certain energy savings targets, or allowing utilities to keep a portion of the net economic benefits resulting from their DSM programs. The incentive is usually limited to a small fraction of the net economic benefits produced by the DSM programs. Performance incentives can be relatively easy to implement, and consequently more states have adopted this approach than decoupling, at least for electric utilities.[27]

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[25] M. Kushler, D. York, and P. Witte. 2006. *Aligning Utility Interests with Energy Efficiency Objectives: A Review of Recent Efforts at Decoupling and Performance Incentives.* Washington, DC: American Council for an Energy-Efficient Economy, October. In March 2007, the Idaho Public Utilities Commission adopted decoupling for Idaho Power Co. on a three-year pilot basis.

[26] Order Approving Settlement Stipulation: In the Matter of the Approval of the Conservation Enabling Tariff Adjustment Option and Accounting Orders. Public Service Commission of Utah, Salt Lake City, UT. October 5, 2006.

[27] See Reference 25.

Specific Energy Efficiency Proposal

This policy would either: 1) extend decoupling to RMP, the one investor-owned electricity distribution utility in the state, 2) adopt performance-based incentives to encourage RMP (and possibly QGC) to maximize the amounts of cost-effective energy savings they achieve, or 3) do both. There is no redundancy in adopting both decoupling and performance incentives; in fact, the two policies are complementary in that decoupling removes disincentives to promoting more efficient energy use while incentives reward utilities for doing a good job.

One performance-based incentive option would be to allow RMP to get a bonus as it meets and surpasses a minimum threshold of energy savings. For example, the utility could be given a bonus of up to 10 percent of its expenditures for achieving energy savings in excess of 100 GWh per year (savings in recent years have ranged from 100-120 GWh per year). The bonus, which would be added to the DSM tariff rider collected each year, could increase on a sliding scale as the utility achieves more energy savings, and could be limited to no more than 20 percent of the net economic benefits provided by DSM programs in any one year, thereby ensuring that customers realize the majority of the benefits.

Another option would be to allow RMP to capitalize and earn a rate of return on its DSM expenditures, rather than treating them as an expense. In order to provide a performance incentive, the rate of return for DSM expenditures could be increased in proportion to the energy savings and peak demand reduction achieved, as well as program cost effectiveness. Once again, the value of the additional rate of return could be capped at 20 percent of the annual net economic benefits provided by the DSM programs. This approach, proposed recently by SWEEP in Nevada, would ensure that customers maintain the majority of the economic benefits while giving the utility a financial incentive to maximize energy savings and economic benefits.[28]

Energy Savings

Adopting decoupling or shareholder incentives would support the expansion of DSM programs in Utah and achievement of the goals spelled out in Option 1. But it is difficult to estimate what impact adopting decoupling or shareholder incentives alone would have on either DSM funding or energy savings. Furthermore, it would be unreasonable (double counting) to add savings from this policy to those attributed to Option 1. Therefore we consider this option as helping to facilitate the savings attributed to Option 1, but not providing additional savings.

Cost and Cost Effectiveness

There would be a very modest cost to establish and implement decoupling or shareholder incentives for RMP in terms of the regulatory cost; i.e., time and expense for

[28] For a copy of the Nevada proposal, see www.swenergy.org/news/SWEEP_Nevada_Comments_022007.pdf.

the PSC. This cost might be on the order of $100,000 per year. It is unclear if the PSC would need additional funding or could implement this policy within its current budget.

There could be much greater costs and benefits to society if this policy leads to an expansion of utility DSM programs, with the benefits exceeding the costs assuming the additional DSM programs are cost effective. However, it is not possible to estimate the magnitude of such costs and benefits.

Political and Other Considerations

Decoupling can be a controversial policy as it is perceived by some as shifting risk from utility shareholders to consumers. This argument was made by the Committee for Consumer Services, for example, when natural gas decoupling was debated in Utah. Likewise, shareholder incentives for expanded DSM programs can be perceived as an excessive reward for utilities, accompanied by the argument that utilities should be implementing well-funded and effective DSM programs as part of their normal course of business without any type of shareholder incentive.

