

2017 Project Abstract

For the Period Ending December 31, 2020

PROJECT TITLE: Geotargeted Distributed Clean Energy Initiative

PROJECT MANAGER: Jennifer Edwards

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FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: M.L. 2017, Chp. 96, Sec. 2, Subd. 07e as extended by M.L. 2020, First Special Session, Chp. 4, Sec. 2

APPROPRIATION AMOUNT: \$800,000

AMOUNT SPENT: \$542,601

AMOUNT REMAINING: \$257,399

Sound bite of Project Outcomes and Results

This project demonstrated that energy efficiency can be used to reliably offset utility infrastructure expansion, thereby saving money and decreasing the amount of air pollutants from Minnesota's electricity generation.

Overall Project Outcome and Results

This pilot project demonstrated that energy efficiency and demand response are cost-effective tools to increase the use of clean electricity technologies while reliably deferring investments in grid expansion. While Minnesota has relatively low distribution grid expenditures today, peak demand is predicted to increase due to population growth, electrification of end uses like transportation and space heating, and warmer temperatures. This pilot demonstrated that adopting longer time horizons and multiple scenarios for planning forecasts will allow distribution planners to integrate non-wires alternatives, therefore saving money and advancing clean energy throughout the state.

This pilot successfully saved 576 kW of peak electricity across two small communities, higher than the pilot goal of 500 kW. This was the result of enhanced incentives, increased and geotargeted marketing, as well as a higher than average baseline participation in commercial lighting programs. Participation was also boosted by smart thermostat incentives which were available upon enrollment in a demand management program. The pilot cost (incentives + direct labor) came to \$163,000, within the estimated value of a one-year deferral.

Minnesota has a modest technical potential for non-wires alternatives, but this is expected to increase. With current growth forecasts and distribution system expenditures, we calculated a low to modest potential for non-wires alternatives in Minnesota, estimated at between one and four million dollars per year. This will save between 4,000 and 17,000 tons of carbon per year, or the equivalent of the annual pollution caused by 800-6,000 passenger vehicles.

Additional information is included in the final technical report for this project here:

<https://www.mncee.org/resources/projects/geotargeted-distributed-clean-energy-initiative/>

Project Results Use and Dissemination

This pilot is summarized in a technical report and project summary document that outlines the process, major findings, and recommendations for policymakers and stakeholders. Results have been included in policy processes at the Public Utilities Commission to help inform regulatory decisions. Pilot outcomes have been presented at multiple conferences of industry professionals and to Minnesota utilities.



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2017 LCCMR Work Plan Final Report

Date of Status Update Report: February 15, 2021

Final Report

Date of Work Plan Approval: 06/07/2017

Project Completion Date: February 15, 2021

PROJECT TITLE: Geotargeted Distributed Clean Energy Initiative

Project Manager: Jennifer Edwards

Organization: Center for Energy and Environment

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Location: The exact project locations would be determined through technical analysis, but the project would strive to include at least one Metro area as well as a non-Metro area within Xcel Energy’s service territory.

Total ENRTF Project Budget: \$800,000

ENRTF Appropriation: \$800,000

Amount Spent: \$542,601

Balance: \$257,399

Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 07e as extended by M.L. 2020, First Special Session, Chp. 4, Sec. 2

Appropriation Language:

\$800,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with the Center for Energy and Environment. Of this amount, \$600,000 is for analysis of community-distributed clean energy investments as alternatives to utility capital investments for transmission and distribution upgrades to meet forecasted electrical loads, and \$200,000 is to conduct pilot programs using energy efficiency and other distributed energy resources to achieve forecasted electric energy loads in communities. The appropriation for pilot programs is contingent on a \$200,000 match of an equal or greater amount of nonstate money. This appropriation is available until June 30, 2020, by which time the project must be completed and final products delivered.

