Chapter 7. Demand-Side Management

In this Resource Plan, we continue our dedication to achieving high levels of energy and demand savings. Currently, we have committed to achieve savings of 1.15% of gross annual retail sales in 2010, 1.2% in 2011, and 1.3% in 2012. We propose to fully implement our 1.3% savings goal, and work toward meeting the state goal of 1.5% savings over the next several years.

In order to achieve and sustain our goals we will need to build on and continue the success of our current programs, and to pursue savings from non-traditional demand-side management ("DSM") programs, such as:

- Codes and standards;
- Market transformation and behavior change programs;
- Electric utility infrastructure improvements; and
- Renewable distributed generation.

Expanding savings from these and other non-traditional programs will be critical to achieving and sustaining our proposed savings goals. We will need to work with the OES and stakeholders on developing and approving new methodologies to account for savings from these non-traditional programs, as well as support for incentive mechanisms to address financial impacts of increased reliance on these programs.

As our collective experience with these new programs increases, we expect to be able to achieve even higher levels of energy savings, such as the statewide energy savings goal of 1.5% of gross annual retail sales set by the Next Generation Energy Act of 2007, 2007 Minn. Laws Ch. 136, ("2007 Act").

Historical Performance

Xcel Energy has one of the longest-running and most successful DSM programs in the country. Between 1990 and 2009, Xcel Energy spent over $754 million (nominal)

on its Minnesota DSM efforts and saved over 5,027 GWh of energy and 2,442 MW of demand.

In 2008 and 2009, we began to expand and adjust our Conservation Improvement Program ("CIP") in order to meet the goals established in the Act. Our early efforts have been successful, resulting in achievements that have surpassed historic levels.

To build on this momentum in 2010 and further ramp up our programs, we doubled rebates for many programs, which attracted many new participants to the market and has begun to capture pent-up demand. Our commercial and residential lighting programs are also showing strong results. The commercial lighting program has benefited from active contractor promotion of quick payback lighting projects and robust participation in our Energy Analysis program, which often recommends lighting upgrades as an easy, cost-effective first step to improving efficiency. Residential customers have responded well to our spring Home Lighting promotions, positioning us to exceed our savings goal for this program with the planned fall promotion. Additionally, we believe that improvements and enhancements to our marketing strategy have improved program visibility and increased customer interest in saving energy through our programs.

These early performance indicators have increased our confidence in our ability to achieve high levels of savings. At this time, we expect our 2010 programs to achieve savings of approximately 1.3% of retail sales, which is the level of our 2012 goal. We are encouraged by this performance and believe that these results will be repeatable over the near term. We will face challenges beginning in 2013 as residential lighting standards go into effect and then as commercial lighting standards come online. Similarly, as more aggressive building codes and equipment standards enter the market, the savings potential for the affected measures is decreased.

Our challenge going forward is to discover new sources of savings and new ways to engage our customers that will allow us to sustain and grow these high levels.

The Next Generation Energy Act of 2007

The Act changed the landscape of DSM in Minnesota by shifting the emphasis away from the dollars spent on DSM toward the achievement of higher levels of energy savings. To increase savings, the Act established a statewide energy conservation goal of 1.5% of retail sales. The Act also specified that a CIP plan must seek to achieve minimum savings equal to 1% of retail sales through direct customer energy conservation programs. Savings beyond the 1% threshold may be achieved through indirect efforts, including codes and standards, market transformation and behavior change programs, electric utility infrastructure improvements and rate design.

Our 2007 Resource Plan (Docket No. E002/RP-07-1572) was the first Resource Plan to incorporate the higher goals established by the Act. The 2007 Resource Plan Order approved near term goals of 1.15% of sales in 2010, 1.2% in 2011, and 1.3% in 2012, with the expectation that we will strive to reach the 1.5% goal over the long term planning horizon. The percent of sales goals for the 2007 Resource Plan were developed by considering the results of our latest market potential study and the challenges we face in reaching and sustaining higher goals, as well as our experience delivering DSM programs.

These energy savings goals were incorporated, in slightly modified form, into our 2010-2012 CIP Triennial Plan ("Triennial Plan"), our first DSM plan to reflect the higher savings goals established in the Act and ordered in the 2007 Resource Plan. The final goals approved by the Office of Energy Security in the Triennial CIP Plan are 1.13% of sales in 2010, 1.19% in 2011 and 1.3% in 2012.

These goals represent a 35% increase over our 2001-2009 average achievements, requiring a significant ramp up across our portfolio. In order to develop a plan that meets the higher goals, we have drawn on our experience in developing and managing conservation programs to create several growth strategies, which are described below.

Expansion of Existing Programs

Expanding our existing programs has been a major growth strategy. The Program Managers ("PM") lead teams to carefully review their programs and the programs' growth potential, as well as identify new energy saving technologies that could be added to existing programs. For example, we added three new rebate tiers to our Computer Efficiency program to encourage further participation in that program, as well as standard prescriptive rebates[1] for new measures in our Motors and Compressed Air programs. The PM's continue to seek out additional measures to add to their existing programs.

