

**CUSTOMER SUMMARY PAGE**

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<b>Customer Name:</b>	Minnesota Valley Unitarian Universalist Fellowship	<b>Account Number(s):</b>	51-6874805-0 (electric) 502-018-535-905 (gas)
<b>Service Address:</b>	10715 Zenith Ave. So. Bloomington, MN 55431	<b>Additional Service Address:</b>	
<b>Customer Contact:</b>	Mark Clary	<b>Site Contact:</b>	Mark Clary
<b>Phone:</b>	651/773-4472	<b>Phone:</b>	651/773-4472

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<b>Xcel Energy Rep:</b>	Michael Kohls	<b>Energy Auditor:</b>	Joe Lock, CEM, Mike Menzel
<b>Phone:</b>		<b>Company:</b>	JIT Services, Inc.
<b>Fax:</b>		<b>Phone:</b>	952/474-3410

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<b>Building Type:</b>	Religious Facility	<b>Peak Electric Demand:</b>	Unknown – small general service
<b>Electric Service Provided by:</b>	Xcel Energy	<b>Natural Gas Service Provided by:</b>	CenterPoint Energy Minnegasco
<b>Date of Site Visit:</b>	Nov. 17, 2005	<b>Square Footage:</b>	9,990 ft2

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The suggestions in this Energy Assessment ("Assessment") are provided as a service to Xcel Energy customers and are based on a visual analysis of conditions observed at the time of the survey, information provided by the customer and from Xcel Energy, and costs based on the energy assessor's experience on similar projects. The performance guidelines provided in the Assessment are for informational purposes only and are not to be construed as a design document. Xcel Energy will not benefit in any way from a customer's decision to select a particular contractor or vendor to supply or install the products and measures suggested by the energy assessor.

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Xcel Energy advises that customers check with their Xcel Energy Account Manager to determine the estimated value of their rebate (if any) and to verify that the equipment qualifies for Xcel Energy programs prior to implementation of any conservation measure. Some measures identified in this report may qualify for an Xcel Energy Custom Efficiency rebate. Custom Efficiency projects require pre-approval prior to purchase and installation. The customer is responsible for submitting project information to their Xcel Energy Account Manager to obtain pre-approval for Custom Efficiency projects and to determine the eligible custom rebate amount.

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## I. Executive Summary

Minnesota Valley Unitarian Universalist Fellowship (MVUUF) requested that Xcel Energy perform an energy assessment to identify energy-related opportunities that show potential for improvement and investment options. JIT Services, Inc. visited the customer's business site on November 17, 2005 and met with Mark Clary. This energy assessment recommends strategic opportunities such as eligibility for rate discounts and describes key energy conservation opportunities.

From an energy efficiency standpoint, the church has benefited substantially from its efforts during its recent remodel to put higher efficiency equipment and lighting in place as well as new windows and enhanced insulation. The religious organization has also actively sought new ways to become a steward of the earth and help be part of the solution for global warming. According to Xcel Energy's "Energy Star Benchmarking for your Building" publication, the national average annual electric use of a church is 3.2 kWh per square foot. MVUUF operates at 2.1 kWh per square foot. As a result, the range of potential measures for further improvements is narrowed.

### Summary of Energy Conservation Recommendations

The table below lists all of the projects recommended for implementation at this time. Minnesota Valley Unitarian Universalist Fellowship (MVUUF) recently replaced all of the building's original major mechanical systems with new, higher efficiency equipment and all of the building's original lighting with more energy efficient lights. Therefore, the list of projects is moderate and includes simple operational changes and small lighting retrofits and upgrades. While it's important to keep in mind that energy savings are not necessarily cumulative, the measures on this list would offer MVUUF nearly \$600 in ongoing annual energy cost savings.

This list represents a subset of the broader list of all opportunities explored in this report. For detailed descriptions of each recommendation, please refer to the corresponding opportunity in the *Energy Conservation Opportunities* section.

ECR	Refer to ECO	Energy Conservation Recommendation	Estimated Annual Cost Savings	Estimated Gross Capital Cost	Simple Payback	Estimated Utility Incentive*	Simple Payback w/ Incentive
			\$	\$	yrs	\$	yrs
1	1	Setback Thermostats reprogramming	\$ 221	\$ -	-	\$ -	-
2	2	Compact fluorescent lighting retrofit	\$ 192	\$ 980	5.1	\$ -	5.1
3	3	CFL night lighting (with above retrofit)	\$ 37	\$ -	-	\$ -	-
4	4	Lighting control	\$ -	TBD	TBD	TBD	TBD
5	5	Drop ice melt requirements	\$ 154	TBD	TBD	\$ -	TBD
6	6	Xcel Wind Energy	\$ (251)	\$ -	-	\$ -	-
		<b>Totals</b>	<b>\$ 353</b>	<b>\$ 980</b>	<b>2.8</b>	<b>\$ -</b>	<b>2.8</b>

\*Items marked with an asterisk are custom efficiency projects and may require pre-approval to qualify for a utility rebate. Please check with your utility representative before purchasing/implementing such measures.

## II. Facility and Operations Description

The 9,990 ft<sup>2</sup> building is located in Bloomington, Minnesota. Originally constructed in 1957, it was previously operated as a small Baptist Church before Minnesota Valley Unitarian Universalist Fellowship purchased and occupied it about 30 years ago. The two-story facility consists of a sanctuary, fellowship rooms, classrooms, office space, and a small kitchen.

