

ENERGIZE MAPLEWOOD!

A Community Action Plan Towards Carbon Neutrality

April 22, 2015



Contents

Executive Summary	i
Introduction	1
Who Are We? – Community Background	1
Commitment to Sustainability	2
The Case for a Community Energy Action Plan	3
Xcel Energy Partners in Energy	6
Where Are We Now? – Baseline Energy Analysis	6
Maplewood’s Current Energy Use.....	6
Past and Present Energy Initiatives in Maplewood.....	10
Local Outreach and Communication Channels	13
Opportunities.....	14
Barriers.....	14
Where Do We Want To Go? – Maplewood’s Energy Vision and Goals	16
Maplewood’s Energy Vision	16
Focus Areas	16
Energy and Outreach Goals.....	17
How Are We Going To Get There? – Strategies	19
Identifying and Prioritizing Energy Strategies.....	19
Implementation Steps and Strategies.....	21
Focus Area 1: Direct Outreach and Energy Coaching for High-Profile Businesses and Institutions ...	21
Focus Area 2: Energy Education & Public Events to Motivate Residential Energy Awareness and Reduction.....	30
How Are We Going To Stay On Course? – Monitoring and Reporting	34
Operational Actions and Tracking	34
Changing Course: Corrective Action	34
External Communication and Reporting.....	35
Ongoing Energy Action Team Support.....	35
Recognition for Hitting Maplewood’s Goals.....	35
Beyond the Plan Horizon.....	36
Appendix 1: Glossary of Terms	37

Appendix 2: Planning Workshop Details	39
Appendix 3: Supporting Assumptions for Energy Goals	41
Appendix 4: Maplewood Land Use Map	42
Appendix 5: Partners in Energy Planning Memorandum of Understanding	43

Executive Summary



"Midwinter" by Kevin T. Houle via CC 2.0

The City of Maplewood has embraced environmental stewardship as a core community value, and has been implementing programs and policies that advance local sustainability for many years. Some of the City's numerous actions include signing the Mayor's Climate Protection Agreement in 2008, joining the GreenStep Cities program in 2010, adopting Minnesota's first Green Building Code program in 2013, and investing in solar energy production at City facilities. These efforts and others have brought **added awareness to the impact of the community's energy use** on environmental priorities.

The launch of Xcel Energy Partners in Energy offered the City **an opportunity to better align and leverage the resources and knowledge of Xcel Energy with Maplewood's goals and core community assets**. Partners in Energy is a two-year community support program that facilitates community energy planning and implementation support for targeted, community-specific energy goals. Maplewood is the second community in Minnesota to participate, and is leading the way for other cities statewide.

The City's track record of sustainability leadership made it a strong candidate for Partners in Energy. Some of the reasons include:

- Maplewood has developed a reliable outreach network through other environmental programs
- Maplewood's previous experience with environmental outreach allows the City to build on lessons learned.
- The City's coordination of support from sources such as Minnesota GreenCorps allows more leverage of Xcel Energy resources

The Maplewood City Council approved the Partners in Energy Memorandum of Understanding (MOU) and the formation of an Energy Action Team on November 24, 2014. The MOU approves the initial planning phase of the program, which will be carried out from January to April 2015. Phase Two, implementation of the Energy Action Plan will begin in May 2015.

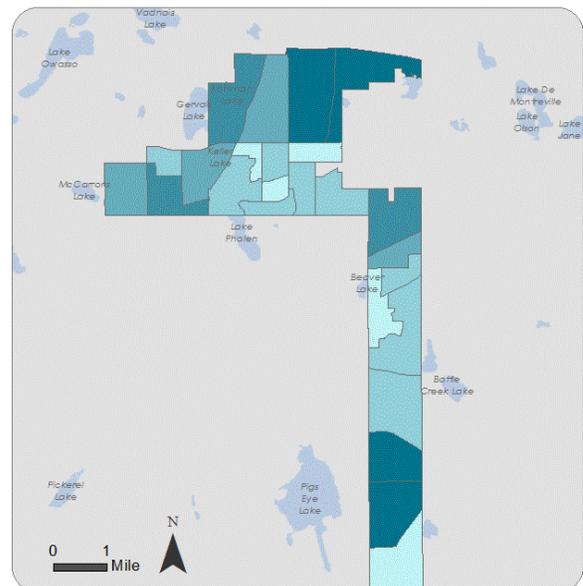


Figure 1. Maplewood High Residential Energy Use

The Partners in Energy Planning Process

Maplewood Energy Action Team participants developed this energy plan during a series of four workshops and one meeting held January through March 2015. These workshops took the group through a series of activities, starting with a review of community-wide energy use information and existing sustainability efforts in the community. Team members developed their vision for how this energy plan would best serve the community's future, and developed and refined strategies for how to get started. With the help of baseline energy data, the group developed goals for action for the next 20 months.

The 14-member Energy Action Team consisted of a range of voices from across the community, from committed and experienced residents, large and small businesses, elected and appointed leadership, and experienced City staff. A strong theme of discussion was that **these efforts should build on the experience and success of the Maplewood's leadership by example.** The group also emphasized that inclusivity across the community, with a strong interest in educational initiatives, would be important. In addition, the **voices of experienced local businesses and community educators ensured that the group considered the pragmatic needs of the community.**

Vision and Goals

The energy vision developed by the Energy Action Team is the catalyst from the City to meet longer range energy goals. Many themes emerged during discussion:

- a desire to be educational, community-led, and action-inspiring;
- a desire for adaptable and easily implementable actions,
- visionary direction towards future generations, carbon neutrality, and grid independence.



Figure 2. Maplewood Energy Vision

The final energy vision states that Maplewood's energy action plan will:

Educate and empower the community to participate in energy actions that will move Maplewood towards carbon neutrality.

The following energy and cost saving goals were developed out of the Energy Action Team's plan. The goals span the 20-month implementation horizon of May 2015 – December 2016.¹

- **Save 400,000 kWh for local businesses and institutions.**

¹ These goals are calculated based on energy use data from 2013, participation goals, and average savings information.

- **Save each participating business an average of \$1,750 per year.**
- **Enroll 4 new buildings in the Green Building Code Incentive Program for recommissioning studies, saving a total of 208,000 kWh and 12,000 therms.**
- **Motivate residents to participate in an additional 500 energy efficiency or renewable energy actions, leading to annual savings of 220,000 kWh and 33,250 therms. Increase renewable energy subscriptions by an additional 267,000 kWh.**
- **Save each participating resident an average of \$130 per year.**

Reaching these goals would reduce Maplewood's annual carbon footprint by 1.8 million pounds, approximately equivalent to the carbon emitted from 170 passenger vehicles per year.

Focus Areas

This 20-month program implementation horizon will focus on two broad areas: assisting local businesses with direct energy programs and coaching, and City-wide education and outreach campaigns to motivate local residents to reduce their energy impact.

Local business outreach will initially focus on the high-profile (and high-use) sectors of auto dealerships and restaurants, and build off of Maplewood's existing communication channels to local businesses through the City's solid waste programs and stormwater partnerships with the watershed districts. This outreach will also help solicit and review applications for the Green Building Code Incentive Program.

City-wide education and outreach will leverage existing community networks to bring awareness and motivate action. **At the heart of this effort will be a community-wide energy competition** that will challenge residents to join teams or enroll to compete to have the biggest impact, supported by energy use and program participation data from Xcel Energy. This focus area will also leverage homeowner energy clinics to promote energy-saving best practices for homes.

Energize Maplewood! Focus Areas & Strategies

Direct Outreach and Energy Coaching for High-Profile Businesses & Institutions

- *Energy Efficiency and Renewable Energy in Auto Dealerships and Restaurants*
- *Outreach to Maplewood Congregations*
- *Green Building Code Incentive Program Outreach*

Energy Education and Public Events to Motivate Residential Energy Awareness and Reduce Consumption

- *Energize Maplewood! Energy Challenge*
- *Home Improvement Store Energy Clinics*

Future Efforts

The Energy Action Team discussed how this plan should be **a catalyst for future action**. The goals over 20-months of new programs may seem small, but they are ambitious new initiatives that reflect a deeper level of community engagement than has been possible in the past. The lessons learned with support from Xcel Energy on implementation will help Maplewood further understand its capacity and opportunities for progress, with the aim of building a network of committed participants for ongoing efforts.

During the 20-months of implementation **there will be built in opportunities for reflection, with a catalog of key lessons and achievements at the end of the process**. As an additional incentive, upon successful adoption of the Energy Action Plan and completion of Maplewood's goals, Xcel Energy will **sponsor educational signage** as recognition of Maplewood's energy achievements on sites across the City.

Introduction



Maplewood Nature Center

The City of Maplewood is committed to environmental stewardship as a core value of our community. The City has taken numerous actions to date, including signing the Mayor's Climate Protection Agreement in 2008, joining the GreenStep Cities program in 2010, and investing in solar energy projects at City facilities. These efforts and others have brought attention to the impact of the City's energy use on environmental priorities. The City has brought an invigorated focus to energy efficiency and renewable energy implementation and awareness, and is ready to commit to the next set of actions that will drive community change and impact even further.

To that end, the City of Maplewood joined the Xcel Energy Partners in Energy process in November 2014. Beginning in 2014, Xcel Energy has offered Partners in Energy to communities. Maplewood was the second community in Minnesota to participate, and is leading the way for other communities statewide. The purpose of Partners in Energy is to better align and leverage the resources and knowledge of Xcel Energy with Maplewood's goals and core community assets and to develop a plan that provides custom and targeted support for energy programs in Maplewood. This process was facilitated by Xcel Energy, and included a group of committed stakeholders (Energy Action Team) representing residents, small and large businesses, City staff, and elected and appointed leadership.

This plan provides background on the City of Maplewood's energy and sustainability efforts and the Partners in Energy planning process that took place between January and March 2015. The plan outlines a series of energy goals and focus areas developed by the Energy Action Team for implementation. These focus areas are intended to integrate with the City's existing efforts and outreach channels, such as the launch of Maplewood's Green Building Code Incentive Program and a recent Environmental Assistance Grant from the Minnesota Pollution Control Agency to assist with building recommissioning services. This plan focuses on a concentrated, coordinated 20-month effort to roll out new programs in the City. The intent is to learn from the successes and community response to this implementation process in order to build further action towards a carbon neutral Maplewood.

Who Are We? – Community Background

The City of Maplewood, Minnesota is located in Ramsey County, bordering a section of the northern and eastern sides of Saint Paul. Maplewood has a population of 39,765, making it the 22nd most populated city in Minnesota and second largest city in Ramsey County. Twenty-three percent of the population is under 18 years old, and 15 percent of the population is 65 years or older.

Housing

In the residential sector, 26% of Maplewood’s 15,561 housing units are multiunit structures. Between 2008-2012 Maplewood’s homeownership rate was 72.4%. More than 90% of Maplewood’s 2030 land-use plan is dedicated to residential land uses. Maplewood’s housing stock has a diverse range in value. Of the 13 neighborhoods identified in the City’s comprehensive plan, the Hillside, Vista Hills, Highwood, and Kohlman Lake neighborhoods have more expensive homes, with older, smaller homes located in the neighborhoods of Western Hills, Parkside, and Gladstone. Fifty-eight percent of the City’s housing stock has been built since 1970.²

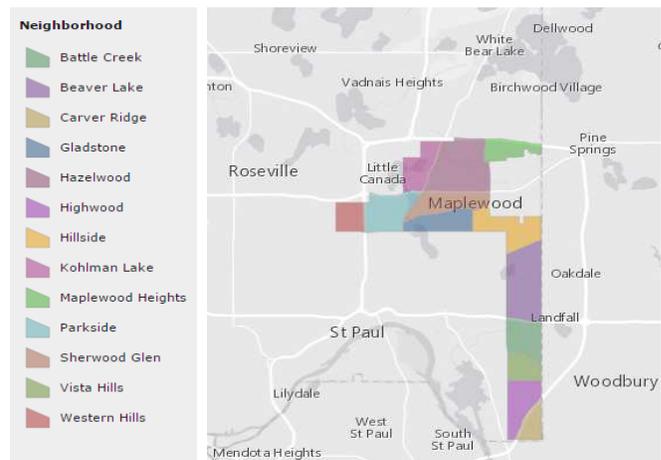


Figure 3. Maplewood’s Thirteen Neighborhoods

Employment and Education

The median household income from 2008-2012 was \$57,822. Eleven percent of residents are living in poverty. The City of Maplewood identifies 3M, St. John’s Hospital, Best Buy, Slumberland, Macy’s, Kohl’s, and Maplewood Mall as the City’s largest employers. As of 2007 there were 3,197 businesses in Maplewood.