The arguments against decoupling and shareholder incentives can be mitigated if not eliminated by including certain features when the policies are crafted. These include: 1) making any shareholder incentives performance-based and including financial penalties for poor performance as well as rewards for superior performance; and 2) capping any financial incentive and limiting it to a small portion of the net economic benefits provided by the DSM programs. Regarding decoupling, it is possible to design a decoupling policy that is narrower in scope than full decoupling of utility sales and revenues. For example, Oregon has adopted partial decoupling for its main natural gas utility. This mechanism applies to weather-normalized gas consumption, meaning any weather-related variation in gas use is not addressed by the decoupling mechanism.[29]

Priority

We believe that this policy could be valuable for stimulating further expansion of electricity DSM programs in Utah. However, we acknowledge that it would be controversial. Therefore, we recommend that it be viewed by policymakers including the PSC as a **medium priority.**

[29] *Energy Efficiency Policy Toolkit*. Gardiner, ME: Regulatory Assistance Project. July 2006, p. 26. http://www.raponline.org/Pubs/Efficiency%20Policy%20Toolkit%201%2004%2007.pdf.

Option 3: Adopt Innovative Electricity Rates in Order to Stimulate Greater Electricity Conservation and Peak Demand Reduction

Background

There are a number of ways to use electricity rates to stimulate electricity conservation and peak demand reduction. One way is to adopt time-of-use (TOU) rates that have higher kWh charges during peak demand periods compared to off-peak periods. Another strategy, already in effect in Utah to some degree, is to adopt inverted block rates, whereby the price per kWh increases as electricity consumption increases. A third way is to adopt some sort of demand response pricing strategy such as real-time pricing or critical peak pricing.[30]

The WGA Energy Efficiency Task Force report notes that a number of western states, including Utah, have adopted inverted block rates (also known as tiered rates) for residential customers. Under inverted block or tiered rates, the price per kWh increases as electricity consumption increases. In California, for example, basic residential tariffs are split into five tiers, with the highest consumption tier nearly twice as expensive per kWh as the lowest tier. As the Task Force report stated, "…this provides a strong incentive for conservation and efficiency investments, complementing other energy efficiency initiatives such as utility DSM programs and building energy codes."[31]

Critical peak pricing is a type of demand response program that allows the utility to increase the price of electricity during times of maximum power demand and/or cost. It is targeted to households with central air conditioning, generally households with above average electricity consumption. Households can be equipped with enabling technology that automatically reduces AC use (or the use of other high-demand devices) during critical peak periods. Customers are also notified by phone or email when these critical events occur.

In a pilot program in California known as the Automated Demand Response System (ADRS), a sampling of households with central air conditioning were placed on TOU rates as well as critical peak rates that were about three times the normal on-peak rates during a limited number of "critical peak" periods. The customers were able to program controls to change their air conditioner thermostat setting or curtail other loads during these periods. The ADRS pilot program found a significant reduction in peak demand by participating high-consumption households with automated controls, about 1.4-1.8 kW (43-51 percent) on average. In addition, participants reduced their total electricity use during summer months by about five percent on average.[32] The California pilot program also found that critical peak pricing had a much greater impact on summer peak demand than TOU rates.

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[30] *National Action Plan for Energy Efficiency.* Washington, DC: U.S. Department of Energy and the Environmental Protection Agency. July 2006. http://www.epa.gov/cleanenergy/pdf/napee/napee_report.pdf.
[31] See Reference 10, p. 34.
[32] *Automated Demand Response System Pilot. Final Report, Volume 1.* Boulder, CO: Rocky Mountain Institute, March 31, 2006. Also, J. Swisher, K. Wang, and S. Stewart. "Evaluation of automated residential

In another demand response pilot program known as the Energy Smart Pricing Program (ESPP), voluntary real-time pricing was implemented for 1,400 households with air conditioning in Chicago. Prices were communicated to customers on a day-ahead basis via a toll-free phone number or by visiting a web site. The ESPP resulted in peak demand reductions of about 20 percent and an overall reduction in summer electricity use of about three to four percent on average.[33]

Specific Energy Efficiency Proposal

This policy would implement critical peak pricing or real-time pricing for residential customers in Utah with central air conditioning. A pilot program should first be conducted to determine the impacts and the cost effectiveness of different approaches. A key issue is whether or not the value of the peak demand reduction and energy savings more than offsets the cost for new meters as well as any additional in-house control technologies. If one or more of the pilot programs prove to be cost effective, we recommend scaling up the effort to all customers with air conditioning or possibly just those AC customers with above average electricity use.

In order for any pricing policy to be effective in promoting energy efficiency and conservation, education should be carried out to inform customers about opportunities to reduce electricity use during peak demand periods. This could be done in conjunction with other public education efforts (see Option 21).