Development of New Products

The development of new products is key to future program enhancements. For the Triennial Plan, we developed a number of new pilot programs, such as the Energy Feedback Pilot for residential customers and Annex 49 Pilot for industrial customers. Additional new residential programs included in the Triennial Plan are: Energy Efficiency Support Services, Home Insulation Rebates, Refrigerator Recycling, Residential Quick Fix Service and School Education Kits. New programs added in the business segment are: Turn-Key Services, Business Education, Data Center Efficiency and Energy Advisory Service. We have also launched the Emerging Technologies Grant Program, which provides funding to accelerate market introduction and adoption of promising energy efficiency technologies in our service territory. Additional details on these programs can be found in our 2010-2012 CIP Triennial Plan, which is available on the e-Dockets website under Docket No. E,G002/CIP-09-198 and the Xcel Energy website.[2]

Program Policy Changes

We reviewed our current program policies and made changes to those programs in order to increase savings potential. For example, to facilitate further penetration into

[1] A "prescriptive rebate program" offers a pre-determined rebate value to a customer for taking specified actions.
[2] https://www.edockets.state.mn.us/EFiling/home.jsp
http://www.xcelenergy.com/Minnesota/Company/About_Energy_and_Rates/DemandSideManagement/Pages/Home.aspx

our markets, study-based programs increased funding from up to 50% of study cost to up to 75%.[3] We also increased rebates for prescriptive programs to pay a larger portion of incremental cost, targeting up to 60% of incremental cost. Increased rebate levels will bring the business payback closer to two to three years, which is what customers report that need in order to make investments in energy efficiency. Custom programs increased funding from $200 per kilowatt (kW) and $2 per dekatherm (Dth) saved to $400/kW and $5/Dth saved and reduced payback criteria from 1 to 15 years to 9 months and up to 15 years, depending on the life of the measure.

Customer Support Services

Customers that are given more information and personalized service will be more active and engaged. In the Triennial Plan, we strengthen our practice of long-term planning for energy efficiency with large commercial and industrial customers by jointly developing energy efficiency plans and expanding our Process Efficiency program. We also provide systematic planning and analysis tools for small and mid-sized business customers, such as benchmarking and audit tools. In addition, we provide implementation services to make energy efficiency more convenient for our customers. Examples include our Energy Advisory Services program and Refrigerator Recycling.

Improvement of Sales Channels

The success of a program begins with knowledge of its benefits. We build awareness through advertising and promotion tactics, including market segmentation, web-based tools, and community organizations. We strengthened internal sales channels for the residential, small business and mid-market segments by increasing call center training, developing call center proactive messaging, improving website content and functionality. We strengthened trade channels by expanding the role of the Trade

[3] A "study-based program" provides funding for an engineering study to help a customer identify and research savings opportunities at its facility, and offers rebates based on the measures identified by that study that the customer agrees to implement.

Relations Manager and working with trade organizations. Additional tools and ongoing training are also being provided to our Account Managers.

In summary, we have developed and implemented several strategies that are designed to stimulate broad awareness of energy conservation, provide expanded and more convenient ways for customers to participate in our programs, and motivate customers to invest in a variety of energy conservation measures. We believe that these efforts demonstrate our ongoing commitment to innovate and improve our CIP.

Detailed Assessment of Energy Savings and Goal Selection

As discussed above, we are proposing a conservation savings goal of 1.3% of retail sales by 2012 and increasing to 1.5% soon thereafter. We believe that this level of savings will be challenging, but believe it is achievable if we can effectively build on the additional tools, programs and resources we have made available to our customers, as well as the opportunity to account for savings from non-traditional conservation programs. We will continue to explore these other savings opportunities, including market transformation and behavior change programs, codes and standards, and electric utility infrastructure improvements.

A sustained 1.3% savings goal would result in over 6,000 GWhs of energy savings and over 1,300 MWs of demand reductions during the 2011 through 2025 planning period. The forecasted annual energy savings associated with the 1.3% scenario decrease compared to what was approved in the 2007 Resource Plan. This is because the sales forecast used in this Resource Plan, includes lower sales during the planning period than what was assumed in the 2007 Resource Plan forecast. Similarly, our 2010-2012 savings goals were based on 2006, 2007, and 2008 actual sales, which were higher than forecasted 2009, 2010 and 2011 sales, on which the forecasted 2013-2015 goals are based.

We also note that the demand savings incorporated in this plan are lower than what was approved in our 2007 Resource Plan. This is because the expected future DSM potential and our historical achievements indicate a lower demand savings per GWh saved than what was forecast in our 2007 Resource Plan. In the 2007 Resource Plan, the approved goal included demand savings of 1,951 MW and energy savings of 6,061 GWh, for a ratio of 0.32 MW per GWh. For comparison, our historical achievement for energy efficiency from 2001 through 2009 totaled 526 MW and 2,458 GWh, for a ratio of 0.21 MW per GWh.