Minnesota Valley Unitarian Universalist Fellowship is a non-denominational religious organization located in Bloomington, Minnesota, where they have been located for more than 30 years. The organization occupies a 9,990-ft<sup>2</sup> building that was originally constructed in 1957 and has undergone a complete remodel and addition in 2003 where all mechanical equipment and lighting were replaced. The building consists of two floors. A typical Sunday would see between 100 and 150 members attend the service, although there are 160 total members. There are a multitude of weekly activities that include general fellowship, meetings, and choir rehearsal. Services occur for 9 months of the year and are not held between early June and Labor Day. There are fewer summer activities, although the office remains open during this time. The facility follows an erratic schedule, meaning that there are a few predictable times of use, such as office hours, Sunday morning service, choir practice, and a few set meeting times; however, many other functions will see varied use and hours of the building.

The sanctuary is used mainly on Sunday from 9:00 am to 1:00 pm and on Wednesday from 6:00 pm until 8:00 pm., and occasionally for weddings and funerals. The office is primarily used Monday and Friday from 9:00 am to 12:00 pm, Wednesday from 9:00 am to 12:00 pm and from 4:30 pm to 7:00 pm, and on Sundays. The classrooms are only used on Sundays from 9:00 am to 1:00 pm.

In addition to the sanctuary, there is a small fellowship room upstairs with a gas fireplace and a larger open-area meeting and gathering space downstairs off the kitchen. There are a number of individual classrooms, meeting rooms, and a nursery.

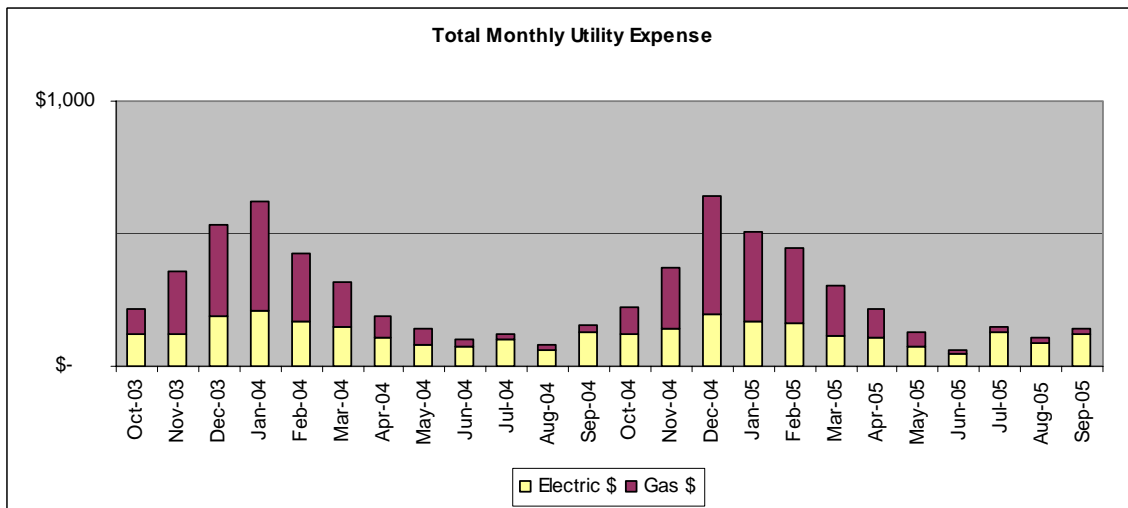
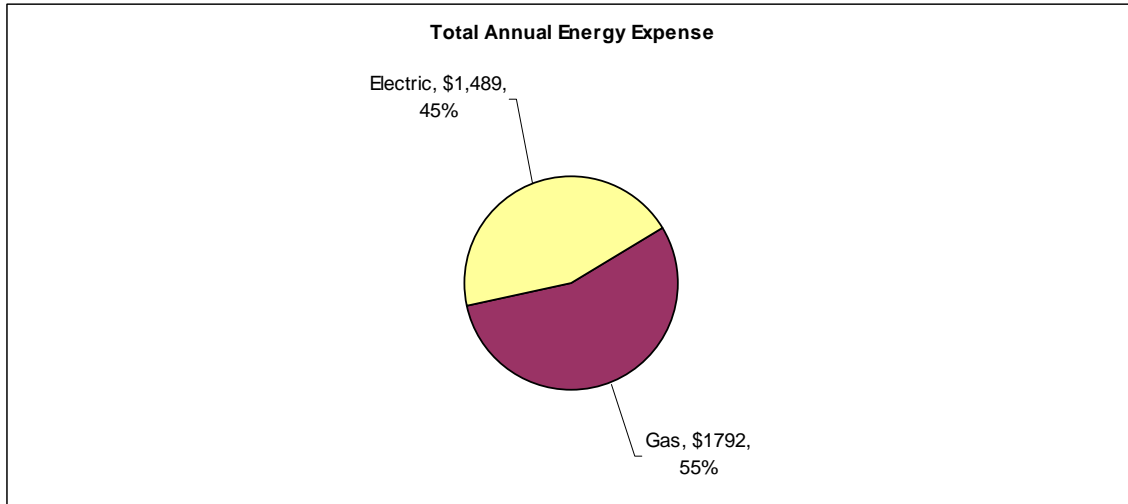
The building has four forced-air furnaces for heat and air movement. These are all Bryant 90i units at 94 percent efficiency ratings. Each unit consists of a two-stage gas valve and has variable speed inducer and blower motors. The unit serving the sanctuary has a Venmar Ventilation heat recovery ventilator. It provides greater amounts of fresh air to the sanctuary when occupied. The unit is on a time clock to operate only on Sunday mornings. The sanctuary and office areas also have Bryant high-efficiency air conditioning units utilizing puron refrigerant. The facility also has a high efficiency water heater.