M.L. 2020 - Sec. 2. ENVIRONMENT AND NATURAL RESOURCES TRUST FUND; EXTENSIONS. [to June 30, 2021]

I. PROJECT TITLE: Geotargeted Distributed Clean Energy Initiative

II. PROJECT STATEMENT:

Strategic geotargeted distributed clean energy investments – energy efficiency, load control and distributed renewable generation – can defer capital investments in upgrading electric utility transmission and distribution assets and avoid environmental emissions like greenhouse gases, mercury and fine particulates. Traditional utility planning is to forecast electric load growth by transmission and distribution service area and build larger transmission and distribution to supply areas in which electric demand growth will eventually exceed installed capacity. But a larger grid may not always be the best and most cost-effective method for meeting reliable electric demand. The goal of this project is to reduce the environmental impact of the electric utility sector by determining the potential for energy efficiency, solar PV and other clean distributed energy resources to be applied in a very focused and localized way to replace planned transmission and distribution upgrades.

We know that geotargeted distributed clean energy can replace the need for or defer traditional transmission and distribution upgrades in certain cases, but it has never been done in Minnesota. We lack practical information about how to do it, and the policy framework does not exist. This project will conduct planning for distributed clean energy projects in three communities within Xcel Energy’s territory, and select at least one project area for implementing a pilot program. The goal is to test the viability of a geotargeting strategy, and to gain practical information about how to do it. Xcel Energy’s existing energy efficiency programs will provide the base for these efforts, but will be enhanced with innovative program strategies that will achieve the extremely high participation that will be necessary for success, and consider advanced technologies that are not currently used in Xcel’s programs. A final report will document lessons learned and policy recommendations, including the total potential for emissions reduction and local energy investment if the policy were to be adopted statewide.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of December 31, 2017:

Project work to date has been on Activity 1, “Planning for Geotargeted Clean Energy Investment.” The project team has selected the initial locations within Xcel Energy service territory that are potential geotargeting pilot sites, to move ahead for further planning evaluation in 2018. The initial list of screening criteria to determine site eligibility were developed based on reviews of eight similar projects in other states, and analysis with Xcel Energy distribution system planners. The identified criteria include the projected timeframe of the distribution investment, total projected cost, number and type of customers at the location, and whether project need based on forecasted energy growth (versus reliability). These criteria were applied to the full dataset of distribution planning projects identified within a 5-year time horizon.

From those criteria, the project team chose a master list of 9 sites, across Xcel Energy’s Minnesota service territory. The location specific data for those sites has been collected and submitted for the next project phase, which will be a site-specific analysis of clean energy potential.

In addition to project updates, this status update includes the following requested changes:

Correction

A previous error was corrected in the outcomes of Activity 3 to update the final report deliverable date from Jun 30, 2019 to Jun 30, 2020.

Amendment Request (12/22/2017):

Due to shifting staffing responsibilities and workload balance, we are requesting to change the Project Manager from Carl Nelson, CEE’s Director of Business Development, to Jenny Edwards, CEE’s Director of the Innovation Exchange.

Amendment Approved: [01/08/2018]

Project Status as of June 30, 2018:

To date all project work has been in the planning stage (Activity 1, “Planning for Geotargeted Clean Energy Investment”). Our team has focused on three major milestones. First, through technical research and peer review we developed screening criteria to identify eligible geotargeting energy sites. The criteria were used to select nine eligible distribution projects within Xcel Energy’s service territory from the full set of projects in the utility’s 5-year plan. Second, our team developed a prioritization matrix to choose two of those sites for further evaluation. This prioritization is based on standard factors such as the project size and estimated cost, but also on the local customer characteristics and their potential for energy efficiency and other “non-wires” solutions. These two tools (the screening and prioritization processes) will be part of a project report that allows this work to be replicated by other utilities across the state, as well as inform state regulators about the viability of this approach.

The two finalist pilot sites are located in: (1) an area surrounding St. Cloud / Sauk Rapids / Sartell, and (2) the Roseville / Falcon heights area. Our third area of work has been a deeper evaluation of these two project sites to identify the most promising distributed energy resource solutions. This work is ongoing through the summer as we collect field data on building energy use (primarily cooling loads) during peak electricity use days.

Overall spending is lower than projected and we anticipate Activity 1 will be completed under budget.

Project Status as of December 31, 2018:

All project work to date was in the planning stage (Activity 1, “Planning for Geotargeted Clean Energy Investment”). Our focus in this 6-month period shifted to analysis of data collected at the distribution system as well as customer data in the two locations mentioned in the last status update. First, we analyzed distribution feeder peaks and created statistical summaries of when the distribution peak is most likely to occur in the target areas. Next, we assessed the count of customer types as well as the summer energy usage of these customers in the target areas. Using the above analysis, we chose the St. Cloud / Sauk Rapids / Sartell area out of the two finalist locations as the most promising location.