Energy Savings

Regarding critical peak pricing or real-time pricing along the lines implemented in California and Chicago, we assume such rate designs and associated enabling technologies result in 4 percent energy savings on average during the four summer months. About 54 percent of RMP's residential customers had central air conditioning as of 2005 and this fraction is on the rise.[34] For the sake of this analysis we assume that 65 percent of households use central air conditioning by 2015. Given these assumptions, the estimated energy savings is 208 kWh per year per participating household on average. In addition to the energy savings, there should be a substantial reduction in peak power demand.

Assuming the number of households in the state grows to 1.06 million by 2015, the aggregate electricity savings potential from residential demand response pricing is about 143 GWh/yr by 2015. By 2020, the savings potential could grow to an estimated 160 GWh/yr. These energy savings levels are relatively modest, about 1.5 percent of total projected electricity consumption by residential customers. However, the peak demand reduction potential could be much more significant, on the order of 300-600 MW by

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demand response with flat and dynamic pricing." *Proceedings of the ECEEE 2005 Summer Study*. Boulder, CO: Rocky Mountain Institute.

[33] A. Star, L. Kotewa, M. Isaacson, and M. Ozog. 2006. "Real-Time Pricing is the Real Deal: An Analysis of the Energy Impacts of Residential Real-Time Pricing." *Proceedings of the 2006 ACEEE Summer Study on Energy Efficiency in Buildings.* Washington, DC: American Council for an Energy-Efficient Economy. pp. 5-316 – 5-327.

[34] Personal communication with Jeff Bumgarner, PacifiCorp, Portland, OR, February 19, 2007.

2015. Once again, this assumes that all households with central air conditioning participate either voluntarily or due to a change in the basic residential tariff.

Cost and Cost Effectiveness

Analysis of the California ADRS pilot program found that the cost effectiveness is very sensitive to issues such as the scale of the program, the assumed avoided costs, and the level of peak demand reduction.[35] Targeting high-consumption households and possibly households in areas of high avoided costs was recommended as one strategy for improving cost effectiveness. In addition, the technologies for residential demand response are changing rapidly. For these reasons, it is very difficult to estimate the potential cost and cost effectiveness of such programs in Utah. This should be done through careful design and analysis of a pilot program or programs.

Environmental and Social Benefits

Given that the energy savings is relatively modest, this option is not likely to have a large impact on pollutant emissions from power plants. However, the significant reduction in power demand during peak load periods could reduce emissions on very hot days, thereby helping Utah meet air quality standards and improve public health.

Adopting critical peak pricing could benefit low-income households since these households tend to have below average electricity use in general and less electric air conditioning in particular. These households would benefit both from the lower rates during non-critical periods and from the reduced investment in new power plants and/or distribution system upgrades as a result of attenuating peak load growth.

Political and Other Considerations

Residential critical peak pricing needs to be demonstrated and evaluated in Utah. If a pilot program turns out to be cost effective, then a full scale program should be implemented. In doing so, a key decision will be whether to implement the strategy on a voluntary or mandatory basis. A voluntary critical peak pricing option will be less controversial but also will have less impact. It may be preferable to start with a voluntary option and then consider making critical peak pricing or real-time pricing mandatory after a high level of consumer awareness and acceptance is obtained.

Priority

It does not appear that these innovative electricity pricing options would result in a significant amount of incremental energy savings. However, critical peak pricing or real-time pricing could result in a significant peak demand reduction based on experience in other states. Therefore we recommend initiation of a pilot program in this area as a **medium priority.**

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[35] *Residential Automated Demand Response System (ADRS) Pilot Economic Analysis Report.* Boulder, CO: Rocky Mountain Institute, March 2005.

Option 4: Expand Natural Gas Utility Energy Efficiency Programs and Establish Energy Savings Targets for these Programs

Background

A study regarding natural gas energy efficiency potential was completed by the consulting firm GDS Associates, Inc. for the Utah Natural Gas Demand Side Management (DSM) Advisory Group in 2004.[36] The study concludes that a comprehensive and well-funded 10-year DSM effort could reduce the natural gas use of residential and commercial customers by 20 percent at the end of the 10-year period. The estimated benefit-cost ratio for this overall effort is 2.39 using the Total Resource Cost (TRC) test.

Numerous gas utilities are implementing cost-effective DSM programs that are helping their customers reduce their gas consumption and gas bills. SWEEP carried out a survey of gas DSM programs offered by 10 utilities with comprehensive DSM programs.[37] This survey found that as of 2004, the leading gas utilities were spending 1.0-1.6 percent of their retail revenues on DSM programs and were reducing gas sales by 0.5-1.0 percent per year. This is the amount of gas savings from programs implemented in 2004 alone. Furthermore, the benefit-cost ratio for these programs as a whole ranged from 1.6 to 5.6, and in most cases exceeded 2.0.