This change in peak demand reductions is due to changes in the DSM market since the 2007 Resource Plan was developed. The changes include the following:

- Reduction in the potential from Business Cooling due to code changes;
- Increase in potential from variable-frequency drives (VFD's), which provide significant energy savings but relatively low MW savings; and
- Reduction in the potential from Business Lighting, caused by increasing saturation of energy-efficiency lighting.

The demand savings goals in the 2007 Resource Plan were based on a 2007 market potential study update that did not anticipate these changes and therefore overestimated the available potential for Business Cooling and Business Lighting and underestimated the potential for VFD's. The effect of the Business Cooling code changes had a major impact on the overall demand savings of the portfolio because cooling provides significant peak demand savings. Additional information on how the code changes have affected the sales forecast is provided in Chapter Three.

For comparison purposes, Table 7.1 shows our current goals from the 2007 Resource Plan, as ordered in Docket No E002/RP-07-1572, and the annual demand savings, energy savings and budgets for both 1.3% and 1.5% goals, for the period 2011 through 2025.

Table 7.1
Current and Proposed Energy Efficiency Goals
At the Generator

Year	2008-2022 Plan	2008-2022 Plan	1.3% Scenario	1.3% Scenario	1.3% Scenario	1.5% Scenario	1.5% Scenario	1.5% Scenario
	Approved Demand Goal MW	Approved Energy Goal GWh	Demand Goal MW	Energy Goal GWh	Proposed Budget (millions)	Demand Goal MW	Energy Goal GWh	Proposed Budget (millions)
2008	47	260						
2009	49	264						
2010	114	358						
2011	123	374	63	367	$81	63	367	$81
2012	127	405	70	399	$86	70	399	$86
2013	133	421	83	390	$106	93	450	$124
2014	130	421	80	390	$109	91	450	$127
2015	128	421	79	390	$112	90	450	$129
2016	140	437	80	401	$120	91	462	$143
2017	145	437	81	401	$125	92	462	$152
2018	148	437	81	401	$135	93	462	$168
2019	154	453	84	412	$149	97	475	$190
2020	169	453	87	412	$152	99	475	$200
2021	169	453	90	412	$155	102	475	$203
2022	175	468	96	420	$160	107	484	$213
2023			101	420	$167	113	484	$218
2024			108	420	$180	122	484	$234
2025			119	431	$190	133	497	$242
2008-2022 Total	**1,951**	**6,061**						
Avg Annual 2008-2022	**130**	**404**						
2011-2025 Total			**1,303**	**6,065**		**1457**	**6879**	
Avg Annual 2011-2025			**87**	**404**		**97**	**457**	

* The goals for 2011 and 2012 are from our approved 2010-2012 CIP Triennial Plan.

Table 7.2 below shows our historical approved energy conservation goals and achieved savings as a percent of retail sales.

Table 7.2
Achieved and Projected Conservation
2001 to 2009

Year	Approved Demand Goals (Gen MW)	Achieved Demand (Gen MW)	Approved Energy Goals (Gen GWh)	Achieved Energy (Gen GWh)	Achieved Energy as % of Retail Sales[4]
2001	64	**61**	177	**250**	0.87%
2002	96	**64**	186	**264**	0.90%
2003	*85*	***59***	*209*	***242***	0.82%
2004	*95*	***55***	*208*	***261***	0.89%
2005	*91*	***54***	*204*	***259***	0.85%
2006	*89*	***50***	*205*	***254***	0.82%
2007	*87*	***55***	*238*	***258***	0.82%
2008	*91*	***62***	*260*	***329***	1.00%
2009	*93*	***65***	*264*	***341***	1.10%

To calculate our energy savings goals as a percent of retail sales, we used the most recent three years of weather-normalized retail sales forecasts with the following assumptions:

- We excluded anticipated exempt customer retail sales, using the average of 2006-2008 actual sales for these customers for the 2010-2012 Triennial period, and a forecast of sales for these customers all other future years; and

[4] Annual sales adjusted for sales to CIP exempt customers.

- We assumed that the retail sales on which the goal will be set are based on the three-years prior to each Triennial filing and that the sales goal will be constant throughout each Triennial period.

Modeling Scenarios

For this Resource Plan, we modeled scenarios at 1.3% and 1.5% of retail sales. Consistent with previous approved Resource Plan goals, we ask the Commission to approve our proposed goals for the term of the planning period, and not on an annual basis. The Company will file CIP plans every three years with more detailed annual goals and budgets, which may be approved or modified by the OES. As we transition to achieving these higher energy savings goals, future resource plans will provide an opportunity for reevaluation to ensure that we are achieving sustained energy savings from DSM.

Although we investigated scenarios where we targeted savings goals higher than 1.5%, we did not find sufficient program and cost information to enable us to develop a higher scenario. Our current scenarios already include far-reaching assumptions on where savings beyond our current programs will materialize. Moving to the next level of savings may involve adoption of technologies that are not yet commercial.