To select our distributed energy resource measures in the target area, we analyzed savings load shapes for 12 currently offered energy efficiency and demand response measures. Next, we compared these load shapes to the distribution peak in the target area to select measures with the greatest power capacity savings during the likely time of need. Using customer data from past efficiency and demand response program participation, our team created a business as usual scenario for the target area. We then used our customer analysis to create goals for program enrollment above these typical enrollment values for measures aligning with the predicted distribution peak. These selected measures and enrollment goals comprise our non-wires solution set, or geotargeted approach. Lastly, we calculated the net present value for a one year deferral of the traditional utility-sided solution using the non-wires, geotargeted solution.

Our next stage will consist of deciding upon bonus rebate amounts to offer customers, as well as techniques that will prove most effective at increasing adoption rates in the target area. These bonus incentives will be designed to be lower than the net present value of deferring the utility’s wires solution for one year.

Overall spending is lower than projected and we anticipate Activity 1 will be completed under budget.

Project Status as of June 30, 2019:

The geo-targeting pilot has officially launched as of June 2019. The CEE pilot team, in coordination with Xcel Energy, is currently marketing enhanced incentives to residents and businesses in the Sartell and Sauk Rapids

area (the pilot location), as part of the “Summer Savings” pilot. Throughout the spring, the pilot team worked closely with the cities to establish community based marketing strategies and make use of local channels. To date, community leaders such as the Mayor of Sauk Rapids have participated in the energy efficiency programs and are part of the leading edge communication strategy to raise local awareness. Businesses and residents are being asked to enroll in a program by August 31, 2019, with enhanced rebates available through December 2019. The goal for annual energy efficiency participation is 340 residents and businesses, up from an average of 95 in previous years. Community response to the pilot rollout has been very favorable.

In addition, CEE and Xcel Energy are planning to test existing demand response resources in the community, as a second component of the pilot. During the research stage, it was determined that over 4,000 residents and businesses were participants in Xcel Energy’s Saver’s Switch program, which allows air conditioners to be controlled on peak electricity use days. These resources have not to date been used as a geo-targeted resource, and therefore have not been deployed to assist with local grid management. CEE has drafted a protocol to deploy and measure this resource in summer and fall of 2019, and this is currently under review by Xcel Energy.

Activity 1 (pilot planning) is largely complete, and we did not end up requiring the \$100,000 consultant budget that we had initially included in the budget, instead using CEE’s engineering staff to complete this work. Our total project budget can be reduced by this amount, as we do not anticipate requiring the funds for other Activities.

Project Status as of December 31, 2019:

The majority of effort over the past six months took place within Activity 2 (Implement Programs). Since launching the pilot in June 2019, the CEE pilot team coordinated with Xcel Energy to increase energy efficiency in the target area of Sartell and Sauk Rapids, MN. In the residential sector, CEE program staff visited 150 homes to install light bulbs, smart thermostats, and other energy savings measures. This represents a 650% increase in participation over the average annual participation rate prior to the pilot. A high level of participation has taken place in the business sector as well with energy assessments achieved at over 125 businesses. The cost share for enhanced rebates to customers in the geotargeting area was provided by Xcel Energy.

The business sector has offered useful lessons regarding the duration needed to complete projects on a geotargeting timeline. For this pilot, which started in June, businesses were offered increased incentives to participate in energy efficiency programs. The initial deadline for participation was in early December. This length of time proved to be too short to reach the aggressive goals set by the project team. The typical time for businesses to complete the audit scheduling, audit completion, efficiency measure installation, and paperwork submission is one year or more. We learned that pushing businesses to a much shorter timeline has complications with contractor availability, availability of budgeted dollars, and time needed for the word of the program to spread among the community. Xcel Energy recently filed a courtesy notification with the Department of Commerce Division of Energy Resources to extend the pilot for business customers for another six months through June 2020. This will allow these customers a full year to take advantage of bonus incentives and for the pilot team to effectively test the geotargeting concept with a realistic timeline.