Lighting was replaced three years ago and T8 lamps and ballasts were installed throughout the building. In addition to the fluorescent fixtures, there are a number of accent lighting and direct lighting that consists of a mix of incandescent, halogen, and compact fluorescent. There are no motion sensors in the building; however, it is evident that the members are very good about keeping unnecessary lights off. The exterior parking lot lights are on a time clock and are used in a limited fashion compared to typical commercial parking lot lights.

### III. Energy Profile

The following tables and charts depict the facility's electric and natural gas use. Please refer to the *Glossary* for definitions of terms.

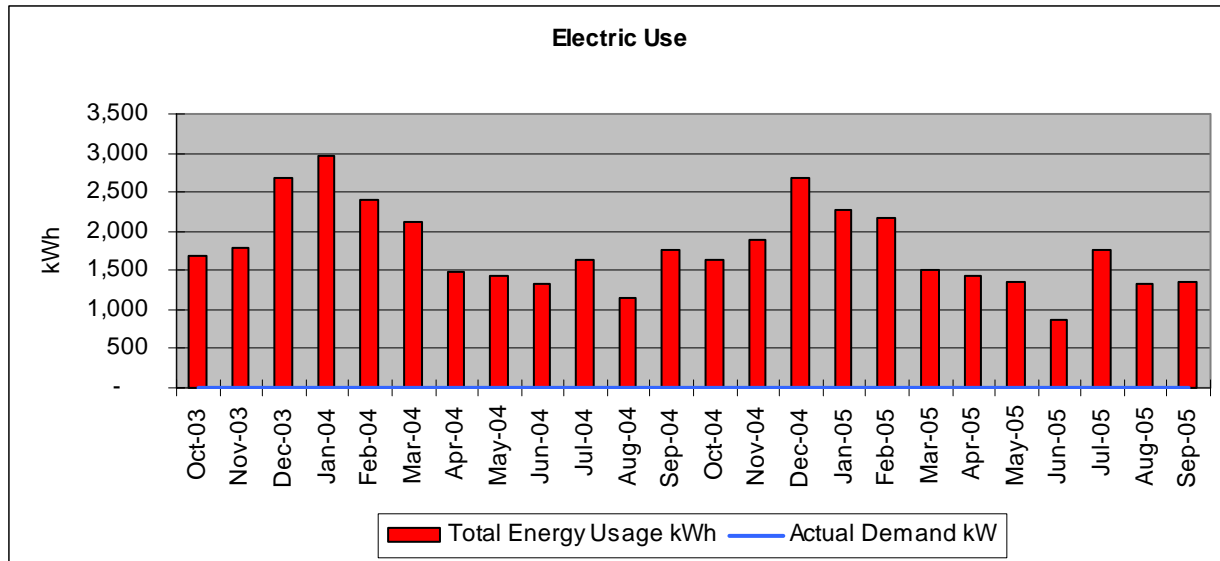
#### Total Annual Energy Expense



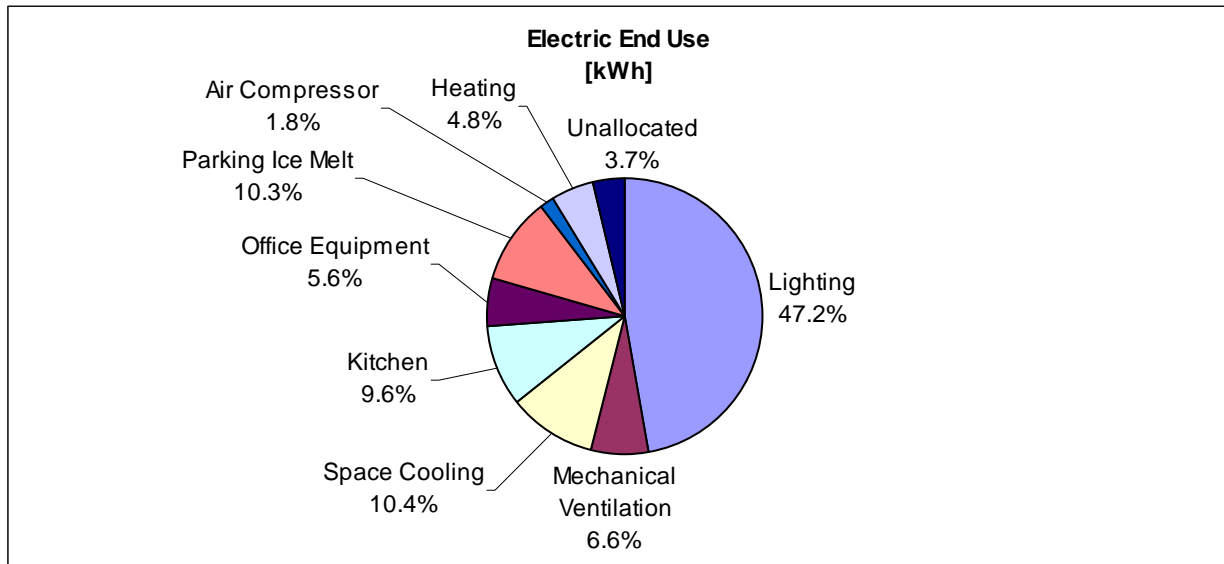
Annual Electric Consumption

Previous 24 months:

Annual Electric Consumption - Previous 24 Months											
Period		Month	Days	Actual Demand	Power Factor	Billed Demand	Power Factor Penalty	Total Energy Usage	Total Cost	Effective Unit Cost	Load Factor
From	To			kW	%	kW	\$	kWh	\$	\$/kWh	%
n/a	11/10/03	Oct-03	31	-	0%	-	-	1,680	\$ 120	\$ 0.071	N/A
11/10/03	12/11/03	Nov-03	31	-	0%	-	-	1,800	\$ 125	\$ 0.069	N/A
12/11/03	1/15/04	Dec-03	34	-	0%	-	-	2,680	\$ 187	\$ 0.070	N/A
1/15/04	2/12/04	Jan-04	29	-	0%	-	-	2,960	\$ 206	\$ 0.070	N/A
2/12/04	3/12/04	Feb-04	29	-	0%	-	-	2,400	\$ 171	\$ 0.071	N/A
3/12/04	4/13/04	Mar-04	32	-	0%	-	-	2,120	\$ 149	\$ 0.070	N/A
4/13/04	5/12/04	Apr-04	29	-	0%	-	-	1,480	\$ 106	\$ 0.071	N/A
5/12/04	6/11/04	May-04	30	-	0%	-	-	1,440	\$ 83	\$ 0.057	N/A
6/11/04	7/13/04	Jun-04	32	-	0%	-	-	1,320	\$ 73	\$ 0.056	N/A
7/13/04	8/11/04	Jul-04	29	-	0%	-	-	1,640	\$ 101	\$ 0.062	N/A
8/11/04	9/10/04	Aug-04	30	-	0%	-	-	1,160	\$ 61	\$ 0.053	N/A
9/10/04	10/11/04	Sep-04	31	-	0%	-	-	1,760	\$ 129	\$ 0.073	N/A
10/11/04	11/9/04	Oct-04	29	-	0%	-	-	1,640	\$ 119	\$ 0.073	N/A
11/9/04	12/10/04	Nov-04	31	-	0%	-	-	1,880	\$ 145	\$ 0.077	N/A
12/10/04	1/13/05	Dec-04	34	-	0%	-	-	2,680	\$ 194	\$ 0.072	N/A
1/13/05	2/11/05	Jan-05	29	-	0%	-	-	2,280	\$ 166	\$ 0.073	N/A
2/11/05	3/14/05	Feb-05	31	-	0%	-	-	2,160	\$ 160	\$ 0.074	N/A
3/14/05	4/13/05	Mar-05	30	-	0%	-	-	1,520	\$ 113	\$ 0.074	N/A
4/13/05	5/12/05	Apr-05	29	-	0%	-	-	1,440	\$ 111	\$ 0.077	N/A
5/12/05	6/13/05	May-05	32	-	0%	-	-	1,360	\$ 77	\$ 0.056	N/A
6/13/05	7/13/05	Jun-05	30	-	0%	-	-	880	\$ 44	\$ 0.050	N/A
7/13/05	8/11/05	Jul-05	29	-	0%	-	-	1,760	\$ 127	\$ 0.072	N/A
8/11/05	9/12/05	Aug-05	32	-	0%	-	-	1,320	\$ 91	\$ 0.069	N/A
9/12/05	10/11/05	Sep-05	29	-	0%	-	-	1,360	\$ 120	\$ 0.088	N/A
Average - Monthly			31	-	0%	-	\$ -	1,780	\$ 124	\$ 0.070	N/A
Minimum - Monthly			29	-	0%	-	\$ -	880	\$ 44	\$ 0.050	0%
Maximum - Monthly			34	-	0%	-	\$ -	2,960	\$ 206	\$ 0.088	0%
Average - Annual			366	-	0%	-	\$ -	21,360	\$ 1,489	\$ 0.070	0%
2003/04 - Total			367	-	0%	-	\$ -	22,440	\$ 1,512	\$ 0.067	0%
2004/05 - Total			365	-	0%	-	\$ -	20,280	\$ 1,467	\$ 0.072	0%
Variance			-0.5%	0.0%	0%	0.0%	0.0%	-9.6%	-2.9%	7.4%	0.0%