Maplewood residents are served by both school districts 622 and 623. There are ten public elementary schools, three public middle schools, and three public high schools. There are also four private schools for grades K-8.³

Commitment to Sustainability

The City of Maplewood has embraced environmental stewardship as a core community value, and has been implementing programs and policies that advance local sustainability for many years. Some of the City’s numerous actions include signing the Mayor’s Climate Protection Agreement in 2008, joining the GreenStep Cities program in 2010, adopting Minnesota’s first Green Building Code program in 2013, and investing in solar energy production at City facilities.



School “Tolby®” Energy Education Campaign

² Source: City of Maplewood 2030 Comprehensive Plan, *Chapter 4: Housing*. Available at <http://www.ci.maplewood.mn.us/DocumentCenter/View/1479>

³ These four schools are St. Jerome, Hill Murray, Presentation of the Blessed Virgin Mary, and Mounds Park Academy.

Maplewood's 2030 Comprehensive Plan outlines the City's sustainability vision as follows:

- Maplewood, in order to ensure stewardship of its environment, will promote sustainable development and practices for the preservation, design and maintenance of its natural and built environments. Developments and practices should maintain or enhance economic opportunity and community well-being while protecting and restoring the natural environment that people, economies, and ecological systems depend on.

The Comprehensive Plan outlines goals that will help the City realize the sustainability vision including making energy efficiency and conservation a priority through building code improvements and city operations and promoting sustainable building practices such as green building standards. Adoption of the Energy Action Plan is a tool for action and implementation of these goals. It also represents an important partnership between the City, City stakeholders, and Xcel Energy which will serve as a catalyst for long term changes.

The Case for a Community Energy Action Plan

Xcel Energy Partners in Energy offered an opportunity for Maplewood staff to focus and go farther on existing energy priorities. The City had already implemented numerous actions related to energy and sustainability, and had committed leadership on these issues. Partners in Energy allowed the community to leverage additional resources for moving goals forward.

Maplewood staff met with Xcel Energy to discuss participation logistics on October 15, 2014. Then, Partners in Energy was introduced to both the Housing and Economic Development Commission on November 12, 2014 and the Environmental and Natural Resources Commission on November 17, 2014. The Maplewood City Council approved the Partners in Energy Memorandum of Understanding (MOU) and the formation of an Energy Action Team on November 24, 2014.

The Energy Action Team developed this Energy Action Plan during a series of four workshops and one meeting held January through March 2015. These workshops took the group through a series of activities, starting with a review of community-wide energy use information and existing sustainability efforts in the community. Team members developed their vision for how this energy plan would best serve the community's future, and developed and refined strategies for how to get started. With the help of baseline energy data, the group developed goals for action for the next 20 months, May 2015-Dec 2016.

The Energy Action Team brought together a range of voices from across the community, from committed residents, large and small businesses, elected and appointed leadership, and experienced City staff. A strong theme of discussion was that these efforts should build on the experience and success of the work the City of Maplewood has done to lead by example. The group also emphasized the idea of inclusivity across the community, with a strong interest in educational initiatives to reach out to additional groups. In addition, the voices of experienced local businesses and community educators ensured that the group considered the pragmatic needs of the community.

The Energy Action Team accomplished these efforts during a compressed timeframe; the planning process was expedited to maximize implementation assistance from Maplewood's Minnesota GreenCorps member and Energy Ambassador. A summary of each workshop is below, and additional detail is included in an Appendix.

- **Workshop 1 (January 29, 2015):** Kickoff and welcome, review of Maplewood sustainability initiatives, energy visioning activity, and review of baseline energy data.
- **Workshop 2 (February 10, 2015):** Energy vision review, additional baseline energy data, focus area brainstorming and clustering.
- **Workshop 3 (February 26, 2015):** Strategy clustering and refinement, feasibility impact assessment and prioritization activity in small groups.
- **Workshop 4 (March 12, 2015):** Refine goals and tactics, review additional program participation data, discuss tracking. A follow up meeting on March 24, 2015, reviewed draft strategies and goals with City staff and available team members.
- **Review Work Session (March 24, 2015):** A smaller group reviewed strategies and tactics for each focus area.

Once the Energy Action Plan is finalized, Xcel Energy Partners in Energy supports an initial 20-month (May 2015-Dec 2016) implementation timeframe to accomplish the goals set out in this plan.



Maplewood Energy Action Team at a Planning Workshop

MAPLEWOOD'S ENERGY ACTION TEAM

The Energy Action Team was formed from a varied group of Maplewood residents, businesses, elected and appointed officials, and City staff committed to working on sustainability in the community.

1. City Council Representative

- a. Kathleen Juenemann

2. Housing and Economic Development Commission Representative

- a. Spencer Gansluckner

3. Environmental and Natural Resources Commission Representatives

- a. Mollie Miller
- b. Tom Sinn

4. Resident Members at Large

- a. Matt Ledvina
- b. Julie Smendzuik-O'Brien

5. Business Members

- a. 5-8 Club - Jill Skogheim
- b. Maplewood Mall – Jennifer Lewis
- c. 3M – Bill Boyd

6. Staff Members

- a. Nick Carver, Building Official
- b. Shann Finwall, Environmental Planner
- c. Chris Swanson, Environmental Specialist
- d. Joe Ballandby, Minnesota GreenCorps Member
- e. Ann Hutchinson, Lead Naturalist
- f. Ginny Gaynor, Natural Resources Coordinator

7. Xcel Energy Representatives

- a. Tami Gunderzik, Partners in Energy Program Manager
- b. Yvonne Pfeifer, DSM Community Manager
- c. Jake Sedlacek, Community Relations Manager

8. Center for Energy and Environment (Facilitators)

- a. Jenny Edwards, Innovation Exchange Director
- b. Emma Struss, Community Energy Coordinator

Xcel Energy Partners in Energy

Xcel Energy is the main electric and gas utility serving the City of Maplewood, with a small portion of the City serviced by North St. Paul through the Minnesota Municipal Power Agency. In the summer of 2014, Xcel Energy launched Partners in Energy to support communities with developing and implementing energy action plans. Maplewood was chosen as the second city in the state to participate in Partners in Energy. Xcel Energy approached Maplewood because of their past sustainability efforts.

The content of this plan is driven heavily from a series of four planning workshops. The process is supported with information around energy use and past program participation from Xcel Energy, facilitation services, and development of this planning document.

Partners in Energy will work with the City of Maplewood to coordinate support for the implementation of the plan. When the goals and strategies are finalized, Xcel Energy will develop a Memorandum of Understanding that outlines support Xcel Energy can provide to help implement and celebrate the energy action goals.

Where Are We Now? – Baseline Energy Analysis

Maplewood's Current Energy Use

An early step in the Partners in Energy planning process was to review the current energy use in the City of Maplewood. The Xcel Energy team calculated and presented community energy statistics from 2011-2013 to help the group understand how and where energy is used in the community.^{4 5}

Maplewood in total used 320 million kWh of electricity and 21 million therms of natural gas in 2013, as well as 320 million kWh of electricity and 16 million therms of natural gas in 2012. The Regional Indicators Initiative, a voluntary city energy tracking project, shows that Maplewood's total energy use is about average compared to the other Twin Cities inner-ring suburbs that participate (shown in Figure 4). Data are from 2012, the most recent year available through the Regional Indicators Initiative.

⁴ The majority of Maplewood residents have Xcel Energy as their electric and gas provider while a small portion of the community is served by North St. Paul Municipal Utility. Only data from Xcel Energy was used to calculate the City's baseline energy use.

⁵ All energy data presented through this process was developed for planning purposes and may contain variations from data obtained through other sources. All energy and program data presented here complies with Xcel Energy's Minnesota data privacy policies (all summary statistics must contain at least 15 entities, and no single entity can be responsible for more than 15 percent of the total or they will be removed from the summary).

ENERGIZE MAPLEWOOD! A Community Action Plan Towards Carbon Neutrality

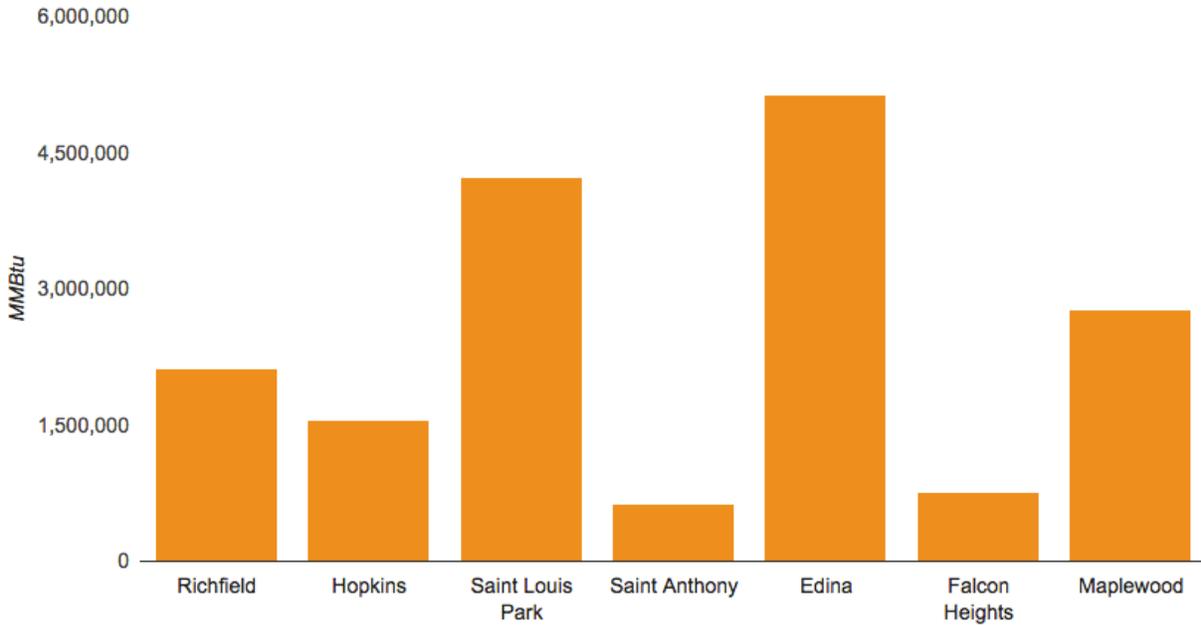


Figure 4. Maplewood 2012 Total Energy Use Compared to Other Inner-Ring Suburbs (Source: Regional Indicators Initiative)

The Regional Indicators Initiative also lets a city compare its energy use based on relative population. The figure below compares Maplewood’s residential energy use per capita.