Lastly, regulated utilities, including Dakota Electric Association, MN Power, Otter Tail Power, and Xcel Energy recently filed Integrated Distribution Plans. These plans, along with national-level research and the results from this pilot, is informing work being completed under Activity 3 (Recommendations on Utility Regulatory Reform).

Amendment Request (12/22/2019):

The geotargeting pilot to date has been successful in engaging communities, businesses, and residents to take energy efficiency action, and we have identified and accomplished several additional opportunities for saving energy through existing (versus new) program participants. However, we have seen slower than anticipated participation from business customers due to a number of factors: the unanticipated challenge of the length of

decisionmaking time, the time needed for coordination among project partners, and the time needed to submit pilot approval to the Dept of Commerce, which approves energy efficiency program budgets, which delayed the launch of the pilot marketing.

Due to this lag in business participation, we have worked with Xcel Energy and the MN Department of Commerce to grant an extension of the pilot for the business sector for an additional 6 months, through June 2020. This extension will allow for a more realistic timeline that matches future geotargeting/non-wires alternative project schedules and customer recruitment windows for MN utilities. We will use the 6-month extension to follow-up with previously engaged customers, and recruit additional customers by capitalizing on the increased customer awareness and lessons learned testing different outreach methods at the beginning of the project.

Given the extended timeline being offered to business customers, we anticipate that we will be able to meet pilot goals by June 30, 2020, but will not have had substantial time by then to evaluate pilot outcomes for final policy recommendations. Therefore we are requesting a change in the project completion date from June 30, 2020 to December 31, 2020 to allow us to measure and evaluate the outcomes for the final report. This would not require a change in budget.

Amendment pending further LCCMR and legislative action as of February 26, 2020

Project Status as of June 18, 2020:

Project extended to June 30, 2021 by LCCMR 6/18/20 as a result of M.L. 2020, First Special Session, Chp. 4, Sec. 2, legislative extension criteria being met.

Project Status as of July 31, 2020:

The project work in the last 6 months focused on the implementation extension offered to business customers. This included re-engaging customers who were initially visited by CEE field-staff and working with these organizations to follow through on completing efficiency jobs, as well as additional outreach to recruit candidates for free smart thermostat installations. We began the evaluation process for the progress completed to date and worked with Xcel Energy to obtain the data needed to evaluate results. We have an early draft of the final report summarizing the pilot process and results.

Unfortunately, progress in the business sector was impacted by COVID-19. This unexpected event will complicate the lessons learned from the pilot, although the legislative extension will help us gain additional savings from this sector. As of now, we are on track to hit the one-year deferral goal mainly due to participation in the business lighting sector.

Lastly, CEE staff worked with a subcontractor to develop utility recommendations based on national best practices, results from this pilot, and MN utility integrated resource plans. These recommendations will inform the Public Utilities Commission regarding potential pathways forward regarding non-wires alternatives in Minnesota.

Project Status as of December 31, 2020:

All customer outreach was completed in the summer of 2020, after delays due to COVID-19. In June through September of 2020, the project team also tested demand response events in the project area to evaluate the benefits of load management to integrate with rapidly expanding community solar garden resources. We are analyzing the data from these events and will present these findings in the final report.

The final report will contain a summary of the pilot planning process, pilot implementation, lessons learned at a local level, the potential for statewide energy savings, and policy recommendations. The policy recommendations have been reviewed by external stakeholders.

In addition, we have continued dissemination of project results. A technical paper was accepted and included in the American Council for an Energy Efficient Economy (ACEEE) conference proceedings, 2020 Summer Study on Energy Efficiency in Buildings. The public release of these proceedings is forthcoming.

Overall Project Outcomes and Results:

This pilot project demonstrated that energy efficiency and demand response are cost-effective tools to increase the use of clean electricity technologies while reliably deferring investments in grid expansion. While Minnesota has relatively low distribution grid expenditures today, peak demand is predicted to increase due to population growth, electrification of end uses like transportation and space heating, and warmer temperatures. This pilot demonstrated that adopting longer time horizons and multiple scenarios for planning forecasts will allow distribution planners to integrate non-wires alternatives, therefore saving money and advancing clean energy throughout the state.