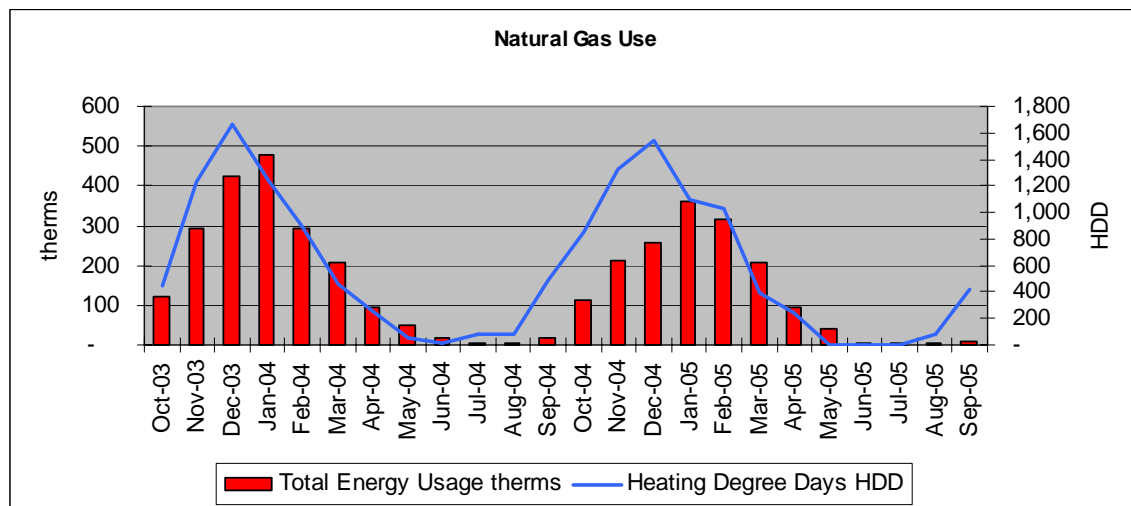
Electric Energy End Use Profile



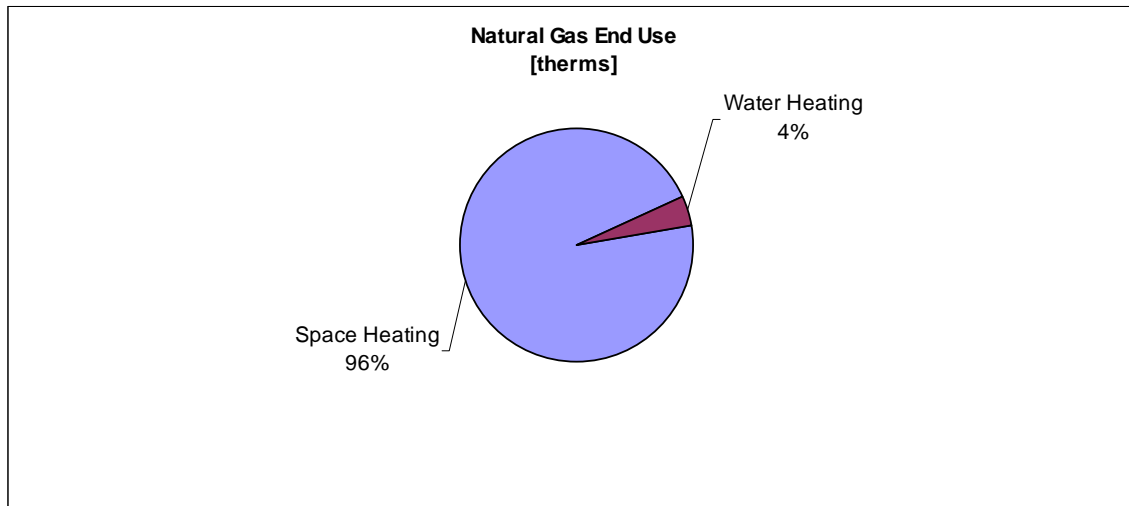
Annual Natural Gas Consumption

Previous 24 months:

Annual Natural Gas Consumption - Previous 24 Months								
Period		Month	Days	Total Energy Usage	Total Cost	Effective Unit Cost	Heating Degree Days	Normalized Usage
From	To			therms	\$	\$/CCF	HDD	CCF/HDD
10/8/03	11/6/03	Oct-03	29	121	\$ 97	\$ 0.80	441	0.27
11/6/03	12/8/03	Nov-03	32	293	\$ 230	\$ 0.79	1,232	0.24
12/8/03	1/9/04	Dec-03	32	422	\$ 350	\$ 0.83	1,662	0.25
1/9/04	2/9/04	Jan-04	31	477	\$ 413	\$ 0.87	1,249	0.38
2/9/04	3/9/04	Feb-04	29	295	\$ 252	\$ 0.86	892	0.33
3/9/04	4/8/04	Mar-04	30	208	\$ 168	\$ 0.81	456	0.46
4/8/04	5/7/04	Apr-04	29	94	\$ 86	\$ 0.91	259	0.36
5/7/04	6/10/04	May-04	34	50	\$ 57	\$ 1.14	60	0.83
6/10/04	7/12/04	Jun-04	32	17	\$ 29	\$ 1.73	8	2.13
7/12/04	8/9/04	Jul-04	28	4	\$ 18	\$ 4.57	80	0.05
8/9/04	9/9/04	Aug-04	31	6	\$ 20	\$ 3.29	81	0.07
9/9/04	10/7/04	Sep-04	28	18	\$ 28	\$ 1.57	490	0.04
10/7/04	11/8/04	Oct-04	32	113	\$ 105	\$ 0.93	847	0.13
11/8/04	12/7/04	Nov-04	29	214	\$ 226	\$ 1.06	1,329	0.16
12/7/04	1/11/05	Dec-04	35	255	\$ 449	\$ 1.76	1,546	0.16
1/11/05	2/9/05	Jan-05	29	362	\$ 341	\$ 0.94	1,095	0.33
2/9/05	3/10/05	Feb-05	29	314	\$ 287	\$ 0.92	1,030	0.30
3/10/05	4/8/05	Mar-05	29	207	\$ 191	\$ 0.92	388	0.53
4/8/05	5/10/05	Apr-05	32	94	\$ 102	\$ 1.08	244	0.39
5/10/05	6/9/05	May-05	30	41	\$ 53	\$ 1.29	-	n/a
6/9/05	7/11/05	Jun-05	32	5	\$ 19	\$ 3.89	-	n/a
7/11/05	8/9/05	Jul-05	29	5	\$ 20	\$ 3.95	4	1.25
8/9/05	9/7/05	Aug-05	29	4	\$ 19	\$ 4.72	86	0.05
9/7/05	10/6/05	Sep-05	29	7	\$ 23	\$ 3.33	424	0.02
Average - Monthly			30	151	\$ 149	\$ 0.99	579	0.26
Minimum - Monthly			28	4	\$ 18	\$ 0.79	-	0.12
Maximum - Monthly			35	477	\$ 449	\$ 4.72	1,662	2.13
Average - Annual			365	1,813	1,792	\$ 0.99	6,952	0.26
2003/04 - Total			365	2,005	1,749	\$ 0.87	6,910	0.29
2004/05 - Total			364	1,621	1,835	\$ 1.13	6,993	0.23
Variance			-0.3%	-19.2%	4.9%	29.8%	1.2%	-20.1%