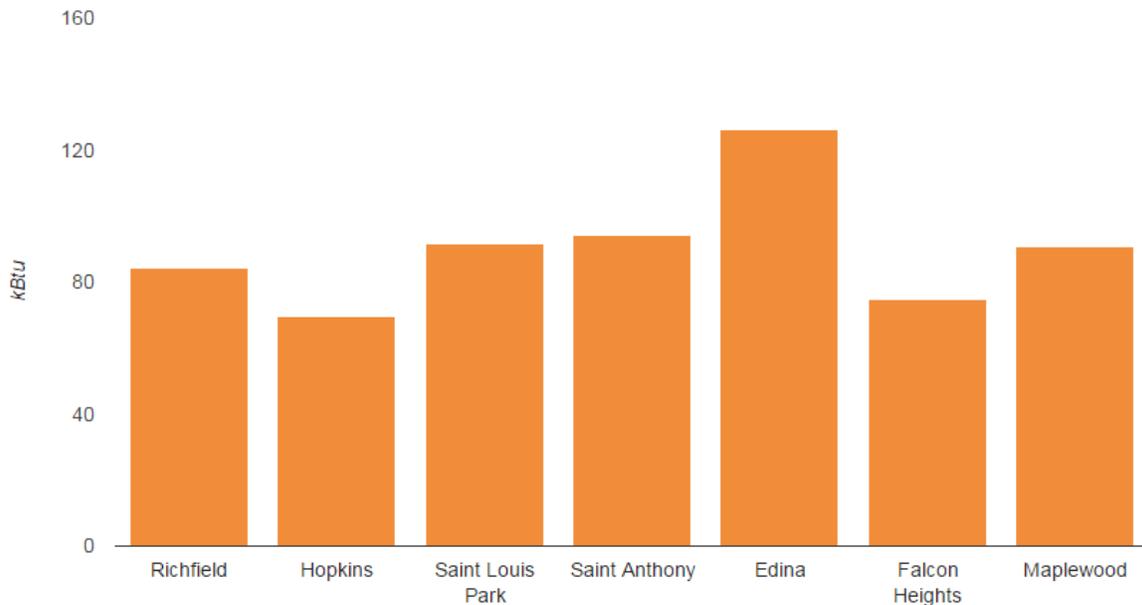


Figure 5. Maplewood 2012 Residential Energy Use per capita (Source: Regional Indicators Initiative)

The majority of the electricity tracked for Maplewood was used by commercial and industrial accounts (63%) while the remainder (37%) was used for residential accounts. A small percentage of electricity (less than 0.1%) is used for streetlights. However, commercial and industrial premises make up only 9% of the total premises, and residential account for 91% (see below).



Figure 6. Maplewood 2013 Electricity Use and Premise Count by Sector

Conversely, the majority of the natural gas use tracked for the community was used by residential accounts (54%) while commercial and industrial customers used the remaining 46%. Similar to electricity service, commercial and industrial premises make up a small portion (7%) of the total premises, and residential accounts for 93% (see below).

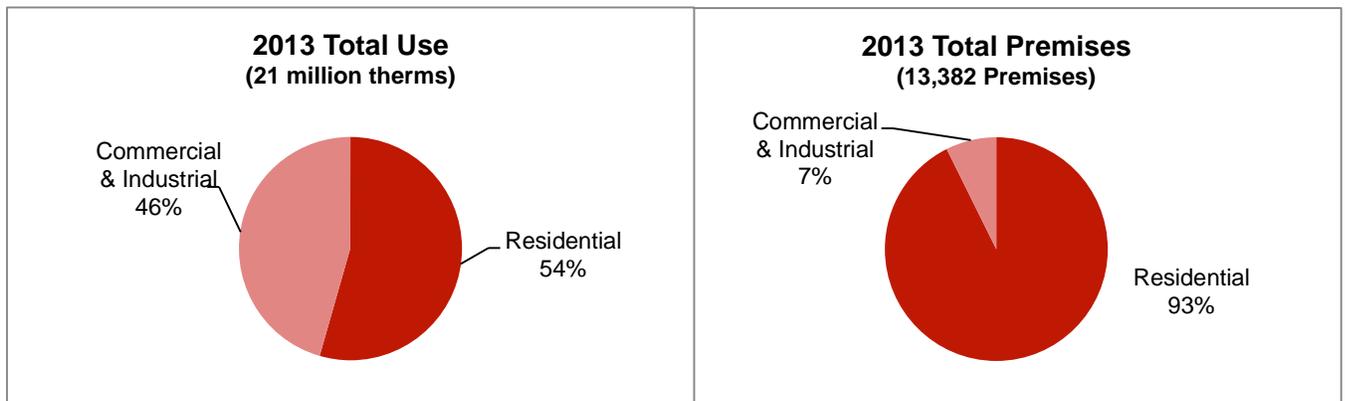


Figure 7. Maplewood 2013 Natural Gas Use and Premise Count by Sector

The graphs below show how electricity and natural gas demand change month to month in the City of Maplewood, for the years 2011-2013. Demand changes seasonally with temperature (most natural gas use is in the winter) and with other factors such as the length of the day (electricity use from lighting is higher during winter months). Note that data are not normalized to account for weather conditions year to year, so reflect the Community's actual metered use.

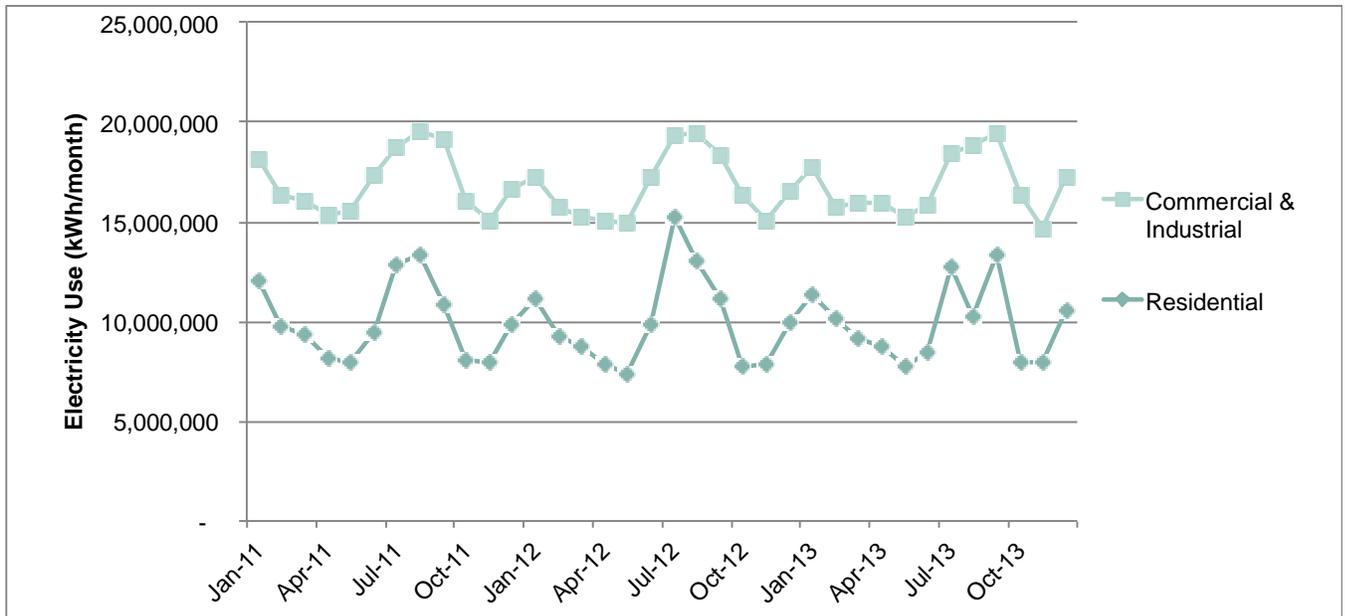


Figure 8. Monthly Electricity Use From Xcel Energy Customers in the City of Maplewood (2011-2013)

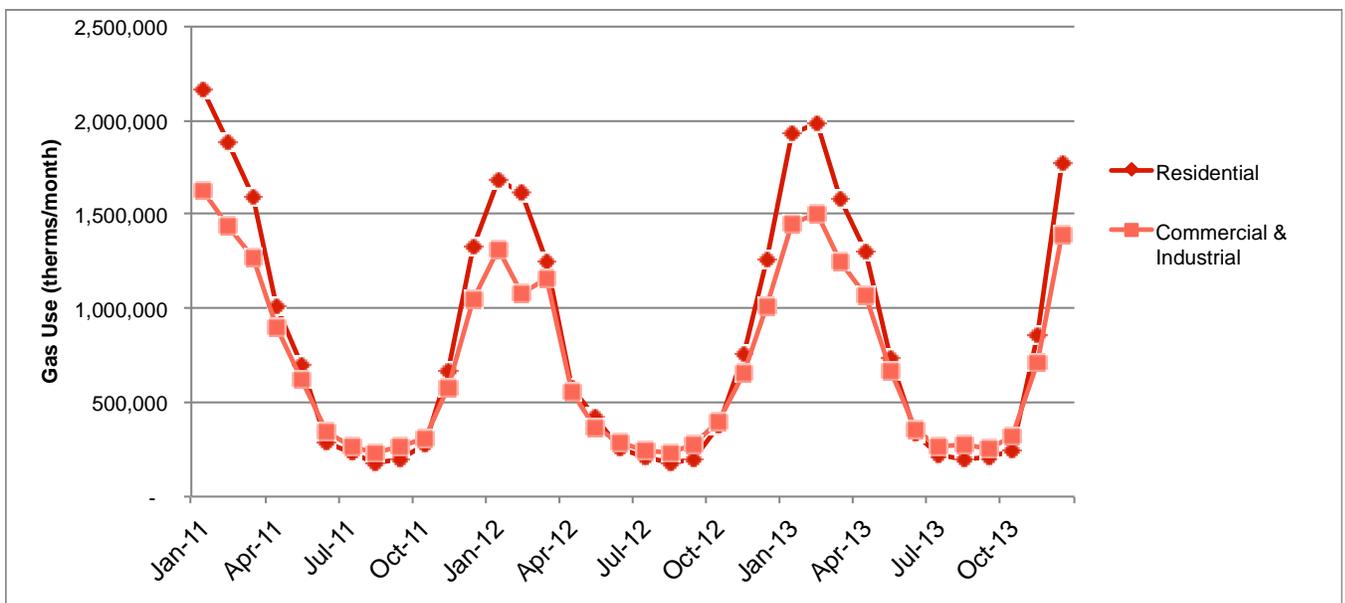


Figure 9. Monthly Natural Gas Use From Xcel Energy Customers in the City of Maplewood (2011-2013)

The Partners in Energy planning process also provides energy use information mapped across the community. The maps below show how total energy use is distributed across census block groups. The maps helped inform team members of clusters of energy and initiated an interest in community engagement in targeted areas.

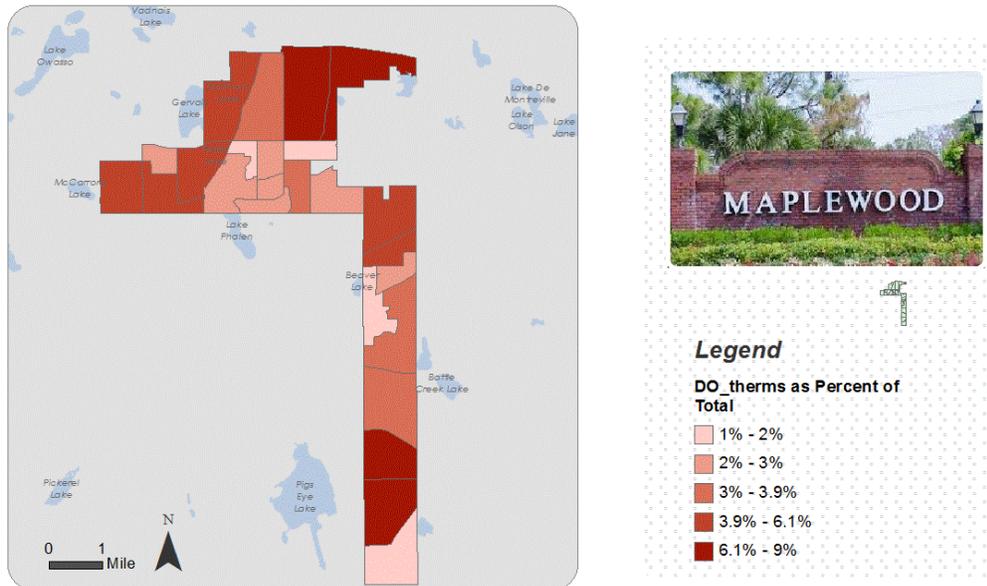


Figure 10. Maplewood Residential Natural Gas Use

Past and Present Energy Initiatives in Maplewood

Beginning with the Mayor’s Climate Protection Agreement in 2008, the City of Maplewood has led on numerous energy and sustainability initiatives that serve the community. Maplewood has focused on both improving energy efficiency and promoting local renewable energy production. In 2011 the City passed a Renewable Energy Ordinance to allow small wind turbines, geothermal heat pumps, and solar panels to be



Maplewood City Hall Ground Mounted Solar Arrays

located both in residential and commercial zoning districts. Also in 2011, the City completed a solar awning on the Maplewood Nature Center that consists of eight, 3’x 4’ solar panels.