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Additional information is included in the final technical report for this project here:
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IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Planning for Geotargeted Clean Energy Investment

Description:

The project will choose and conduct planning in 2-3 project areas to pilot a new method of distributed clean energy investment. The project areas would be selected based on technical criteria including need for transmission and distribution investments and likelihood of success in deferring investment needs. A planning phase will establish technical potential of energy efficiency and distributed resource technologies in these project areas, and develop a plan to reach this potential.

Develop dataset of qualified transmission and distribution deferral projects and develop selection criteria

The first step in Activity 1 is to determine the total potential to defer traditional transmission and distribution investments with distributed energy resources on Xcel Energy's system. Traditional transmission and distribution investments might include building more high-wire transmission lines to increase capacity at a substation, increasing transformer capacity at a substation, or other investments to serve an increased energy load. Distributed energy resources, on the other hand, would serve to decrease the energy load on the grid.

Identifying and characterizing the total potential on Xcel's system will also help with identifying total statewide potential as well.

We would next prioritize projects that would be the best candidates for further feasibility analysis. We would work with Xcel Energy staff to gain baseline data on current distribution investment needs and the process for determining those needs. We would anticipate that this analysis would be done at the feeder line level (i.e., the individual distribution feeder lines that deliver power from the substation to customers). However, it could be at the whole substation level as well, depending on the specific project being analyzed. In order to determine if clean distributed energy resources would be able to meet those needs, we would work to characterize the investment potential by the types of engineering problems that the investments were trying to solve, e.g., overloading, outage recovery issues, and/or operational issues. This would allow us to be able to better tailor the distributed energy resource solutions to the problems that were being experienced.

In order to prioritize potential investment upgrade opportunities, the project team would work to develop a screening process that could be applied to potential projects. In addition to being useful for this project, we anticipate that the process developed would also be useful more broadly in defining when it makes sense to pursue geotargeting as a systematic process. The screening process is expected to include criteria to help prioritize projects, including such things such as:

- How appropriate are distributed energy resources in deferring and/or meeting the technical needs of the problem;
- Is the time frame within which the upgrades are needed sufficient to deploy distributed energy resources;
- Is the customer mix on the feeder line appropriate to the distributed energy resource technologies being targeted; and
- To what extent would the distributed energy resources defer (i.e., avoid the need for a period of time), versus avoid, the need for infrastructure upgrades, and what is the economic benefit of deferral versus avoidance.

Choose project areas for feasibility study

Because a project area is determined by technical criteria, and does not necessarily match up well with municipal boundaries, a project area could be entirely contained within one city, or encompass parts of several cities, depending on where power lines are located. The screening process, as described in the previous section, would be applied to potential project areas on the Xcel Energy system, in order to identify the top project areas that would be best suited to conduct geotargeted distributed energy resource projects.

We would strive to select a top priority, as well as 1-2 additional project areas from the screening analysis, for a total of 2-3 prioritized project areas. We would conduct more detailed feasibility analysis on each of these 2-3 project areas. We would strive to select at least one Metro and at least one non-Metro project area. Although we anticipate that only one project area would be selected for the pilot (Activity 2), the other prioritized project areas could be funded with non-ENRTF dollars if alternative funding sources were identified.

The determination of whether the project conducts detailed feasibility on either 2 or 3 project areas would be determined by the project team, and will depend on the overall size of the project areas (e.g., 2 large projects, or 3 smaller projects); the overall feasibility of the projects available (e.g., only 2 projects if the potential 3rd project is determined to be only marginally feasible); and the similarity of potential projects (e.g., only 2 projects if the potential 3rd project is substantially similar in terms of demographics and technical challenges to the 2nd project).

The project areas would be located within the Xcel Energy service territory, which includes parts of all of the following Minnesota counties: Anoka, Benton, Blue Earth, Brown, Carver, Chippewa, Chisago, Clay, Dakota, Dodge, Douglas, Faribault, Freeborn, Goodhue, Hennepin, Houston, Isanti, Kandiyohi, Lac Qui Parle, Le Sueur, Lincoln, Lyon, McLeod, Meeker, Mower, Murray, Nicollet, Norman, Olmsted, Pipestone, Pope, Ramsey, Redwood, Renville, Rice, Rock, Scott, Sherburne, Sibley, Stearns, Steele, Swift, Todd, Wabasha, Waseca, Washington, Watonwan, Wilkin, Winona, Wright, Yellow Medicine.