Natural Gas Energy End Use Profile



Energy Star Benchmarking Results

Energy Star benchmarking is intended for use with facilities that fall into the handful of economic sectors whose energy use has been extensively studied and categorized by the federal government, making for meaningful comparisons between buildings in the same group. Buildings that meet certain criteria and achieve a rating of 75 or better are eligible to apply for the Energy Star label. Energy use among facilities in other sectors such as retail, manufacturing, and religious institutions, however, varies greatly depending upon a wide range of factors. Data on energy use within these industries may be available through various trade groups and associations.

Xcel Energy has put out a document called "Energy Star Benchmarking for your Building." National averages are identified for types of buildings that do not have benchmarking available. As indicated previously, the average church uses 3.2 kWh per year. Your facility is at 2.1 kWh per square foot.

## IV. Energy Conservation Opportunities

### Summary of Opportunities

The table below lists all of the energy conservation opportunities explored in this report, detailed descriptions of which appear in the *Conservation Opportunity Analysis* section that follows. For the subset of these opportunities recommended for implementation at this time, please refer to the *Executive Summary* section of the report.

EO ID	Energy Conservation Opportunity	Estimated Demand Savings	Estimated Annual Usage Savings		Estimated Annual Cost Savings			Estimated Gross Capital Cost	Simple Payback	Estimated Utility Incentive*	Simple Payback w/ Incentive
		Electricity	Electricity	Natural Gas	Electricity	Natural Gas	Total				
		kW	kWh	therms	\$	\$	\$				
<b>Low/No Cost Opportunities (payback less than 2 years)</b>											
1	Setback Thermostats reprogramming	-	-	221	\$ -	\$ 221	\$ 221	\$ -	-	\$ -	-
<b>Capital Cost Opportunities (payback less than 2 years)</b>											
<b>Retrofit Opportunities (payback 2 – 10+ years)</b>											
2	Compact fluorescent lighting retrofit	8.0	2,743	-	\$ 192	\$ -	\$ 192	\$ 980	5.1	\$ -	5.1
3	CFL night lighting (with above retrofit)	-	524	-	\$ 37	\$ -	\$ 37	\$ -	-	\$ -	-
4	Lighting control	-	TBD	-	TBD	\$ -	\$ -	TBD	TBD	TBD	TBD
5	Drop ice melt requirements	-	2,200	-	\$ 154	\$ -	\$ 154	TBD	TBD	\$ -	TBD
<b>Discount Rate Opportunities</b>											
6	Xcel Wind Energy	-	-	-	\$ (251)	\$ -	\$ (251)	\$ -	-	\$ -	-
<b>Totals</b>		<b>8.0</b>	<b>5,467</b>	<b>221</b>	<b>\$ 132</b>	<b>\$ 221</b>	<b>\$ 353</b>	<b>\$ 980</b>	<b>2.8</b>	<b>\$ -</b>	<b>2.8</b>

\*Items marked with an asterisk are custom efficiency projects and may require pre-approval to qualify for a utility rebate. Please check with your utility representative before purchasing/implementing such measures.

### Conservation Opportunity Analysis

To your credit, MVUUF has actively pursued opportunities for energy efficiency in its operation in the following areas:

- With a long-term outlook in mind, the organization replaced all of the building's major mechanical systems three years ago with new, very high-efficiency equipment.
- They subsequently had both rooftop units—accounting for 8 tons of total cooling capacity—fitted with Xcel Energy's Saver's Switch to participate in the peak load program.
- When the remodel occurred, they installed T8 light fixtures throughout.
- Again, during the remodel, the building received new efficient, low-e, double-pane glass windows plus storm windows. The exterior walls contain six inches of fiberglass and the roof has 3-½ inch insulation in addition to the plywood and shingles.
- You already maintain a moderate hot water heater setpoint.