In 2012 the City further demonstrated its commitment to renewable energy by installing two more solar projects on the City Hall Campus. One solar project is a ground mounted solar array with 261 panels and 180 reflective panels located in front of City Hall and the other solar project is roof-mounted with 216 panels and 19 reflective panels on the Maplewood Community Center.

In 2013 Maplewood became the first city in the country to adopt the International Green Construction Code (Maplewood Green Building Code). All City-financed buildings are required to be constructed under the code. In 2014 the City's South Fire Station was the first building constructed under the Green Building Code.



Maplewood South Station Fire Department

Two existing City programs were highlighted that could serve as a good basis for Maplewood's energy plan. First, the City has additional staff capacity of a Minnesota GreenCorps member through August 2015, who is available to conduct outreach and lay program groundwork during the implementation stage. Second, the City has received a grant to help with the City's Green Building Code Incentive Program (recommissioning studies). These opportunities are targeted at commercial customers, and would benefit from additional outreach.

The City's strong track record of sustainability leadership positioned it well to be an early community partner for Xcel Energy Partners in Energy. Some of the reasons include:

- Maplewood has built an outreach network through other environmental programming.
- Maplewood's previous experience with environmental outreach allows the City to build on lessons learned.
- The City's coordination of support from sources such as Minnesota GreenCorps allows more leverage of Xcel Energy resources.

See the following page for a full list of City initiatives from 2008 through the present.

MAPLEWOOD ENERGY INITIATIVES (2008 – PRESENT)

2008

- *Mayor's Climate Protection Agreement*
- *Green Team Created (Serves as Steering Committee for Energy and Sustainability Policies and Initiatives)*
- *Sustainable Maplewood Capstone Project*

2009

- *State Energy Code Adopted (Previous State Energy Code Dated Back to 1999)*
- *Energy Efficiency and Conservation Block Grant (American Recovery and Reinvestment Act)*
- *Energy Efficiency and Conservation Strategy*

2010

- *Community Energy Efficiency Sweeps – Partnership with Xcel Energy*
- *GreenStep Cities Participation*
- *Sustainable Operations*

2011

- *Living Streets Demonstration Project (Bartelmy/Meyer)*
- *Renewable Energy Ordinance*
- *Nature Center Solar Panels (Cooperatively Developed by the MN DNR Solar Grant Program through the Clean Water, Land, Legacy Amendment)*
- *Organized Trash Hauling*

2012

- *Living Streets Policy*
- *City Hall and Community Center Solar Panels (Made Possible by the US Department of Energy and the MN Department of Commerce through the American Recovery and Reinvestment Act of 2009)*

2013

- *Regional Indicators Initiative*
- *Green Building Code*

2014

- *City Leadership Group on Commercial Energy Competitiveness*
- *Environmental Assistance Grant for the Green Building Code Incentive Program*
- *Great Plains Institute Grant for the Green Building Code Incentive Program*
- *Minnesota GreenCorps - Energy Focus*
- *Partners in Energy*
- *Energy Education Programming*

Local Outreach and Communication Channels

Engaging the community is critical to reaching the City's energy goals. Below are some of the major ways that residents and businesses currently receive City updates. The Energy Action Team can use these communication channels to help deliver resources and information, as well as promote the implementation of the Energy Action Plan. The events listed include National Night Out, which is a successful avenue for reaching out to residents.

LOCAL OUTREACH CHANNELS

Publications

- *Maplewood Living* (monthly)
- *Seasons Newsletter* (quarterly)
- *Parks and Rec Brochure* (quarterly)
- *Lillie Suburban Press*
- *City of Maplewood Website*

TV Channels

- *Maplewood TV, Channel 16*

Social Media and Email

- *Maplewood Facebook Page*
- *Maplewood Twitter Feed*
- *Email Blasts to City Mailing List*

Events

- *Waterfest* (May 31st)
- *Light Up Maplewood* (July 4th)
- *Ramsey County Fair* (July 15-19)
- *National Night Out* (August 4)
- *Green Business Forum* (September)

Community Spaces

- *Maplewood Mall*
- *Maplewood Community Center*
- *Maplewood Nature Center*
- *Harambee Elementary School*



Changing Climate, Changing Perspective

By Virginia Gaynor, Natural Resources Coordinator

The brutally cold days of January 2014 linger in the bones and memories of many Maplewood residents. When the mercury drops to -20° F, it is hard to think about global warming. But understanding climate change requires taking on a long-term, global perspective.

The earth's climate has always shifted between cycles of warming and cooling. Climate change during the past 150 years differs from previous cycles in two ways. The rate of change is unprecedented and according to 97% of climate scientists, the rate of change is due in part to human activities.

Documented changes in global climate include:

1. An increase in average global temperatures by 1.4° F over the past century;
2. In 2013 we saw the highest levels of carbon dioxide in the atmosphere in three million years; and

3. Oceans are warming and sea levels are rising since the late 1900's.

In Minnesota, average temperatures have increased 1° F in the south, and 2° F in the north over the past century, with most of that increase in the past 30 years. The average number of days with high dew points is increasing. And the quantity of precipitation is increasing in some areas with more large rain events while other areas are experiencing droughts.

Small changes in temperature can create large shifts in weather and climate. Models predict that by mid-century, Minnesota summers will be more like Kansas summers. Ecologists believe that the boreal forests of northern Minnesota will be replaced by maple and oak forests. Wildlife species such as moose will follow the boreal forest habitat north to Canada. The warmer temperatures will favor more invasive insect pests and plants. Health issues will increase due to heat stress, allergies, poor air quality, and diseases including more tick-borne diseases.

What is the City doing?
Maplewood City Council signed the Mayor's

Climate Protection Agreement in 2008, making a formal commitment to reduce greenhouse gas emissions. Since then the City has completed numerous projects to increase energy efficiency and reduce emissions, using the GreenSlap Cloves program as a framework. Larger site events have already had a significant impact on stormwater management and the City is adopting new design standards to address that (see page two). The City is participating in research such as the Regional Indicators project (see page two). At Maplewood's Fish Creek site, St. Thomas University is studying trees planted from local seed sources vs. southern Minnesota seed sources.

What can residents do?
Explore climate change issues this year by attending a climate or phenology program (see pages 2 and 3). At home, try one of the on-line tools to calculate your family's carbon footprint and pick one or two things to reduce your impact. The Environmental Protection Agency (EPA) has a calculator and kits of tips for families at www.epa.gov/climatechange/ wjyd.

Select References:
www.epa.gov/climatechange
www.dhs.gov/climatechange
www.nationalgeographic.com Sept. 2013

Leading Causes of Greenhouse Gas Emissions in USA



Seasons, Maplewood's Quarterly Environmental Newsletter

Opportunities

Maplewood Staff Connections

City staff serving on the Energy Action Team are well connected with Maplewood's businesses and community organizations through other projects. There are numerous communication channels in place to reach local businesses in Maplewood (through outreach, licensing, and so forth). These connections can be leveraged to encourage participation in energy programs.

Sustainable Maplewood

The City of Maplewood has a long history of engaging in sustainability efforts. This environmental work has been communicated to the public under the umbrella of "Sustainable Maplewood". Connecting "Energize Maplewood!" to a familiar logo should help build trust and interest in the campaign faster than introducing an entirely new brand to the public.



Community Spaces

Maplewood has valuable community spaces that could be used for events or program outreach. Opportunities for outreach include:

- Maplewood Mall - Energy Action Team member Jennifer Lewis said energy displays are a possibility.
- Maplewood Community Center - The Community Center has banquet rooms and facilities available for energy events and education. Additional outreach is possible through the Community Center's existing programming.
- Maplewood Nature Center - Energy education programming is a possibility according to Lead Naturalist Ann Hutchinson
- Harambee Community Cultures / Environmental Science School where Environmental and Natural Resources Commissioner Mollie Miller has connections.

Barriers

Minnesota GreenCorps Position Ending

Maplewood's Minnesota GreenCorps member and Energy Ambassador will be a great asset for conducting outreach until the Minnesota GreenCorps service ends in August 2015. After that date there will be a significant decrease in the amount of staff time available to connect directly with the community. Energy

Action Team members voiced their concerns during the final two workshops on how the end of the Minnesota GreenCorps position will affect goal attainment.

Restaurants

During discussions Energy Action Team members identified barriers associated with Strategy 1, targeting restaurants and auto dealerships. Those familiar with the industry shared that restaurant owners are often very busy and hard to reach. Furthermore it was noted that restaurants are often solicited to engage in energy upgrades from untrustworthy sources. This may make it harder to gain the owner's trust.

Further barriers associated with restaurant outreach include:

- Decision makers time constrained with other day-to-day business priorities and focus
- Competition to invest limited capital in more customer-facing projects
- Corporate owned chains make decisions at their headquarters, so limited impact in working with the site personnel
- Hard to prioritize replacing technologies that are currently working and getting the job done
- Restaurant owners rarely convene with one another, presenting little opportunity to present at meetings or other group functions

Congregations

A congregation's educational programming often mimics an academic calendar. Therefore attendance and opportunities to engage congregants at adult forums or committee meetings is limited during the summer months. This might be challenging for Maplewood's Energy Ambassador who is only available through summer 2015.

Residents

Energy is not a topic that most residents think about on a daily basis. Reaching and engaging residents must overcome barriers such as:

- Identifying effective outreach avenues and finding the appropriate time to explain
- Finding the time for high-touch outreach such as door knocking
- Upfront cost of some programs and services
- Challenging schedules and follow through to schedule an appointment
- Language barriers for residents who might not be fluent in English.



Themes from Maplewood’s Energy Vision

Where Do We Want To Go? – Maplewood’s Energy Vision and Goals

This section describes the major themes and commitments that emerged from Maplewood’s energy planning process, which include the energy vision to help guide future community action, the team’s focus areas, and the proposed goals for outreach and energy targets over the 20-month implementation time horizon.

Maplewood’s Energy Vision

The community vision provides a picture of where Maplewood wants to go, and how this

Energy Action Plan will help move the community toward that end. The vision provides direction for developing goals, implementing strategies, creating partnerships, and engaging the entire community.

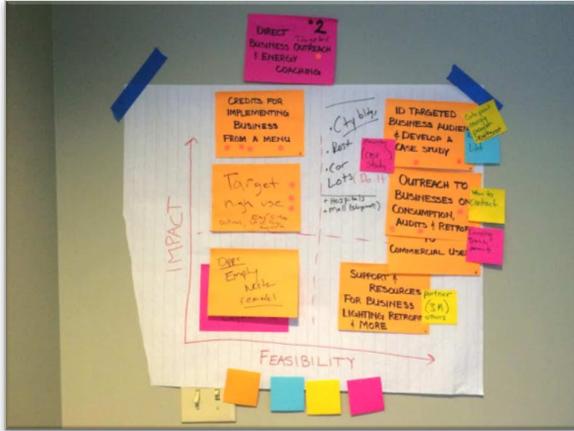
Members of the Maplewood Energy Action Team developed themes for important components of Maplewood’s energy future and for the energy plan. Themes emerged such as educational, community-led, and action-inspiring. There were also ideas that energy work had to be adaptable and easily implementable, while also visionary and forward looking. Some themes included the impact on future generations, carbon neutrality, and renewable energy. Elements of the group visioning activity are shown in the word cloud above.