Conduct feasibility study

The project team will conduct a technical potential study to determine the feasibility of as well as the optimal mix of distributed energy resource technologies for the 2-3 prioritized project areas. Based on this potential study, one project area will be selected for implementing a pilot in Activity 2. The project area for the pilot will need to be selected both based on the need for upgrades as well as the feasibility of distributed energy resources to meet that need. Part of the feasibility of distributed energy resources to meet the need will depend on the community characteristics of the project area (e.g., how many commercial customers vs. residential, historic participation in conservation programs as an indicator of interest in distributed energy resources, load characteristics of customers on the feeder line, etc.).

The distributed energy resource technologies that are anticipated to be included in the feasibility study, and have the potential to be cost-effectively deployed to defer local distribution infrastructure are:

- Energy efficiency (technologies that reduce electrical load);
- Clean distributed energy generation, particularly photovoltaic;
- Demand response (this includes existing technologies that reduce peak energy demand through direct load control, such as controls that cycle air conditioners on and off during times of peak electricity demand; advanced technologies including Demand Response Management System capabilities which allow the utility to monitor and dispatch distributed resources more effectively, such as forecasting load reduction and aggregate load shaping analysis; dynamic pricing; and behavioral demand response); and
- Distributed flexibility and storage technologies (including electric vehicles, thermal storage, and battery storage - batteries along with associated controls that store energy during non-peak times, and then discharge the energy during peak hours).

Effective solutions are anticipated to aggregate multiple complementary distributed energy resource technologies.

Develop innovative program strategies

The deployment of distributed energy resource technologies will mostly or entirely be at Xcel Energy customer sites, with some level of cost-sharing done by these customers. In order to recruit customers to install distributed energy resources, as well as identify individual customer opportunities for deployment of distributed energy resources, innovative program delivery strategies will be necessary. While Xcel Energy currently runs energy efficiency programs to achieve a similar goal, the level of participation and penetration that is expected to be necessary for geotargeted distributed energy resources will be substantially greater than is typically achieved by these programs. Thus, the programs will need to be creative and innovative in going well beyond what is typically achieved by these programs.

Complete implementation plan

Based on the technical feasibility as well as the program strategies, a project area implementation plan will be developed for the selected project area. This plan will be the primary deliverable for Activity 1, as well as the basis for the completion of Activity 2 (implementation). The plan will include:

- A summary of background and demographic data on the project area, including detailed information on the customer base;

- Description of the technical problem that the distributed energy resource is attempting to solve (e.g., 10 MW overloading of feeder system);
- A description of the technologies and program strategies that will be employed; and
- A work plan, budget (including non-ENRTF budget requirements) and timeline for implementing the plan.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 400,000
Amount Spent: \$ 242,107
Balance: \$ 157,893

Outcome	Completion Date
1. Develop dataset of qualified transmission and distribution deferral projects, and develop selection criteria.	Sep 30, 2017
2. Choose project areas for feasibility study.	Dec 31, 2017
3. Conduct feasibility study.	Jun 30, 2018
4. Develop innovative program strategies.	Oct 31, 2018
5. Complete implementation plan.	Nov 30, 2018

Activity 1 Status as of December 31, 2017:

The CEE project team has worked closely with Xcel Energy to develop screening criteria for potential project sites. Those criteria fall into three categories: System needs (e.g. the timeframe of new capacity upgrades), Customer Types (what types of customers are served and what the potential is for them to adopt clean energy), and other considerations that may complicate a geotargeting project. In this last category, the project team identified that large scale solar development was occurring on a number of feeders in Xcel Energy’s system, and this should be considered a criteria to screen out projects to avoid pilot complications.

From those criteria, the project team chose a master dataset of 9 sites, across Xcel Energy’s service territory. The location specific data for those sites has been collected and submitted for the next project phase, the feasibility study of clean energy potential.

Activity 1 Status as of June 30, 2018:

The project team is currently developing draft implementation strategies for two pilot sites: one non-metro location that includes areas of St. Cloud / Sartell / Sauk Rapids, and another metro location including the cities of Roseville and Falcon Heights. These sites were chosen based on two rounds of screening. The first round established site eligibility criteria to choose, on an annual basis, the projects that should be considered for geotargeting. The second round prioritized projects from that initial list.