Additional opportunities for further improvements in energy efficiency are as follows:

1. Setback thermostats. The facility currently uses programmable thermostats throughout the building. They we, generally, set at 68 degrees for occupied hours and 65 degrees for unoccupied hours. Since there are so many unoccupied hours, temperature setback is a very effective energy savings measure. The three-degree setback saves MVUUF about 130 therms a year, which is equivalent of eight percent of its heating use. There was concern raised regarding going too aggressive on set back and the ability of the system to recover quickly enough when needed. Consider some trial and error with the different units and set back levels. For a point of reference, if you were able to set back an additional five degrees, savings would be an additional 220 therms annually, which could save an additional \$200-plus on your gas bill. Here is both your existing savings from setback as well as the calculations if you were able to setback an additional five degrees. (See specific calculations on next page.)

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
None	Difference between 354 and 133 therms = 221 therms @ \$1.00/therm = \$221	Immediate

**Calculate heating energy savings from current setback strategy.**

Description	Symbol	Value	Units	Formula or Derivation
Determine percentage of time that facility is typically unoccupied (not operating).				
Occupied (operating) hours	OH	30	hrs/wk	
Percentage unoccupied hours	Puh	82%		$(168 - OH) / 168 \times 100\%$
Determine average temperature difference between facility and outdoors during winter months.				
Occupied heating setpoint	HSo	68	deg F	
Heating degree days	DDY	7,311	HDD/yr	
Heating days (average below 65 deg F)	HD	250	days/yr	
Average temperature differential	?T	32	deg F	$HSo - (65 - (DDY / HD))$
Determine energy savings of reducing unoccupied temperature setpoint.				
Proposed unoccupied heating setpoint	HSu	60	deg F	
Proposed heating setback	SB	8	deg F	OHS - UHS
Heating energy usage	YU	1,735	therms/yr	
Energy savings	ES	354	therms/yr	$SB / ?T \times Puh \times YU$
Percentage energy savings	Pes	20%		$ES / YU$
Determine cost savings and payback.				
Energy rate	ER	\$ 1.00	/therm	
Cost savings	CS	\$ 354	/yr	$ES \times ER$
Setback thermostats to be installed	Qty	-	ea	
Unit cost	UC	\$ -	/ea	
Total cost to implement	TC	\$ -		$Qty \times UC$
Simple payback	SPB	0.0	yrs	$TC / CS$

**Calculate heating energy savings from five additional degree setback.**

Description	Symbol	Value	Units	Formula or Derivation
Determine percentage of time that facility is typically unoccupied (not operating).				
Occupied (operating) hours	OH	30	hrs/wk	
Percentage unoccupied hours	Puh	82%		$(168 - OH) / 168 \times 100\%$
Determine average temperature difference between facility and outdoors during winter months.				
Occupied heating setpoint	HSo	68	deg F	
Heating degree days	DDY	7,311	HDD/yr	
Heating days (average below 65 deg F)	HD	250	days/yr	
Average temperature differential	?T	32	deg F	$HSo - (65 - (DDY / HD))$
Determine energy savings of reducing unoccupied temperature setpoint.				
Proposed unoccupied heating setpoint	HSu	60	deg F	
Proposed heating setback	SB	8	deg F	OHS - UHS
Heating energy usage	YU	1,735	therms/yr	
Energy savings	ES	354	therms/yr	$SB / ?T \times Puh \times YU$
Percentage energy savings	Pes	20%		$ES / YU$
Determine cost savings and payback.				
Energy rate	ER	\$ 1.00	/therm	
Cost savings	CS	\$ 354	/yr	$ES \times ER$
Setback thermostats to be installed	Qty	-	ea	
Unit cost	UC	\$ -	/ea	
Total cost to implement	TC	\$ -		$Qty \times UC$
Simple payback	SPB	0.0	yrs	$TC / CS$

2. Compact fluorescent lighting retrofit. Retrofit the facility's existing incandescent bulbs with compact fluorescent bulbs. CFLs consume as little as one-fourth the energy of incandescent bulbs, last ten times longer, and are available in a wide variety of styles to fit a range of applications. There are two areas that would benefit from a retrofit. There are six 60-watt bulbs per fixture in the lobby and sanctuary with a total of 18 fixtures. In addition to the 108 60-watt bulbs, each fixture has a 150-watt down light. The Fireplace fellowship room is also a great candidate for a CFL replacement with 14 65-watt incandescent spotlights. It was discussed during the walk-through that dimmable CFLs would be preferred for these two spaces. Dimmable CFLs have had some quality issues in the past; however, manufacturers have been making some headway. You may look into consumer reports to see if any have scored particularly well. Dimmable CFLs do not allow for as wide of a range as incandescent, although this may not be an issue for the type of use in these two spaces. We have tried and had good luck with GE's 15w dimmable (FLE15/2/DV/R30). While a significant decrease in wattage (>75%) would occur from this retrofit, savings is limited due to the relatively low use of the lights. (Savings information at the end under Equipment Inventories.)

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
140 lamps at ~\$7 ea. = \$980	Energy: 2,743 kWh x \$0.07/kWh = \$192	5.1 years

3. Compact fluorescent lighting as Night lighting. The savings shown above would be enhanced if you were to select a few CFL lamps to serve as the security lights that would be on during unoccupied hours. When we conducted a drive-by when the building was not in use, we saw that the 150-watt wall lamps (dimmed) were used as the night lighting. The savings of a CFL retrofit would be tremendously enhanced should you be able to use a couple of the CFLs as the night-lighting. Assuming two CFLs on rather than two partially dimmed 150-watt lamps, you could save over 500 kWh a year.

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
	Energy: 524 kWh x \$0.07/kWh = \$37	Immediate – if the CFL retrofit occurred.