In addition, California adopted new energy savings requirements for both gas and electric utilities in 2004.[38] The gas requirements will provide customers relief from rising natural gas bills by tripling annual gas savings after a 10-year effort, saving 44 million decatherms per year by 2013, equivalent to the gas consumption of one million households on average. Gas utilities in California began ramping up their DSM programs in 2006.

Questar Gas Company (QGC) developed a set of natural gas efficiency programs for its customers in consultation with a stakeholder advisory group during 2006, following the adoption of gas sales/revenue decoupling on a pilot basis. These programs were submitted to the PSC and approved for implementation in early 2007.[39] QGC is anticipating it will spend $7.0 million per year initially on gas DSM programs for both residential and commercial (general service) customers. The DSM programs are expected to reduce gas use by 133,000 decatherms per year, which is equivalent to about 0.14 percent of gas sales to these customers. The proposed DSM budget is equivalent to about 0.8 percent of QGC's retail sales revenues from its general service customers. QGC is committed to implementing gas DSM programs on a pilot basis for three years.

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[36] *The Maximum Achievable Cost Effective Potential for Gas DSM in Utah for the Questar Gas Company Service Area*. Final Report prepared by GDS Associates for the Utah Natural Gas DSM Advisory Group, June 2004. http://www.swenergy.org/news/Natural_Gas_DSM_Potential_in_Utah.pdf.
[37] S. Tegen and H. Geller, *Natural Gas Demand-Side Management Programs: A National Survey*. Boulder, CO: Southwest Energy Efficiency Project, January 2006. http://www.swenergy.org/pubs/Natural_Gas_DSM_Programs_A_National_Survey.pdf
[38] California Public Utilities Commission. Decision D.04-09-060, September 2004.
[39] Order. Docket No. 05-057-T01. Public Service Commission of Utah. January 16, 2007.

Specific Energy Efficiency Proposal

This policy would maintain and expand natural gas DSM programs in Utah. Funding of programs for residential and commercial customers would be ramped up to about 1.5 percent of sales revenues by 2010, and remain at this level through 2020. Additional funding would be used to expand program marketing as well as add new efficiency measures, such as high-efficiency boilers, energy efficiency retrofits for multi-family buildings, and high-efficiency commercial food service equipment, to the DSM portfolio QGC initiated in 2007. In addition, we propose initiating gas DSM programs for industrial customers but limiting the budget for such programs to 0.75 percent of natural gas costs (both commodity and transportation) for these customers. This will enable QGC to increase its gas savings while limiting the impact of DSM programs on the rates paid by industrial customers.

We also suggest setting gas savings targets, namely to save 2 percent of total gas sales in the state by 2011 and 5 percent of sales by 2015, from DSM programs implemented starting in 2007. The objective is to stimulate “best practice” natural gas DSM programs in the state, in addition to best practice electricity DSM programs. In order to facilitate achievement of the gas savings targets, we assume that decoupling of sales and fixed cost recovery is maintained.

Energy Savings

In projecting energy savings, we assume that QGC increases the effectiveness of its programs over time and by 2010 is able to save 63,000 decatherms per million dollars spent on DSM programs. This is the median savings value achieved by the ten utilities surveyed by SWEEP.[40] Also, we assume that the energy savings measures persist throughout the evaluation period. Many gas saving measures, such as home insulation or high-efficiency furnaces, have lifetimes of 15 years or more. Those with less than a 15-year lifetime would likely be replaced with additional efficiency measures at the end of their useful life.

Table 3 shows the projected DSM program budgets and resulting levels of energy savings during 2007-2020, given the assumptions listed above. These values apply to DSM programs for all customers – residential, commercial, and industrial. Starting with DSM programs in 2007, cumulative DSM efforts would yield about 2.4 million decatherms per year of gas savings by 2010, 8.3 million decatherms per year by 2015, and 15.0 million decatherms per year by 2020. Overall, this DSM effort would save about 5.2 percent of Utah’s projected natural gas use in 2015 in the absence of DSM programs, and nearly 9 percent of projected gas use in the state in 2020. In making these estimates, we only consider gas use for energy purposes. Natural gas feedstocks used by the petrochemical industry, for example, are excluded.

[40] See Reference 37.