The group developed the following vision for the Maplewood Energy Action Plan:

Educate and empower the community to participate in energy actions that will move Maplewood towards carbon neutrality.

Focus Areas

Two primary focus areas emerged from the Energy Action Team that are inclusive across Maplewood residents and businesses, yet targeted in their overall approach in order to stay focused and actionable.



Brainstorm from Maplewood Workshop 3

Focus Area 1: Direct Outreach and Energy Coaching for High-Profile Businesses and Institutions

This area will target local businesses and institutions with technical guidance, and build off of Maplewood’s existing channels to local businesses through the Environmental and Economic Development Departments. Local businesses were an important sector for the Energy Action Team from the beginning because of a commitment to economic development. In addition, the commercial and industrial sectors use 63% of the electricity and 46% of

the natural gas at fewer than 10% of the locations. The stakeholder team used its strong representation from local businesses and the Housing and Economic Development Commission to bring knowledge and experience to the table.

Focus Area 2: Energy Education & Public Events to Motivate Residential Energy Awareness and Conservation

Maplewood has existing channels for community outreach to residents. This focus area will leverage those outreach channels and bring energy, knowledge, and awareness to the table. The strong themes supporting this focus area were that efforts be community-driven and accessible to all residents. There was also a strong awareness that motivational tactics need to go beyond just information, to a call to action. The team had great participation from motivated and aware citizens, and community assets such as the Nature Center, with experience in environmental education programming.

Energy and Outreach Goals

The following goals summarize the Energy Action Team’s planning initiatives. The goals span the 20-month implementation phase of May 2015 – December 2016.⁶

- **Save 400,000 kWh for local businesses and institutions**
- **Save each participating business an average of \$1,750 per year**
- **Enroll 4 new buildings in the City recommissioning assistance program saving a total of 208,000 kWh and 12,000 therms**
- **Motivate residents to participate in an additional 500 energy efficiency or renewable energy actions, leading to annual savings of 220,000 kWh**

⁶ These goals are calculated based on energy use data from 2013, participation goals, and average savings information.

and 33,250 therms. Increase renewable energy subscriptions by an additional 267,000 kWh.

- **Save each participating resident an average of \$130 per year**

Achieving these goals would reduce Maplewood's annual carbon footprint by 1.8 million pounds, approximately equivalent to the carbon emitted from 170 passenger vehicles per year.

Additional supporting assumptions used to calculate Maplewood's energy goals are included in Appendix 3.

How Are We Going To Get There? – Strategies



Strategy Brainstorm from Workshop 2

The Energy Action Team developed a set of core strategies within each focus area. These strategies are focused on activities that will take place over the 20-month implementation phase. The strategies provide focused, targeted areas of action that the City, community, and Xcel Energy will jointly support. In addition, the hope is that the lessons learned, tools developed, and community awareness that will be forged during implementation of these strategies will lead to further action, beyond the current implementation time period.

Energize Maplewood! Focus Areas, Strategies & Goals

Focus Area 1: Direct Outreach and Energy Coaching for High-Profile Businesses	
Strategy A:	Energy Efficiency in Businesses and Institutions
Goal	1) Save 400,000 kWh for local businesses and institutions 2) Save each participating business an average of \$1,750 per year
Strategy B:	Recommissioning and Green Building Code Outreach
Goal	3) Enroll 4 new buildings in the Green Building Code Incentive Program, saving a total of 208,000 kWh and 12,000 therms
Focus Area 2: Energy Education and Public Events to Motivate Residential Energy Awareness and Reduction	
Strategy A:	Energize Maplewood! Residential Energy Challenge
Goal	4) Enroll residents in an additional 500 energy actions, leading to annual savings of 220,000 kWh and 33,250 therms. Increase renewable energy subscriptions by an additional 267,000 kWh. 5) Save each participating resident an average of \$130 per year
Strategy B:	Home Improvement Store Energy Clinics
Goal	6) Motivate 40 additional residents to purchase efficient light bulbs.

Identifying and Prioritizing Energy Strategies

The Energy Action Team developed energy strategies by first examining community energy data, brainstorming, and prioritizing possible actions, then assessing the impact and feasibility of different options. First, Xcel Energy shared available data on local energy use and program activity that had already occurred within the City. Figure 11 and Figure 12 below show natural gas and electricity use by different business types for 2013. Note that some classifications represent business ownership, not the energy user. While local business classification data were not necessarily complete, when this information combined

with local community knowledge, it gave a snapshot to help focus on priority areas. This information helped the group identify priority business types to begin its focus.

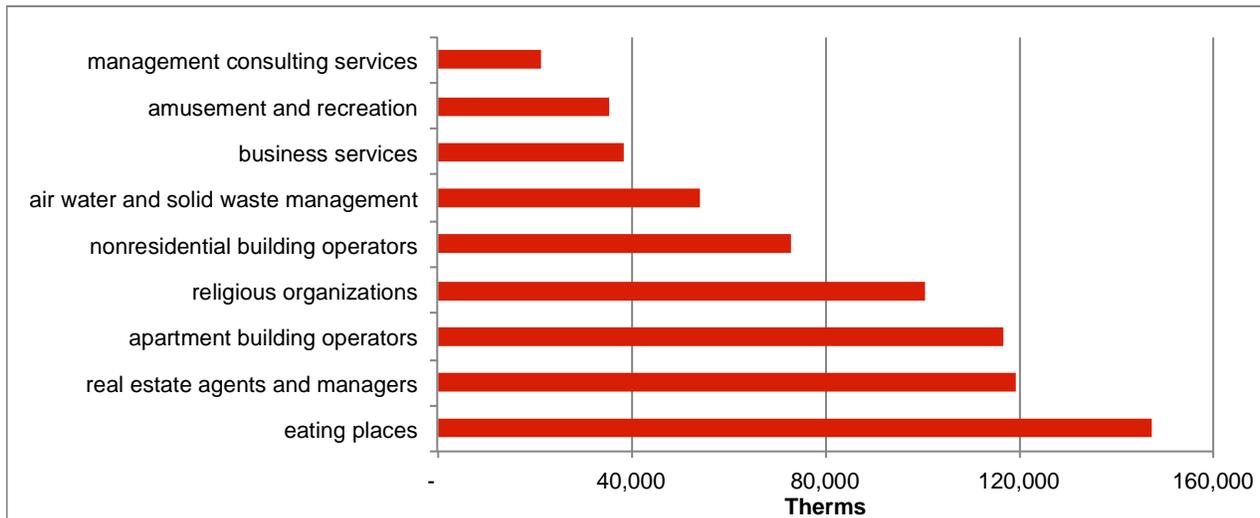


Figure 11. Natural Gas Use for Different Business Types With Available SIC Codes (2013)

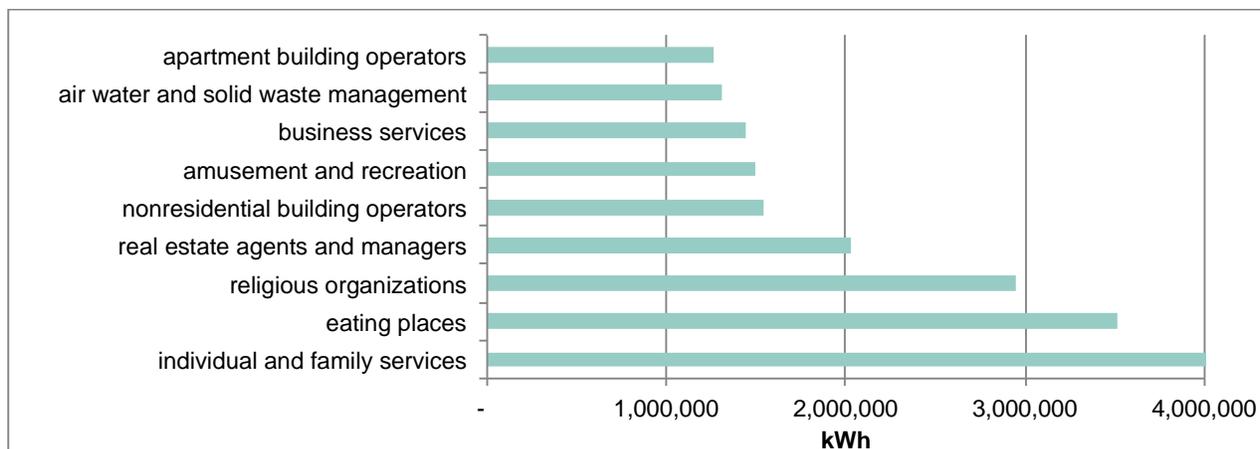


Figure 12. Electricity Use for Different Business Types with Available SIC Codes (2013)

Similar information helped the group understand the most effective programs in the community in previous years. Figure 13 and Figure 14 below show the Xcel Energy programs that helped Maplewood residents and businesses save the largest amount of electricity in recent years.

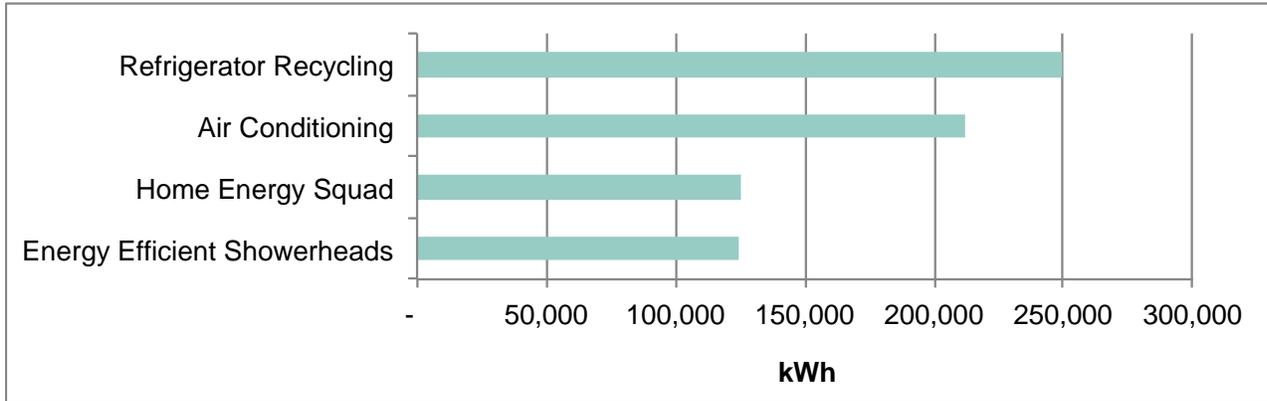


Figure 13. Largest Xcel Energy Electricity Saving Programs for Residents in 2012 & 2013 (by electricity saved)

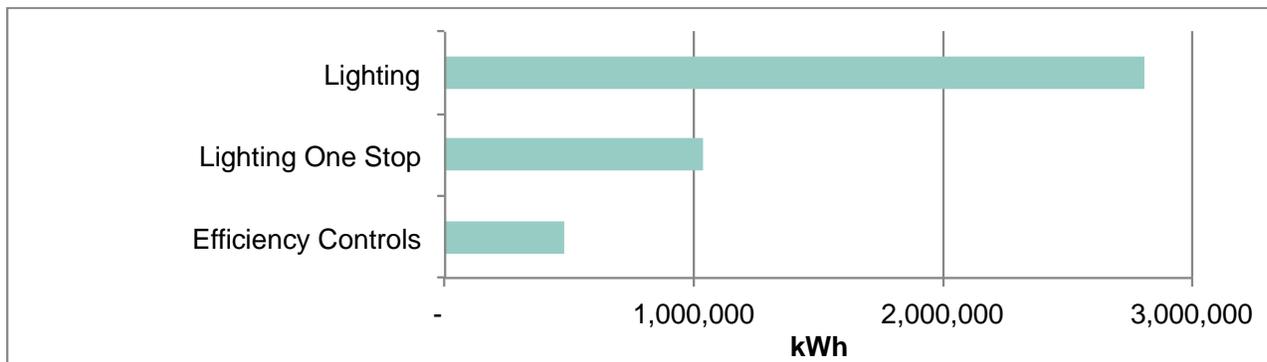


Figure 14. Largest Xcel Energy Electricity Saving Programs for Businesses in 2012 & 2013 (by electricity saved)

In addition, an estimated 360 residential customers participated in the Windsource® program, which allows customers to purchase blocks of renewable energy on their electricity bill. These customers subscribed to approximately 1 million kWh, or just under 1% of total use.