4. Lighting control. While the staff appears to be great at turning off unnecessary lights, you may still want to consider putting wall-mount motion sensors in the restrooms or other applicable areas where there is periodic use that could result in one forgetting to shut off the lights. Since you are good about turning off the lights already, this measure may serve as a precaution and provide members with an example of things they can implement at home. Motion sensors would typically reduce overall energy consumption in offices, classrooms, hallways and restrooms by an estimated 25% to 40%; however, there be little to no savings in your case. The cost of this project would be reduced by a prescriptive rebate (\$12/ea for wall mount sensors, \$36/ea for ceiling mount fixtures) from Xcel Energy.

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
TBD	TBD	TBD

5. Ice Melt. You can see that your historical electric use is highest during the winter. A good portion of this is a result of having to use the ice melt in the parking lot drainage. While we are not sure it's even possible, if the drainage issue could be resolved, your organization could get rid of the submersible heater and drop approximately 2,200 kW h of use.

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
TBD	2,200 kWh at \$0.7 = \$154	TBD

Strategic Opportunity Analysis

MVUUF has also actively pursued strategic opportunities for energy cost savings in its operation in the following areas:

- Both its electric and gas accounts are appropriately tax-exempt.
- The organization participates in Xcel Energy's Saver Switch program.
- The organization has made timely payments and incurred no late fees.

Additional strategic opportunities are as follows:

6. Wind power purchase. Knowing the organization's commitment to the environment, MVUUF may consider buying wind energy from Xcel Energy. While you would pay an additional two cents per kWh, you would not have the fuel cost adjustment line item, which would offset a good portion of the increased cost for wind energy.

Here is the last twelve month's fuel cost adjustment rates, which would not be applicable for Wind Energy. The average has been 0.854 cents per kWh.

Jan-2005	0.158
Feb-2005	0.394
Mar-2005	0.222
Apr-2005	0.269
May-2005	0.894
Jun-2005	1.130
Jul-2005	1.033
Aug-2005	2.010
Sep-2005	1.100
Oct-2005	0.664
Nov-2005	1.215
Dec-2005	1.159

<i>Estimated Cost</i>	<i>Estimated Annual Savings</i>	<i>Simple Payback</i>
\$0.02 - \$0.0086 = \$0.0114 x 22,000 kWh = \$251	\$0	N/A

## V. Additional Information

In addition to the energy conservation measures we recommend in this energy assessment, Xcel Energy offers cash rebates and a variety of payment and billing programs to better manage your cash flow.

BillWise from Xcel EnergySM programs include payment options like

- Auto Pay – a simple and convenient way to have monthly energy payment automatically withdrawn from a bank account on the day it is due.
- EFT (Electronic Funds Transfer) – allows simplification of the bill paying process and improving cash management by directly transferring money from your account to Xcel Energy.
- Pay By Phone – allows quick and secure transfer of energy payment from a bank account directly to Xcel Energy, right over the phone, at no cost.
- Credit/Debit Cards Payments – allows payment of energy bill online or by phone using a credit or debit card for a small fee.

The Billing options include – EDI (Electronic Data Interchange) which allows receipt of your energy bill electronically the day after the billing cycle is complete. More information on all these programs can be obtained by discussing eligibility requirements with your Xcel Energy representative. You also can call the Business Solution Center at 1-800-481-4700 or visit us at [xcelenergy.com](http://xcelenergy.com) for more information about qualifying for cash rebates, discount rates or billing/payment options.

Xcel Energy hopes you find this information valuable and that you consider adapting the strategies that are outlined. If you need help funding your electric energy projects, Xcel Energy also offers electric financing to help you make energy and process improvements that will give your business a competitive edge. Financing is subject to bank approval. Once approved, you can take advantage of these benefits:

- No down payment required
- Terms up to five years
- Loans cover qualifying electric equipment and contract labor, or study costs over \$1,000
- Competitive interest rates
- Flexible loan amounts to meet your needs

## VI. Glossary

The following definitions will help you understand the information presented in the report and how it relates to your energy bills.

**Actual Demand** is the highest average 15 minutes of demand over a billing period.

**Billed Demand** is the actual demand plus the adjusted demand for power factor correction.

**CCF** is 100 cubic feet of natural gas. For the purposes of measuring energy use, a therm and a CCF of natural gas are equivalent.

**Load Factor** is a measure of efficiency. Load factor is the ratio of average load in kilowatt supplied during a designated period to the peak load occurring that period.

$$\text{Load Factor} = \frac{\text{kWh supplied in a period}}{\text{Peak kW in a period} \times \text{Hours in a Period}}$$

**Power Factor** measures how effectively your equipment uses electric current from the utility. Power factor is a measure of how effectively the current delivered to the equipment is converted into useful energy, and is shown as a percentage. If your power factor is below 90 percent Xcel Energy, like many utilities, charges extra for low power factor, because it costs the utility more to build and operate the additional equipment that carries the extra current to operate your equipment.

**Therm:** A therm is a unit of energy equivalent to 100,000 BTU.

**VII. Equipment Inventories**

Mechanical & Production Equipment



### Lighting Fixtures

First page is current lighting schedule and inventory. The second sheet shows lighting with a CFL retrofit.





### **VIII. Additional Savings Calculation Worksheets**

Attached are calculation worksheets, if applicable, for savings measures identified that have a more complex calculation than that described earlier.