For example, a two percent scenario would require a 70% increase over our 2010-2012 goals in 2013. We believe that achieving savings of two percent of sales would require significant and rapid market transformation, including dramatic advances in energy efficient technologies, widespread customer implementation of nearly all cost-effective energy efficiency measures, full utility subsidization of energy efficiency projects, and rapid scale-up of smart grid capabilities, EUI project implementation, and expanded customer-sited renewable energy. Because this scenario relies on myriad components and assumptions, many of which are highly speculative, we are unable to identify the mix of measures and strategies, and their costs, that would enable us to achieve the two percent savings level.

We have based our goals on information from the Statewide Potential Study ("Study") and our historical experience and performance. Other considerations include reliability risks resulting from the uncertainty associated with relying on a sustained high savings level and the cost and benefit of achieving higher goals.

Statewide Potential Study

Our goal-setting analysis in this plan incorporated data from the Study commissioned by the OES and completed in May 2010.[5] The Study identified the areas and measures where the largest DSM potential exists in the state.

Specifically, the Study includes:

- An estimate of current saturations of electric energy efficiency measures included in the Minnesota Deemed Savings Database ("DSD"), collected primarily through onsite survey methods;
- An estimate of the remaining DSM potential segregated into technical, economic and market (achievable) potential;
- Energy efficiency measures' energy and demand savings, costs and lifetimes, from the Minnesota DSD;
- "Best-Practice" results of residential and commercial programs across the Midwest and North America; and
- Three different market potential scenarios (low, base and high case).

For background, DSM potential is most easily described in terms of three tiers: technical, economic, and achievable potential. Technical potential represents the amount of DSM available assuming that all technically-feasible electricity energy efficiency measures are immediately installed in year one. Economic potential is a snapshot in time that assumes that all measures that pass the Total Resource Cost ("TRC") test are instantly implemented. Economic potential represents the subset of

[5] Minnesota Statewide Electricity Efficiency Potential Study Potentials Report. Navigant Consulting. April 30, 2010. http://www.state.mn.us/mn/externalDocs/Commerce/CARD_Minnesota_Electric_Energy_Efficiency_Potential_Study__Full_Re_063010123902_DSMPotentialsReportFinal.pdf

technical potential that is cost-effective to install when compared to supply-side alternatives. Achievable, or market, potential represents the amount of savings that would occur in response to program incentives and in consideration of the myriad market barriers to adoption. Because of market barriers and other challenges to implementing energy efficiency, achievable potential is usually considerably lower than economic potential.

To estimate achievable potential for the Study, the consultants selected by the OES used a computer model to estimate conversion rates from inefficient products to more efficient products for retrofit and replacement measures, and installation rates in new buildings for new construction markets. These conversion, replacement, and new construction penetration rates were based on utilities' actual experiences with these types of programs. Three achievable potential scenarios were developed:

1. A base case or expected DSM potential estimates. These estimates assume that adequate funding is available to achieve the DSM potentials and that median "best practice" DSM program performance will be achieved within three to four years. Rebates are set at an average of 50% of the incremental cost of the measure.

2. A high case estimate based on the experience of the best of the best-practice utilities' DSM programs. Rebates are set at an average of 75% of the incremental cost of the measure.

3. A low case estimate, assuming that either the available funding for DSM programs is constrained, or that the DSM program performance is such that average DSM program results are achieved over the forecast period. Rebates are set at an average of 37.5% of the incremental cost of the measure.

Statewide Potential Study Results

The Study estimates that the total overall energy efficiency potential for the base scenario is approximately 12% of Minnesota's forecasted 2028 energy consumption.

The low scenario has approximately 10% lower cumulative annual energy savings than the base case and the high scenario has approximately 10% greater savings potential. Over the 20-year forecast period, this equates to an average annual incremental energy savings rate of approximately 0.62% of sales for the base scenario, 0.59% of sales for the low scenario and 0.69% of sales for high scenario – short of the statutory statewide minimum energy savings goal of 1%, and well short of the 1.5% goal.

As we looked into the details of the study, we found that we could not simply compare the Study results directly to our DSM achievements. To be able to make an "apples to apples" comparison, we completed additional analyses to both customize the Study results to the customer mix and peak demand in our service territory and to estimate potential for the measures excluded from the Study. For example, we found that the Study excluded several measures that comprise approximately 27% of our DSM portfolio.

To apply the Study results to our service territory, we estimated the achievable potential for each scenario based on the portion of the statewide Residential and Business sales that occur in the territory, such that the assumed potential is proportional to our share of statewide sales. The potential identified in the study is then added to the expected potentials from the measures that were excluded from the study to estimate the total percent of sales potential in the NSP-M territory. Table 7.3 below compares the percent of sales goals to the scenarios from the Study, over the planning period of 2011-2025, using the total potential estimates. As can be seen from this table, even after adjusting the Study results to account for these differences, the savings potential estimated by the Study is lower than the 1.3% savings goal.