The following sections outline in more detail the proposed strategies, timelines, and next steps for moving the plan forward.

Implementation Steps and Strategies

The implementation of Maplewood’s Energy Action Plan will occur during two phases:

- Phase 1: May-August 2015
- Phase 2: September 2015 – December 2016

The first phase of plan implementation takes place during Maplewood’s Minnesota GreenCorps member service dates, ending August 2015.

Focus Area 1: Direct Outreach and Energy Coaching for High-Profile Businesses and Institutions

Information, resources, and encouragement will be provided to businesses and institutions in Maplewood to increase energy efficiency and renewable energy projects. This will be accomplished through outreach

messaging that is relevant to a particular business or institution, with specific actions and saving estimates that are tailored and more meaningful to those organizations.

The first strategy will focus on three specific institutions and businesses for targeted engagement: restaurants, auto dealerships, and congregations. This focus area will also use these and other established outreach channels to help implement and leverage the City's two grants from the Minnesota Pollution Control Agency and Great Plains Institute to support the Green Building Code Incentive Program (recommissioning studies and Green Building Code education).

Direct outreach will include:

- Notifications through community newsletters
- Direct mail/email
- One-on-one meetings

This direct outreach will also build on the City's existing processes for permitting, solid waste management programs, and stormwater management partnerships with watershed districts.

Strategy 1: Auto Dealerships and Restaurants

Both auto dealerships and restaurants have been identified as high profile local business types that provide good opportunities for energy efficiency improvements. A targeted campaign also offers the City a chance to champion and recognize the accomplishments of local businesses.



Auto Lots (Credit: Devin Berg via CC)

Energy Use Baseline

Auto dealerships and restaurants combined accounted for approximately 7% of Maplewood's total commercial and industrial electricity use, and 6.5% of commercial and industrial natural gas use tracked for the community in 2013. This amounts to 4.5% of total community electricity and 3% of total community natural gas in 2013.

The table below shows baseline energy use and premise information for 2013.⁷

BASELINE ENERGY USE: AUTO DEALERS AND RESTAURANTS IN MAPLEWOOD			
<i>Business Type</i>	<i>Number of Premises</i>	<i>2013 Energy Use</i>	<i>Average Premise Use</i>
Restaurants	47	7,349,333 kWh 404,760 therms	156,368 kWh 8,611 therms
Auto Dealerships	27	7,278,698 kWh	269,581 kWh

How & When: Tactics & Timeline

This strategy will channel auto dealerships and restaurants into existing programs and recognize achievements. Below is a list of initial energy efficiency and renewable energy programs that have been assessed as having the strongest potential for the identified business types. These programs will provide a set of initial actions presented to each business, though additional actions may be desired by each business. The table below shows Maplewood program participation in 2012 and 2013, and estimations for average annual savings that have been achieved by participants across Minnesota. (There is a large range of potential savings, and these numbers are not specific to auto dealers or restaurants.) Program descriptions are included in the Glossary of Terms in Appendix 1.

PROGRAM PARTICIPATION: AUTO DEALERS AND RESTAURANTS IN MAPLEWOOD			
<i>Program</i>	<i>Participants (2012+2013)</i>	<i>Average MN kWh Savings (Production)</i>	<i>Average MN therms savings</i>
Cooling Efficiency	5 Auto Dealers 5 Restaurants	10,000 kWh	---
One-Stop Efficiency Shop [®] Lighting Retrofits	12 Auto Dealers	25,000 kWh	---
Lighting Efficiency	3 Auto Dealers	37,000 kWh	---
Solar*Rewards [®]	10 Commercial + Industrial Total	(30,000 kWh) ⁸	---

⁷ A premise is the location of electricity or natural gas service. In most cases it is a facility location, though there can be multiple premises per building, and multiple premises per individual debtor.

⁸ Represents estimated average statewide C&I production.

Implementation Steps

Phase 1: Outreach (May-Aug 2015)

May-June 2015

- Contact the businesses in each group that have already participated to solicit case studies (Xcel Energy)
- Contact energy program providers and other experts to identify high-value solutions for specific business types (e.g., verify which programs would be the most beneficial and when is the most beneficial time to contact) (Xcel Energy + Minnesota GreenCorps Member)
- Review Maplewood permitting, business solid waste programs, and stormwater management processes to identify leverage points in existing activities (review with local community champions)
- Develop a plan to engage the local business trades as partners in outreach to these segments

Responsible Parties

- Xcel Energy
- Minnesota GreenCorps Member
- Maplewood City Staff
- Housing and Economic Development Commission
- Local champions

Possible Partners

- Local Chamber of Commerce
- Community Organizations, e.g., the local Rotary Club
- MN Restaurant Association

July-Aug 2015

- Work with local business champions to develop outreach and messaging approaches based on initial contacts and specific motivations identified for each business type. Examples include:
 - Comparison scorecard for targeted business type (e.g., compare average Maplewood restaurants to those in another city or to peers within the City)
 - Tailored list of program resources and assistance through implementation
 - Case study of a local business
 - Challenge or call to action for local business to hit participation goals, etc.
 - Focus on cost savings versus energy savings
- Work with local business champions to define outreach channels that will be most effective, for example:
 - Direct mail to targeted customers
 - Existing City outreach channels for sustainability efforts
 - Peer-to-peer networking, etc.
 - Materials for display at participating businesses to recognize the business’s achievements (restaurant table cards or posters at auto dealers)
- Design a campaign to auto dealers and restaurants to enhance initial awareness of efforts by these groups.

Phase 2: Follow up and Implementation (Sept 2015 – Dec 2016)

Phase 2 occurs after the City's Minnesota GreenCorps position has ended. This will create a new challenge to ensure the launch and outreach campaign is successful. Xcel Energy anticipates assisting the City with a Phase 2 stipend to fund a new Energy Ambassador for the remaining 15-month implementation phase. Additional detail will be available in the implementation MOU.

Sept 2015

- Launch outreach campaign

Oct – Dec 2015

- Contact all identified businesses
- Follow through and monitor "launch period" outreach campaign
- Review progress and make adjustments as needed at end of launch period

Jan 2016 – Dec 2016

- Continue with outreach campaign after any necessary adjustments
- Deliver recognition to business participants and leaders when goals are hit through:
 - Providing annual award
 - Spotlighting individual businesses in promotional material
 - Giving away window decal or table tent signage for local businesses to display

Goals

Outreach Goals:

Auto Dealers

- Outreach to all 19 auto dealers
- Follow up with 10 auto dealers
- Implement projects at a minimum of 5 auto dealers

Restaurants

- Outreach to 47 identified restaurant premises
- Follow up with 24 restaurants
- Implement projects at a minimum of 12 restaurants

Energy and Cost Savings Goals:

- Save 255,000 kWh for local businesses
- Save each participating business an average of \$1,750 per year

Strategy 2: Local Congregations

Maplewood’s local congregations have a unique opportunity to engage a wide cross-section of Maplewood residents, as well as implement energy savings opportunities within their own facilities. Congregation facilities vary widely, and can include large auditoriums or schools. For local congregations where environmental stewardship or community investment is an important priority, this strategy will provide them with tangible and measureable goals.

The proposed implementation steps for local congregations are similar to those proposed for auto dealers and restaurants, though messaging and outreach channels will be different.

Energy Use Baseline

Congregations accounted for approximately 1.5% of Maplewood’s electricity use, and 1% of Maplewood’s natural gas use in 2013. Congregations range in size significantly and there is similarly a large range in their energy use.

BASELINE ENERGY USE: CONGREGATIONS IN MAPLEWOOD			
	<i>Number of Premises</i>	<i>2013 Energy Use</i>	<i>Average Premise Use</i>
Congregations	32	3,100,000 kWh	97,000 kWh

How & When: Tactics and Timeline

This strategy will increase awareness of the existence and benefits of local efficiency efforts (and other sustainability programs). It will also connect to the Energy Challenge (see below) to enlist congregations as team sponsors. Some of the most promising efficiency measures for congregations include lighting and programmable thermostats to respond to fluctuating schedules. Larger congregations could be good targets for Maplewood’s Green Building Code Incentive Program. In 2012 and 2013, six congregations saved energy from lighting and energy efficiency programs and five additional signed up for the air conditioning “Savers Switch” program.

Phase 1: Outreach (May-Aug 2015)

May-June 2015

- Contact the congregations in Maplewood that have already participated to document experiences and solicit case studies (Xcel Energy)

Responsible Parties

- Maplewood’s Minnesota GreenCorps Member
- Local champions with congregation contacts
- Xcel Energy

Possible Partners

- Minnesota Interfaith Power and Light
- Metro CERTS
- Local Watershed Districts

- Contact energy program providers and other experts to identify high-value energy solutions for congregations (e.g., verify which programs would be the most beneficial) (Xcel Energy and Minnesota GreenCorps Member)
- Contact local or other (non-Maplewood) congregations to identify key messages that have worked (e.g., related to care for creation and environmental stewardship versus a business case). Use this information to develop messaging. (Minnesota GreenCorps Member)
- Contact possible partners to identify participation interest and coordination possibilities (Minnesota GreenCorps Member)

July-Aug 2015

- Develop outreach and messaging approaches based on initial contacts and specific motivations identified for congregations. Examples include:
 - Comparison scorecard for congregations (e.g., compare average Maplewood congregation to a church property in another city or to peers within the City)
 - Tailored list of program resources and assistance through implementation
 - Case study of a local congregation
 - Connect with the residential focus area team kicking off the fall congregation energy challenge to see if congregations would be interested in programs for church property
- Define outreach channels that will be most effective, for example
 - Direct mail to targeted customers - e.g., the letter going out to congregations inviting them to join in the Energy Challenge (see Focus Area 2)
 - Existing City outreach channels for sustainability efforts
 - Peer-to-peer networking with other congregations
 - Presentations at adult forums or congregation committees and circles
 - Meetings with congregation staff members - e.g., parish administrators to go over program options
 - Attendance at property committee meetings during the active part of the faith community's calendar (usually Sept-May for churches)
 - Outreach messaging with faith-based meaning - e.g., how energy efficiency and renewable energy relates to environmental stewardship and care for creation
 - Use of the University of Minnesota solar mapping tool to identify solar potential of specific sites⁹

Phase 2: Follow Up and Implementation (Sept 2015 – Dec 2016)

Phase 2 occurs after the City's Minnesota GreenCorps position has ended. This will create a new challenge to ensure the launch and outreach campaign is successful. Xcel Energy anticipates assisting the

⁹ See reference at <http://solar.maps.umn.edu/app/>

City with a stipend to fund a new Energy Ambassador for the remaining Phase 2 15-month implementation. Additional detail will be available in the Implementation Memorandum of Understanding.