Cost and Cost Effectiveness

Table 3 includes the estimated DSM program funding levels in order to meet the proposed energy savings standards. DSM funding ramps up from about $7 million per year in 2007 to nearly $20 million per year by 2015 (in 2006 dollars). The proposed DSM spending level of about $6.00 per capita as of 2015 is less than what is being spent on gas DSM in leading states (Wisconsin and Iowa) as of 2006.[41]

Table 3 – Projected Gas Savings and Corresponding DSM Budget Levels for Gas DSM Programs

Year	DSM funding level (million 2006 $)	Natural Gas Savings from Programs each Year (million decatherms/yr)	Natural Gas Savings from Cumulative Programs (million decatherms/yr)	Savings from Cumulative Programs as a Fraction of Sales (%)
2006	0.0	0.0	0.0	0.0
2007	7.0	0.14	0.14	0.12
2008	11.2	0.38	0.52	0.38
2009	14.3	0.70	1.22	0.86
2010	**17.5**	**1.11**	**2.33**	**1.60**
2011	18.0	1.13	3.46	2.34
2012	18.4	1.16	4.62	3.07
2013	18.8	1.19	5.81	3.80
2014	19.3	1.22	7.02	4.52
2015	**19.7**	**1.24**	**8.27**	**5.24**
2016	20.2	1.27	9.54	5.96
2017	20.7	1.30	10.84	6.67
2018	21.2	1.33	12.18	7.39
2019	21.6	1.36	13.54	8.09
2020	**22.2**	**1.40**	**14.94**	**8.80**

We assume that DSM programs pay for half of the cost of natural gas efficiency measures on average, leading to a total investment of $221 million in efficiency measures during 2007-2015 (discounted net present value). Based on the experience of other gas utilities with comprehensive gas DSM programs as well as the Utah gas DSM potential study, we assume that gas DSM programs in Utah have a benefit-cost ratio of 2.4 on average using the TRC test, once such programs are well-established.[42] This is considerably greater than the estimated benefit-cost ratio of 1.3 for the DSM programs

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[41] See *U.S. Energy Efficiency Programs: A $2.6 Billion Industry*. Boston, MA: Consortium for Energy Efficiency. 2007. http://www.cee1.org/ee-pe/cee_budget_report.pdf.
[42] See References 36 and 37.

that QGC is implementing in 2007. However, 2007 is the first year of DSM programs with start-up costs and limited energy savings.

Based on these assumptions, the efficiency measures installed during 2007-2015 would produce $530 million in gross economic benefits and $309 million in net economic benefits over their lifetime (discounted net present value). To put the net economic benefit figure in perspective, general service customers paid about $880 million for natural gas and industrial customers paid about $370 million as of 2006. Even greater economic benefits result if the gas DSM programs implemented in the 2016-2020 time period are included.

Environmental and Social Benefits

Stimulating more efficient gas use through gas DSM programs will provide other benefits besides the direct gas and energy bill savings. Some gas conservation measures such as energy-efficient clothes washers and dishwashers also save water and/or electricity. Some measures such as home retrofits and duct sealing will improve occupant comfort and reduce health problems such as mold formation. Other measures such as furnace tune-ups and replacement will enhance consumer safety as well.

Gas conservation efforts in low-income households will help these households stretch their disposable income. It also will make it easier for these households to keep up with utility bill payments, meaning fewer shut-offs, fewer bill arrearages, and less bad debt for gas utilities. Natural gas conservation also puts downward pressure on wholesale natural gas prices and helps businesses increase their productivity. In addition, conserving natural gas will result in reduced pollutant emissions and other environmental benefits due to decreased gas combustion.

Regarding environmental benefits, this policy would lead to a significant reduction in CO_2 emissions from reduced burning of natural gas. We estimate annual CO_2 emissions would decline by about 440,000 metric tons in 2015 and 794,000 tons in 2020.

Political and Other Considerations

Gas utilities in Utah (and elsewhere) have been experiencing declining gas sales per customer due to factors such as national appliance efficiency standards, building energy codes, and conservation efforts stimulated by rising gas prices. In order to get gas utilities to support and operate well-funded and effective energy efficiency programs, it is critical to remove the financial disincentive they have towards promoting less gas consumption by their customers. Consequently, it is important to adopt sales and revenue decoupling as has been done on a pilot basis in Utah. In our view, continuing decoupling will be valuable if not essential for realizing the gas savings targets proposed above.

Priority

This policy would yield large natural gas savings as well as substantial economic and environmental and social benefits. We recommend that it by viewed by the Governor, Legislature, and PSC as a **high priority.**