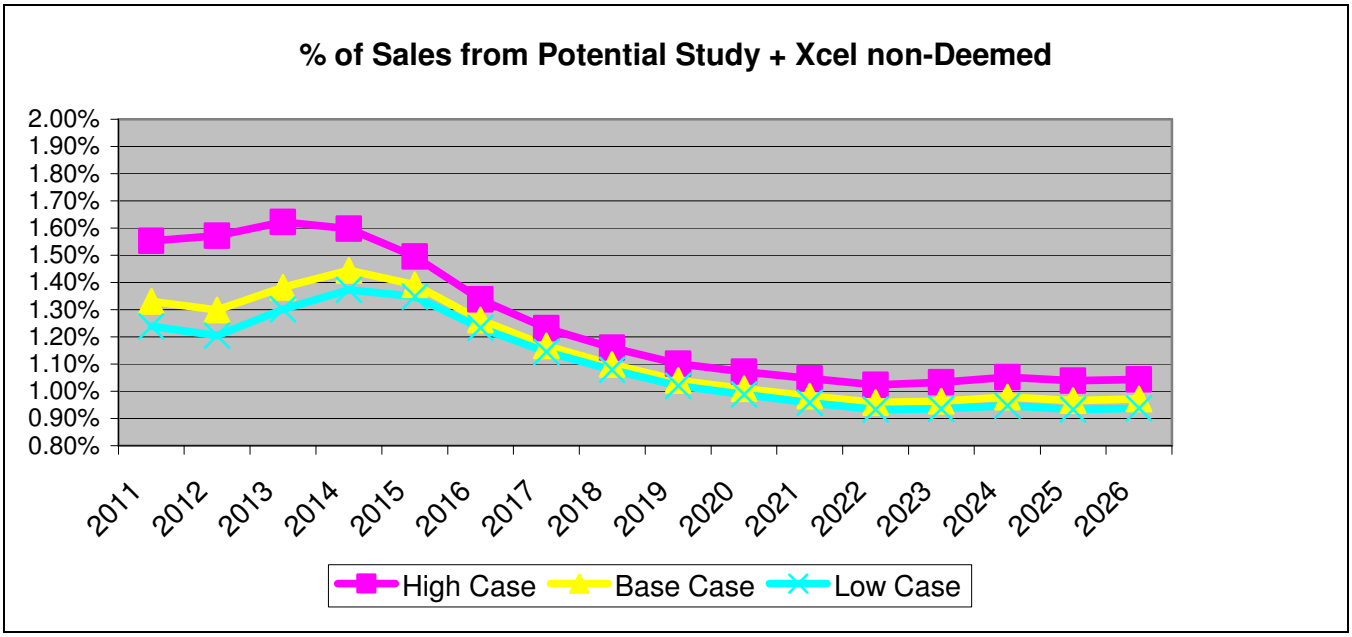
Table 7.3
Percent of Sales Goals

2011-2025	Cumulative GWh
Study – Adjusted Low Scenario	5,309
Study – Adjusted Base Scenario	5,511
Study – Adjusted High Scenario	6,038
Xcel Energy estimate – 1.3% of Retail Sales	6,238[6]
Xcel Energy estimate – 1.5% of Retail Sales	7,197

[6] Note these numbers are different than the cumulative energy savings shown in Table 7.1 due to the fact that the savings shown in Table 7.1 include the lower energy savings goal approved for 2011, and the higher goals for each year thereafter.

Figure 7.1 shows the expected decline in the energy savings potential in the Statewide Potential Study, adjusted to incorporate the excluded saving measures.

Figure 7.1
Expected Decline in Energy Savings



Developing the 1.3% and 1.5% Energy Savings Scenarios

Because the Study scenarios did not support the 1.3% and 1.5% savings goals, we had to develop scenarios that would meet those goals. To develop the scenarios, we followed a process similar to that used to modify the Study scenarios. As with our modified Study scenarios, the rebate levels were determined on a technology-by-technology basis to account for differences in program maturity and other market forces. The rebate levels were informed by the 2012 rebate levels assumed in our approved Triennial Plan. This process resulted in 1.3% and 1.5% savings scenarios that reflect our best estimate of the technologies and rebates necessary to meet the respective savings goals.

Filling the Energy Savings Gap

As shown in Table 7-3, the achievable potential from the energy efficiency measures included in the Study, plus our estimate of our programs that were excluded from the Study, is less than what is required for the 1.3% and 1.5% scenarios. To fill this gap, future savings and costs are included from the indirect efforts that are allowed to count towards the goal, including market transformation and behavior change programs, codes and standards, and electric utility infrastructure improvements, as well as emerging technologies that are not included in the potential study. This gap is assumed to be approximately 5% of total savings in 2013, increasing to 15% in 2025.

To estimate the kW savings from the indirect efforts, the kWh gap is applied to a 50% peak load factor, which approximates the system load factor. For costs, we used the average rebate and O&M cost intensities ($/gen kWh) for the business programs filed in the Triennial Plan.

Table 7.4 on the following page shows the combined savings and costs for the 1.3% and 1.5% goal scenarios.