Sept - 2015

- Initiate a broader campaign with an information table during coffee hours and/or presentations at adult forums/committees

Oct – Nov 2015

- Follow through and monitor “launch period” outreach campaign
- Review progress and make adjustments as needed at end of launch period
- Connect with congregations about upgrade needs before the annual budget is approved in January

December-January 2016

- Outreach break for congregations due to religious holidays (e.g. Advent, Christmas, Epiphany, and Hanukkah)

February-May 2016

- Follow-up with congregations who participated in the residential portion of the Energy Challenge
- Conduct reminder calls/emails about program opportunities
- Provide an incentive to have congregations follow through with an upgrade between May 2016 and December 2016

May-Aug 2016

- Identify congregations for case studies

September-November 2016

- Contact congregations with case studies and a summary of program participation/ education that occurred over the last 1.5 years to document accomplishments.

Goals

Outreach Goals:

- Outreach to all 21 congregations¹⁰
- Follow up with 10 congregations
- Implement actions at 5 congregations

¹⁰ Xcel Energy premise records and additional research indicate a total of 32 premises and 21 unique names within the City of Maplewood.

Energy and Cost Savings Goals:

- Reach an energy target of 155,000 kWh (5% of energy use) through energy efficiency or renewable energy
- Save all participating congregations a combined \$12,000 per year (if energy efficiency is implemented)

These energy savings goals combine with the local business outreach for a total goal to save 400,000 kWh for local businesses and institutions.

Strategy 3: Green Building Code Incentive Program Outreach

This strategy will leverage grants from the Minnesota Pollution Control Agency and Great Plains Institute that will allow the City to set up a rotating fund to help support the cost of building recommissioning studies and project implementation. In 2012 and 2013, program data show no premises participated in a recommissioning study in Maplewood, though others may have since that time. The City will be conducting outreach to building owners to advertise the program. Xcel Energy can provide support in the form of marketing materials, information on recommissioning and providers, and assistance with participant screening.

Responsible Parties

- Xcel Energy
- Maplewood City Staff

Possible Partners

- MN Pollution Control Agency
- Great Plains Institute
- Metro Clean Energy Resource Teams

How & When: Tactics & Timeline***Implementation Steps*****Phase 1 (May-August 2015)**

- Develop outreach materials and information sheet and help identify promising potential targets (City Staff)
- Develop grant agreement including 36-month energy data release to the City of Maplewood for public use
- Develop application process and screening criteria for high-potential building types (Xcel Energy and City Staff)
- Announce program launch in the summer edition of Seasons (City Staff supported by Xcel Energy)
- Conduct targeted outreach to high-potential building types (Minnesota GreenCorps Member)

Phase 2 (Sept 2015 – February 2017)

- Assess business interest in the funding opportunity and make outreach adjustments as needed (City Staff supported by Xcel Energy)

- Case study/web promotion to document results (perhaps through CERTS)

Goals

Outreach Goals:

- Number of buildings reached: 50
- Solicit interest from 10 buildings
- Number of buildings that complete a recommissioning study: 4

Energy and Cost Savings Goals

- Enroll four new buildings in the City recommissioning assistance program saving a total of 208,000 kWh and 12,000 therms

Focus Area 2: Energy Education & Public Events to Motivate Residential Energy Awareness and Conservation

This focus area will target outreach and education to Maplewood residents. The goal is to increase their awareness of energy conservation and sustainability efforts and increase local awareness of energy efficiency and renewable energy programs.

Strategy 1: Energize Maplewood! Residential Energy Challenge

This strategy will develop an overarching campaign to challenge and track energy savings throughout Maplewood. The target will be Maplewood residents who are Xcel Energy customers or parishioners at local congregations. Residents will be able to form and join self-selected teams, for example, their neighborhood, school, or Maplewood congregation. A team with at least 15 participants will have their combined energy use and program participation tracked. Progress will be publicized over a year, and rewards given to the winners in various categories. Opportunities will also be given for individual residents to participate who do not wish to join a team.

Energy Use Baseline

The residential sector accounted for approximately 37% of all the electricity and 54% of all natural gas tracked for the community in 2013. There are approximately 15,000 residential premises in the City of Maplewood served by Xcel Energy.

Responsible Parties

- Local Champions
- Xcel Energy
- Event Coordinators

Possible Partners:

- Maplewood Nature Center
- Team Champions: Congregations, Schools, Neighborhood Groups, Community Clubs (e.g. Rotary)
- Maplewood Mall
- 3M's Solar Community Initiative for 3M Employees

BASELINE ENERGY USE: RESIDENTIAL PREMISES

	<i>Number of Premises</i>	<i>Total 2013 Energy Use</i>	<i>Average 2013 Premise Use</i>
Residential Premises	15,000	118,000,000 kWh 11,000,000 therms	7,867 kWh 733 therms

How & When: Tactics & Timeline

This challenge will aim to increase resident awareness of energy use and drive participation in energy efficiency programs through increased awareness and competition. Below is a list of the energy efficiency and renewable energy programs with the highest participation in Maplewood in 2013, which can form the basis for outreach. The table below shows Maplewood program participation in 2013, and the average savings per participation. Program descriptions are included in the Glossary of Terms in Appendix 1.

In addition to team recognition there will be a component for Maplewood residents who participate in energy education or event planning. Names will be collected and a prize will be awarded quarterly during the 20-month implementation phase.

PROGRAM PARTICIPATION: MAPLEWOOD RESIDENTS

<i>Program</i>	<i>Participants (2013)</i>	<i>Average Maplewood kWh Savings (Production)</i>	<i>Average Maplewood therms savings</i>
Efficient Showerheads	1,353	65	38
Home Energy Squad	82	860	108
Insulation Rebates	55	101	135
Refrigerator Recycling	157	1,067	---
Residential Cooling	180	664	---
Residential Heating	221	149	414
Windsource®	367	(2,900)	---
Solar*Rewards®	8 Residential (2012 + 2013)	(6,600) ¹¹	---

¹¹ This represents an estimated average statewide production value for residential Solar*Rewards®, not specific to the Community.

Implementation Steps

Phase 1 (May-Aug 2015)

- Conduct initial outreach to community leaders and potential teams to assess interest and capacity for participation
- Identify program opportunities at Nature Center
- May-June: Design challenge rules and technical support needed (e.g., how goals will be set, how winners determined, what is required to sign up)
- May-June: Set up outreach channels (e.g. facebook page)
- July: Pilot challenge with one or two groups (e.g. City Staff)
- July: Finalize campaign messaging and materials
- August: Launch initial kickoff at National Night Out (August 4)

Phase 2 (Sept 2015-December 2016)

Phase 2 occurs after the City's Minnesota GreenCorps position has ended. This will create a new challenge to ensure the launch and outreach campaign is successful. Xcel Energy anticipates assisting the City with a Phase 2 stipend to fund a new Energy Ambassador for the remaining 15-month implementation. Additional detail will be available in the Implementation Memorandum of Understanding.

Challenge Kickoff and Launch (cont.)

- September 2015: Continued enrollment and sign up
- October 2015: Planned beginning for competition, which will last one year
- Home Energy Squad at the Maplewood Mall
- Home Energy Squad discount for a high volume sign-up within a neighborhood

Ongoing Challenge Management (Oct 2015 – Oct 2016)

- Set monthly schedule of reporting (monthly)
- Schedule events and other venues to provide feedback to participants:
 - Information tables at community events
 - Outreach partnership through the Nature Center
- Schedule 3-4 "bonus" or incentive periods throughout the year – e.g. limited buy down of program cost (available to all customers, but targeted advertising to challenge participants)

Goals

From May 2015-December 2016 increase program participation by 25% in Maplewood's residential sector. Enroll residents in an additional 500 energy efficiency actions, leading to annual savings of 220,000 kWh and 33,250 therms.

Increase renewable energy subscriptions by 25% for an additional 267,000 kWh.

Save participating residents an average of \$130 per year on energy efficiency savings.

Strategy 2: Home Improvement Store Energy Clinic

This strategy is currently underway through the Maplewood Environmental and Natural Resources Commission to partner with local home improvement stores and groups such as Habitat for Humanity to increase energy efficiency upgrades to homes. Xcel Energy can support these efforts by providing additional materials (i.e., subsidized energy efficient light bulbs) and engagement tools for energy clinics.

How & When: Tactics & Timeline

Initial Steps

- Outreach to Home Depot and Menards about schedule and opportunities for collaboration
- Outreach to Habitat for Humanity and Brush with Kindness about program interest
- Identify key class topics based on schedule of events
- Support content development and information on utility programs

Goals:

- Number of Energy Clinics: 6
- Number of residents engaged: 60
- Number of residents purchasing light bulbs: 40

How Are We Going To Stay On Course? – Monitoring and Reporting



The City of Maplewood is dedicated to achieving the goals outlined in this plan and recognizes consistent communication, tracking, and accountability are essential for success. This section outlines the monitoring and reporting structure agreed upon by the Energy Action Team members during the final group planning workshop.

Operational Actions and Tracking

During workshop four, members of the Energy Action Team confirmed that continuing to hold in-person meetings would be a challenge to schedule and too much of a time commitment. The team's preferred way of receiving updates during plan implementation is through email. General updates will go out to Energy Action Team members on a monthly basis from the Minnesota GreenCorps member and future Energy Ambassador. The City will manage a Partners in Energy webpage where all of the approved documents will be placed for the Energy Action Team members and the public to view.

Outreach metrics will be reported from the community to Xcel Energy monthly to ensure efforts are being tracked throughout the process. Xcel Energy will keep track of the community's outreach reports, energy data, and program participation data. This information will be compiled into a summarized report and shared with Maplewood's Energy Action Team quarterly.

Changing Course: Corrective Action

As with all plans, it is assumed that flexibility and changing expectations based on early tracking will be required to a certain extent. Important check-in points during implementation will be:

- Mid-point check-in during Phase I (early July 2015) to ensure that outreach and feedback is going as planned, with possible course correction based on information
- End of Phase I (late August 2015) to review and assess resources for Phase II (post Minnesota GreenCorps member service)
- Regular (weekly) feedback during early launch period of outreach campaigns and resident challenge to ensure that interest and coordination is moving forward as anticipated

If modifications to the monitoring and reporting structure above are needed:

- A discussion between the Energy Action Team and Xcel Energy will be held to discuss the best course of action

- New expectations for communication and tracking will be clearly documented and implemented

External Communication and Reporting

To keep Maplewood energized about the goals outlined in this plan, residents, businesses, and community groups will have to be continually engaged in the process. External communication and reporting will occur on a variety of platforms. The primary location for Energy Challenge updates and case studies will be on Maplewood's website. Information will also be distributed via city newsletters and mailers when opportunities arise. Updates to Maplewood's City Council will occur quarterly or yearly when the data summary reports are available.

Ongoing Energy Action Team Support

The support and insight of the Maplewood Energy Action Team is crucial for the ongoing success and momentum during implementation. Feedback and check in with the group will be valuable for implementation. Individual members will be involved in advising and conducting outreach on individual strategies. In addition, should the Energy Action Team members wish to continue as a full group, they could convene quarterly as a whole group for updates on plan progress, facilitated by Xcel Energy Partners in Energy.

Recognition for Hitting Maplewood's Goals

If the City of Maplewood is on track to hit the goals outlined in this plan, Xcel Energy will provide additional support in the form of a sign-based recognition campaign to reward the City for its accomplishments.

The City of Maplewood has numerous "leading by example" opportunities through work on its own facilities. This strategy will build on the City's efforts in order to 1) further educate the public about energy initiatives that have happened in the City's built environment and 2) demonstrate the City as a leader in energy efficiency and renewable energy.