Table 7.4
Combined Savings and Costs for 1.3% and 1.5% Goal Scenarios

1.3% Goal	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gen kWh	349,653,551	367,263,284	399,220,302	389,833,768	389,833,768	389,833,768	400,535,727	400,535,727	400,535,727	411,995,371
Gen kW	58,999	63,262	70,455	82,698	80,313	79,283	79,504	80,935	80,883	84,426
Utility Costs	$75,935,992	$81,002,168	$86,183,240	$106,191,251	$108,703,070	$111,754,419	$119,503,806	$125,157,029	$134,617,112	$148,656,323
	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Gen kWh	411,995,371	411,995,371	420,224,617	420,224,617	420,224,617	430,725,371	430,725,371	430,725,371	441,531,843	
Gen kW	87,041	89,847	96,033	101,259	108,463	119,418	125,969	129,869	131,542	
Utility Costs	$152,331,767	$154,727,754	$160,116,878	$167,197,659	$180,217,414	$189,672,483	$190,891,869	$198,099,661	$199,281,898	

1.5% Goal	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gen kWh	349,653,551	367,263,284	399,220,302	449,808,193	449,808,193	449,808,193	462,156,608	462,156,608	462,156,608	475,379,275
Gen kW	58,999	63,262	70,455	92,852	91,020	90,003	91,207	91,523	93,321	96,881
Utility Costs	$75,935,992	$81,002,168	$86,183,240	$124,347,776	$126,835,214	$129,168,825	$142,809,641	$151,857,523	$168,318,822	$189,857,611
	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Gen kWh	475,379,275	475,379,275	484,874,558	484,874,558	484,874,558	496,990,812	496,990,812	496,990,812	509,459,819	
Gen kW	99,001	101,829	107,080	113,813	121,714	132,505	138,331	142,804	146,059	
Utility Costs	$199,560,445	$202,655,305	$212,620,920	$218,381,312	$233,546,234	$241,531,551	$238,499,533	$241,375,421	$241,591,935	

The 1.3% savings level is estimated to achieve up to 62% of the economic potential for DSM in our service territory, which we believe is very close to the maximum achievable potential. To conceptualize what this means, consider a neighborhood block of ten houses. To achieve 62% of the economic potential, approximately six households would have to implement every cost-effective energy efficiency measure available in their homes over the planning period, using our energy efficiency programs. For this to occur, those households need to identify and analyze the cost-effective savings opportunities, have the resources and willingness to implement measures and complete the rebate forms, and find a contractor to supply the energy efficient equipment and complete the work.

We believe that we can achieve and sustain the 1.3% savings level in the near term by continuing to implement the growth strategies incorporated in our Triennial Plan and discussed in a previous section. These strategies include increasing rebate levels and pursuing additional savings opportunities that may be less cost-effective than our traditional mix of programs. Our analysis shows that in order to sustain the 1.3% savings goal, we will likely need to further increase our rebate levels and increase our reliance on contributions from non-traditional DSM programs to offset a decline in potential for traditional DSM programs (shown in Chart 8-1). The 1.3% scenario results in an average cost per lifetime kWh saved of $0.022/ kWh. This represents a 69% increase over the current DSM Plan cost of $0.013/kWh.

Achieving the 1.5% savings goal through direct customer programs would require us to achieve up to 70% of the economic potential for DSM in our service territory, and 119% of the energy savings potential forecasted in the high case Study scenario. The average annual savings represent nearly a 75% increase over our 2001-2009 average achieved savings. Our 1.5% scenario results in an average cost per lifetime kWh saved of $0.024/kWh. This represents an 85% increase over the current DSM Plan cost of $0.013/kWh.

We believe that reaching and sustaining the 1.5% savings goal will require us to draw on other savings opportunities outlined in the Act, including codes and standards

changes, behavior change programs, and electric utility infrastructure improvements. However, there is uncertainty about the savings potential of these non-traditional measures, as well as the methodology for counting savings from these efforts. To address these uncertainties, the OES, Xcel Energy, and a group of utility and non-utility stakeholders launched the 1.5% Energy Efficiency Solutions Project to identify barriers to achieving the 1.5% savings goal, develop near-term solutions, and make recommendations for longer-term solutions. Over the coming months, Xcel Energy staff will participate in technical working groups dedicated to developing methodologies to count savings from codes and standards, electric utility infrastructure improvements, and behavioral programs. We will then review the proposed solutions and develop a plan for next steps. We look forward to participating in this effort to build consensus on strategies for reaching the 1.5% goal.

Non-Traditional Energy Savings Opportunities

As demonstrated by the potential study, sustaining high levels of energy savings over the long term with traditional DSM programs will be extremely challenging. To fill the gap created by the decline in market potential for certain programs, we are pursuing other innovative strategies for capturing savings, as allowed by the Act. For example, through our Energy Feedback Pilot, we are gaining experience with behavior change programs. Through the Smart VAR Management Pilot proposed in the Energy Innovation Corridor and the Company's SmartGridCity project in Boulder, CO, we are gaining experience in improving transmission and distribution system efficiencies. We plan to leverage this experience to expand the savings achieved through these types of programs.

Code Changes and Appliance Standards

Part of the statewide energy conservation goal can be met by accounting for savings that result from code changes and improved appliance standards. The Company hired a consultant to assess the potential impacts of anticipated codes and standards changes.[7] We believe that the impact of codes and standards changes in this analysis

[7] Codes and Standards Review, Bass & Company and Stellar Processes (July 2010).

are not accounted for in our base sales forecast and also believe that they were not taken into account in the statewide potential study. The consultant estimates that by 2025, codes and standards will provide cumulative savings of 3,993 GWh of energy savings from the Company's sales forecast. This impact equates to 8.2% of the retail energy sales forecast in 2025. As a contributor to the annual 1.5% energy savings goal, codes and standards impacts range from 0.0% in 2010 to 0.5% in 2025. For most years after 2012, the incremental impact to total forecasted sales is in the range of 0.4 - 0.6%.

While statute is clear that savings from these changes may be counted towards the goal, there is not yet a clear and widely-supported methodology for accounting for these savings. In addition, it is clear that the impacts of codes and standards changes will reduce the achievable potential for several of our programs and reduce savings, which will need to be made up by other programs and efforts in order to meet the goals proposed in this plan and our next DSM plan.

Market Transformation and Behavior Change Programs

We can also meet part of the goal through market transformation and behavior change programs. Market Transformation (MT) programs are defined as, **"**Strategic interventions designed to reduce market barriers and effect positive lasting changes in the market for energy-efficient goods and services, such that they are produced, recommended, and purchased in increasing quantity."[8] MT programs may have direct or indirect impacts.

Behavior change programs are generally defined as programs that provide energy usage data to customers in an effort to educate customers on how they are using energy in their home or business and motivate them to adjust their behavior to use less energy. Behavior change programs can include real-time access to energy consumption data through a web portal or home energy display, as well as monthly

[8] http://www.aceee.org/pubs/u994.htm

reports sent to customers, which may compare their usage to their neighbors' average usage.

We believe that these programs could be instrumental in helping us fill the savings gap in the near term. Since our last Resource Plan was filed, more data has been collected from pilot programs and studies that support the claim that providing detailed energy usage information to customers results in measurable energy savings. For example, a review of recent pilot programs by economists at The Brattle Group found that consumers that actively used in-home displays reduced their consumption by an average of seven percent, with the majority of the studies showing savings in the range of 5-14%.[9] The study found that savings can be increased when the in-home display is used with dynamic pricing.

The California Public Utilities Commission recognized the potential of energy feedback programs to deliver savings in its April 8, 2010 Decision, which allows savings from comparative energy use reporting programs to be counted towards a utility's energy efficiency goals, provided that the savings were evaluated using the experimental design method contained in the California Evaluation Protocols.[10] The experimental design method requires the comparison of treatment and control populations, where the two populations are in statistical terms no way different except for the treatment of the program. The evaluation typically involves sophisticated billing analysis to isolate the impacts attributable to the program.

Additionally, early results from our Energy Feedback Pilot suggest that customers are satisfied with the program and are achieving approximately a 1% reduction in gas use and 2% reduction in electric use as a result of behavior modifications. Additional data will be available later in the year.

[9] Faruqui, A., Sanem, S., Ahmed, S. The impact of informational feedback on energy consumption-A survey of the experimental evidence. Energy 35 (2010) 1598-1608.
[10] Docket No. 08-07-021

Electric Utility Infrastructure Improvements

The Act provides the opportunity to recover costs and claim energy savings associated with electric utility infrastructure ("EUI") projects. Electric utility infrastructure projects are defined in Minn. Stat. § 216B.1636 as electric utility-owned projects that:

1) Replace or modify existing electric utility infrastructure, including utility-owned buildings, if the replacement or modification is shown to conserve energy or use energy more efficiently, consistent with section 216B.241, subdivision 1c; or
2) Conserve energy or use energy more efficiently by using waste heat recovery converted into electricity as defined in section 216B.241, subdivision 1, paragraph (n).

Minn. Stat. § 216B.241, subd. 1c, also states that EUI projects "must result in increased energy efficiency greater than that which would have occurred through normal maintenance activity."

In the 2007 Resource Plan, we stated that we believed the potential savings from EUI projects were not as large as initially expected and that we would continue to work to identify additional projects that could qualify as EUI projects. Since that time we worked to identify and evaluate potential EUI opportunities on our system, focusing on opportunities to reduce losses on our distribution system and improve the efficiency of auxiliary equipment in our generation facilities, as well as our office buildings. We have developed a short list of potential projects to be implemented over the 2011 to 2013 timeframe. On an annual basis, we expect the incremental kWh savings generated by these projects to range from 0.01% to 0.08% of the Company's retail sales.