Proposed recognition process could begin in May of 2015, after the City adopts the Energy Action Plan, with a majority of the recognition occurring after the City meets its energy goals (May 2016). The reward chosen by the Energy Action Team consists of developing, producing, and installing educational signage to highlight Maplewood's sustainability initiatives located on its City Hall campus. The areas that will require signs are: solar panels, updated boiler, Green Step Cities recognition, watershed, etc. (anticipated 10 signs)

The locations and content for the campus signs will be decided by Maplewood City staff. City staff will draft up each sign's layout and appearance for review by Xcel Energy, with costs covered by Xcel Energy up to a fixed amount per sign. Signs will be installed starting in the summer of 2015 through fall of 2016, coordinating with the City's requirements for that process. Signs will be developed and installed as the following milestones are reached:

- 1) Energy Action Plan Approval in April 2015 (1 Sign at City Hall Solar Site)

- 2) One-Third of energy goal reached (three signs)
- 3) Two-thirds of energy goal reached (three signs)
- 4) Full goal reached (three signs)

The signs will carry both the City of Maplewood and Xcel Energy's logo and include pictures and descriptions of why the highlighted sustainability initiative is important.

Beyond the Plan Horizon

Call out lessons and successes that the community can look for in the 20 months that will lead to better implementation in 2017 and thereafter.

Appendix 1: Glossary of Terms

Account: Generally refers to a single customer account, or debtor (see below).

Community Data Mapping: a baseline analysis of energy data in a geospatial (map) format across the community.

Debtor: Refers to a single customer account, which could have multiple premises and/ or multiple meters associated with it.

Demand Side Management (DSM): modification of consumer demand for energy through various methods, including education and financial incentives. DSM aims to encourage consumers to decrease energy consumption, especially during peak hours or to shift time of energy use to off-peak periods, such as nighttime and weekend.

Efficient Showerheads: A DSM program that provides Xcel Energy customers with low-flow showerheads.

Energy Action Plan: a written plan that includes an integrated approach to all aspects of energy management and efficiency. This includes both short- and long-term goals, strategies, and metrics to track performance.

Goals: the results toward which efforts and actions are directed. There can be a number of objectives and goals outlined in order to successfully implement a plan.

kWh (kilowatt-hour): a unit of electricity consumption

Maplewood Green Building Program: Maplewood's green building program helps promote sustainable building practices in the City. The City leads by example by applying the International Green Construction Code to all city funded building projects.

Home Energy Squad (HES): a partnership between Xcel Energy and CenterPoint Energy to help customers reduce energy use.

Metro Clean Energy Resource Teams (CERTs): An Twin Cities based organization that empowers communities and their members to adopt energy efficiency and renewable energy technologies and practices for their homes, businesses, and local institutions.

Minnesota GreenCorps: The Minnesota GreenCorps Program is an AmeriCorps program coordinated by the Minnesota Pollution Control Agency. As a statewide program, its goal is to protect and preserve Minnesota's environment while training a new generation of environmental professionals.

Minnesota GreenStep Cities: Minnesota GreenStep Cities is a voluntary challenge, assistance, and recognition program to help cities achieve their sustainability and quality-of-life goals.

One-Stop Efficiency Shop® Lighting Retrofits: a full-service lighting rebate program available to small businesses in Xcel Energy's Minnesota service territory with an electric demand of 400 KW or less.

Premise: a unique identifier for the location of electricity or natural gas service. In most cases it is a facility location. There can be multiple premises per building, and multiple premises per individual debtor.

Recommissioning: An energy efficiency service focused on identifying ways that existing building systems can be tuned-up to run as efficiently as possible.

Refrigerator Recycling: A DSM program that provides an incentive if customers recycle their second refrigerator.

Solar*Rewards®: A program from Xcel Energy that offers incentives and rebates for installation of photovoltaic (PV) solar panels.

Therm: a unit of natural gas consumption

Windsource®: A program from Xcel Energy that allows customers to purchase blocks of wind energy as their electricity source.

Appendix 2: Planning Workshop Details

Maplewood developed this Energy Action Plan during a series of four workshops and one work session held January through March 2015. These workshops focused on where the group was starting from (reviewing existing efforts in the community, and energy use baseline information), a vision for where the community wants to go and developing and refining strategies for how to get started.

- Workshop 1 (January 29, 2015):** At the first workshop Energy Action Team members got acquainted and Tami Gunderzik from Xcel Energy introduced the team to Partners in Energy. City of Maplewood staff Shann Findwall and Minnesota GreenCorps Member Joe Ballandby shared past and present energy initiatives in Maplewood to help frame future discussions. The team then worked through an energy visioning activity and Energy Ambassador Joe Ballandby was given the responsibility of drafting an energy vision statement based upon the group's discussion. The workshop then closed with an initial look at Maplewood's baseline energy data.
- Workshop 2 (February 10, 2015):** At the second workshop the Energy Action Team began with a discussion around the proposed energy vision statement. This discussion primarily focused on the use of "carbon neutral" vs "carbon free" and/or sustainable". The team voted in support of using "carbon neutral" and Joe Ballandby was given the task to revise the statement for the third workshop. Following the visioning discussion Maplewood's energy baseline was examined. The team was especially interested in the residential electricity use map that showed southern Maplewood homes using more energy. Then the team brainstormed energy saving strategies. Strategy themes clustered around: education, financial incentives for businesses, and energy coaching.



- Workshop 3 (February 26, 2015):** This workshop started by taking the top 14 proposed strategies from workshop 2 and sorting them under three focus area categories: Direct Business Outreach & Energy Coaching, Institutions, and Energy Education & Public Events. By the end of the process the team had resorted the proposed strategies under two focus areas eliminating the need for "institutions". Then the team divided up into three groups and rated each strategy by feasibility and impact. The discussions centered around this

workshop further narrowed down 14 strategies to six.

- Workshop 4 (March 12, 2015):** During workshop 4 the Energy Action Team looked at additional program participation data to assist in creating goals and choosing appropriate tactics for the following six strategies: Maplewood Car Dealerships, Residential, Congregations, Restaurants,

Green Building Code, and City Hall Demonstration Projects. At the end of the workshop the team divided into two groups to further discuss planning details related to each focus area.

- **Work Session 4.5 (March 24, 2015):** Between workshop 4 and the March 24th meeting, Partners in Energy facilitators drafted strategies tactics and goals based upon the discussions from the four workshops. During the 4.5 meeting, team members had the opportunity to respond to the draft strategies and adopt them. During this meeting a request was made to include tactics around clean and renewable energy.

Appendix 3: Supporting Assumptions for Energy Goals

CALCULATING MAPLEWOOD ENERGY GOALS

1) Save 400,000 kWh for local businesses and institutions

Assumptions:

Restaurants in Maplewood used an average of 156,000 kWh in 2013; Goal is to reach 12 restaurants, and save an assumed average of 7% energy at each from program measures, for a total of 131,000 kWh.

Auto Dealers in Maplewood used an average of 270,000 kWh in 2013; Goal is to reach 5 auto dealers, and save an assumed average 25,000 kWh at each for a total of 125,000 kWh.

Congregations in Maplewood used an average of 97,000 kWh in 2013, and a total of 3,100,000; The goal is to save an average of 5% energy across all congregations through direct outreach and engagement in the Energize Maplewood team challenge, for a total of 155,000.

2) Save each participating business an average of \$1,750 per year

Assumptions: Average savings on energy bills is \$0.10 per kWh saved

3) Enroll 4 new buildings in the City recommissioning assistance program saving a total of 208,000 kWh and 12,000 therms

Assumptions: The largest 50 commercial buildings tracked for the Community used an average of 742,000 kWh and 42,000 therms in 2013. Assume recommissioning brings 7% savings on electricity and gas for each of the 4 buildings, this would save 207,760 kWh and 11,760 therms

4) Residents participate in an additional 500 energy actions, leading to annual savings of 220,000 kWh and 33,250 therms. Increase renewable energy subscriptions by an additional 266,000 kWh.

Assumptions:

In 2013 there were 2,435 residential efficiency actions. Assume that the distribution of the 500 additional actions is the same as the relative program distribution in 2013, which leads to annual additional savings of about 131,500 kWh and 25,000 therms.

Assume additional savings would result from behavioral changes from the energy challenge. The enrollment goal was 15 teams of 15, for a total of 225 participants. Assume that average energy use from 2013 will reduce by 5%, giving 88,000 kWh and 8,250 therms saved.

Assume renewable energy subscriptions also increase by 25% over the 2013 baseline of 1,064,300 kWh

5) Save each participating resident an average of \$130 per year

Assume a total of 350 total participants, and energy costs of \$0.10/kWh and \$0.75/therm

Appendix 5: Partners in Energy Planning Memorandum of Understanding

Memorandum of Understanding Phase 1 – Plan Development

Mayor Nora Slawik
City of Maplewood
1830 County Road B East
Maplewood, MN 55109

Congratulations on being selected to participate in Xcel Energy’s Partners in Energy program. This program is designed to provide your community with the tools and resources necessary to develop and implement an energy action plan that reflects the vision your community has for shaping energy use and supply in its future. Program participation is intended to span 24 months with the initial 4-6 months dedicated to developing of a strategic energy action plan and the remaining time focused on the implementing that plan.

The intent of this Memorandum of Understanding (MOU) is to confirm Maplewood’s intent to participate in the initial plan development phase of the Partners in Energy program and outline the commitment that your community and Xcel Energy are making to this collaborative initiative. The primary objective of this phase of the program is to develop your energy action plan.

In order to achieve this Xcel Energy will provide:

- Consulting support to assist in identifying potential community stakeholders, and constructing or delivering an invitation or informational announcement regarding the planning process.
- Data analysis of community energy use and Xcel Energy program participation to the extent that it is legally and technically prudent and feasible. The results can be used to identify potential opportunities to implement plan strategies. Xcel Energy will attempt to integrate data provided by Maplewood into the analysis if feasible.

- Professional facilitation of five plan development work sessions with the community stakeholder group to develop the energy action plan's vision, focus areas, goals and implementation strategies.
- Assistance as needed in synthesizing the community and program data collected with the vision of the community to identify attainable goals that align with suitable strategies and tactics.
- Development of the documented energy action plan that will incorporate inputs from the stakeholder planning team and will be accessible to the community.
- Commitment to delivering an actionable and complete energy action plan within four months of the Maplewood City Council's review of the MOU (four months from November 24, 2014) and Xcel Energy signing this MOU.

Although participation in the Plan Development phase of Partners in Energy program requires no monetary contribution Maplewood does agree to provide:

- A single contact point to work with recruiting stakeholders, coordinating planning meeting logistics, and coordinate distribution of deliverables and lead participation of the community.
- Meeting facilities to host the stakeholder group during development of the plan.
- Identification of existing community energy plans or programs that could be leveraged in successful development and delivery of this plan.
- Good-faith evaluation of the recommendations and analysis provided and fair consideration of the potential strategies and tactics identified that align with the Maplewood's goals.
- Commitment to delivering an actionable and complete energy plan within four months of the Maplewood City Council's review of the MOU (four months from November 24, 2014) and Xcel Energy signing this MOU.
- Public distribution of the work products developed with the support of the Xcel Energy's Partners in Energy program.

**Resource Commitment Summary
Plan Development Phase**

Maplewood	Xcel Energy
<ul style="list-style-type: none">• Single point of contact• Meeting facilities• Access to existing energy-related plans and programs• Involvement in developing implementation strategies• Commitment to completing the plan development• Agreement that the energy plan resulting from this work will be available to the public	<ul style="list-style-type: none">• Assistance identifying and recruiting stakeholders• Analysis of community energy use and program participation• Facilitation of planning sessions• Training and guidance developing goals and strategies• Documentation and delivery of the energy action plan• Commitment to completing the plan development

The MOU for the Implementation Phase of the Partners in Energy program will be developed upon completion of your energy action plan and will outline your goals and the resource commitment from Xcel Energy and Maplewood.

All communications pertaining to this agreement shall be directed to Shann Finwall on behalf of Maplewood and Tami Gunderzik on behalf of Xcel Energy.

Thank you again for your continued interest in Xcel Energy’s Partner in Energy program. We look forward to assisting Maplewood in the development of an action energy plan.

For Maplewood:

For Xcel Energy:

Date: _____

Date: _____