Distributed Renewable Energy Generation

Currently, Minnesota utilities may spend a maximum of 5% of their approved

minimum spending requirement on distributed generation ("DG") projects (Minn. Stat. § 216B.2411, subd.1). A utility may request permission to exceed this cap up to a maximum of 10% of the minimum spending requirement to meet customer demand for qualifying solar energy projects. For our 2010-2012 Plan, we have developed our Solar*Rewards program to operate within the 10% cap. However, going forward, we believe that DG will play an increasingly important role in our resource portfolio as additional value is given to low- and no-carbon energy sources and costs decline, which would allow us to also reduce our subsidy.

Based on preliminary estimates, we believe that increasing the spending cap to 20% of the minimum spending requirement[11] would result in approximately 10-15 GWh per year over the 2015 to 2025 time period. Increasing the spending cap to 50% would allow us to fund a program that achieves annual savings of 26-36 GWh over the 2015 to 2025 time period. This is equal to approximately 6-9% of our average annual savings goal over this period.

To support the expansion of solar energy in Minnesota, the Minnesota Legislature amended Minn. Stat. § 216B.241, subd. 5a to allow a utility to petition for a performance incentive for its qualifying solar energy projects. We plan to file a proposal in August 2010 for a solar incentive that is intended to remove utility disincentives and encourage active promotion of solar DG. We believe that approval of a solar incentive would send a clear signal that the state supports an expansion of solar energy in Minnesota.

Rate Design

Part of the statewide energy conservation goal can be met through rate design. Like solar DG, we expect rate design to be an important contributor in the out years as the savings gap widens. We currently offer three rate design programs that are eligible for cost recovery through CIP: Saver's Switch Business®, Saver's Switch Residential® and Business Peak Controlled Rates. As the company develops its smart grid capabilities,

[11] Assuming the 2010-2012 minimum spending requirement of $50,839,389.

we will explore additional rate design options, such as time of use rates, to influence customer consumption patterns and capture the full value of the smart grid technologies.

We appreciate the flexibility provided by the Act to include savings from a variety of activities and believe that this flexibility will be critical to sustaining the high levels of savings required by the Act. We believe that savings from these activities has the potential to contribute towards our energy savings goals. However, to fully benefit from these non-traditional sources of savings, we will need the state's support on developing and approving defensible methodologies to account for savings, as well as support for incentive mechanisms that address the financial impacts on the utility resulting from increased investment in electric utility infrastructure projects and distributed renewable energy projects. We are encouraged by the recent launch of a collaborative workgroup dedicated to exploring some of these issues.

Load Management

The Company's CIP also includes load management programs for residential and business customers. These programs provide customers rate discounts for reducing electric load on days with peak demand. Currently, the programs can provide total load relief of approximately 1,050 MW, more than 10% of our peak load.

Residential customers may participate in the residential Saver's Switch program, which is direct load control program that offers seasonal bill discounts in exchange for allowing the Company to control enrolled central air conditioners and electric water heaters during times of peak demand. Business customers may participate in either the business Saver's Switch program or the Electric Rate Savings program. Customers participating in the Business Saver's Switch program receive a monthly discount of $5 per enrolled ton of air conditioning during the months of June through September. In exchange they allow Xcel Energy to control electric central air conditioners on days of peak electric demand. Participants in the Electric Rate Savings programs receive a monthly discount on their demand charges in return for reducing electric loads when notified by Xcel Energy. Customers must be able to reduce their electric loads by a

minimum of 50 kW on control days. Customers must sign a 5 or 10 year contract and agree to lower demand to a predetermined demand level when requested. The Company endeavors to provide one hour notice prior to control periods.

The programs are generally utilized on hot, humid summer weekdays when Xcel Energy's load in the MISO (Midwest Independent System Operator) region is expected to exceed peak capacity. Although control days typically occur during the summer months, they can occur anytime through the year when the reliability of the system may be at risk.

While the load management programs contribute significant demand savings to the Company's CIP, they contribute very little energy savings. For this reason, the Company's load management programs have a minor role in meeting the Company's conservation goals.

Conclusion

Minnesota continues to be a leader in energy conservation with the Next Generation Energy Act of 2007 continuing to represent a high benchmark for savings. Xcel Energy has been diligent and creative in developing and implementing growth strategies and has experienced in early success in ramping up our programs. While we are proud of our success, we recognize that growing and sustaining these high levels of savings will be challenging. We have considered our capabilities and challenges when developing goals for this Resource Plan. We believe that a long-term goal of 1.5% of retail energy sales is an aggressive goal that will demand an ever-increasing commitment to conservation. This goal is projected to result in over 6,000 GWh of energy savings and 1,300 MW of demand savings through 2025.

Our intent is to continue our strategy of building a sustainable and dependable portfolio of DSM offerings that provides reliable savings to our resource planners and provides opportunities for all of our customers to participate. We reiterate our commitment to working with the OES, Commission and other stakeholders to identify additional savings potential and pioneer innovative strategies to promote

conservation. Through these efforts, we can build on the state's long history of success.