We have found that both sites overall reflect fairly typical characteristics of peak summer use, and have the highest resource need at the end of a hot day. However, the individual “feeders” that serve the site (below the transformer level) may vary in when they peak throughout the day. Between two to five feeders serve these transformers. This has been an important finding that has expanded the scope of our current feasibility work, as the different feeders will benefit from different types of distributed energy resources. We will be collecting field data in the months of July and August to better characterize the drivers of peak energy use in these regions, for example, the number of residential properties that have window air conditioning units.

The project spend to date has been lower than projected, and we anticipate that we will complete the Activity 1 tasks under budget. The project did have initial delays largely from data transfer between Xcel Energy and CEE, but significant collaboration from Xcel Energy as a project partner has allowed us to streamline many of the tasks, and complete them with fewer project resources. Our schedule is tracking approximately 4 weeks behind

what was initially laid out on our work plan, although we still anticipate finalizing the pilot site implementation plan by November 30, 2018 to keep the project as a whole on track. One reason for this shift in schedule was the opportunity to collect field information during this 2018 summer cooling period, as described above.

Activity 1 Status as of December 31, 2018:

Over the past 6 months, our team (in collaboration with Xcel Energy) has finalized the geotargeting pilot site and drafted the implementation plan for the 2019 pilot. Our site will be located north and east of St. Cloud in the communities of Sartell, Sauk Rapids, Watab, and Foley. We completed a feasibility study on this and one other potential site, and determined that the need was greater in the chosen project area for several reasons: the potential grid investment was higher, the community has a lower than average previous participation rate in energy programs, and the housing stock consisted of many residents with air conditioning efficiency potential.

Our draft implementation plan is currently under review by program leads to verify the proposed Conservation Improvement Program (CIP) spending amounts that will be part of the \$200,000 cost share from Xcel Energy to support the pilot. The proposed programs are shown in the table below. Note these are still in draft form and are likely to be adjusted.

	Average Annual Participants (2015-2017)	Geotargeting Incremental Participants	Total 2019 Participants	Geotargeting Demand Reduction (kW)
Residential Cooling	125	75	200	20 kW
Residential Lighting	25	50	75	55 kW
Residential Smart Thermostats	18	60	78	70 kW ¹
Commercial Refrigeration	--	25	25	340 kW
Commercial Lighting	39	20	59	200 kW
Commercial Cooling	10	20	30	55 kW
Total Demand Reduction				740 kW

Any associated changes to the above programs will require formal approval by the State Department of Commerce, Division of Energy Resources, which oversees CIP. We anticipate that a request for approval will be submitted to the Department in February 2019. In addition, this project has been included in Xcel Energy’s Integrated Distribution Plan which was filed with the Public Utilities Commission in November 2018. Both of these efforts have helped elevate and increase stakeholder interest and support for this pilot.

Activity 1 Status as of June 30, 2019:

Activity 1 is primarily complete. All pilot planning leading to the pilot launch was completed by May 2019, with final details of the pilot approach provided to the implementation team. All final goals, budgets, and other pilot details have been submitted to the Department of Commerce. The final program pilot goals and additional incentive amounts (which are part of the Xcel Energy cost share) are listed below:

	Total 2019 Participants	Current Incentive (\$)	Proposed Incentive per unit (\$)	Total Additional Incentive (\$)
Home Energy Squad	150	\$0	\$70	\$10,500
Home Lighting (bulb giveaways)	1,200	\$0	\$1.11	\$1,332

¹ This value may need to be de-rated based on whether the customer is a new resource, or being converted from a direct load control program.

Residential Demand Response	98	\$25	\$25	\$0
Residential Smart Thermostat	80	\$0	\$165	\$13,200
Commercial Refrigeration	7	\$420	\$4,620	\$24,900
Commercial Lighting Efficiency	52	\$4,869	\$6,156	\$66,924
Small Business Lighting	34	\$3,391	\$4,000	\$20,706
Commercial Cooling Efficiency	18	\$2,128	\$2,190	\$4,200
		Total		\$146,262

A small amount of summary documentation remains to be completed under the Activity 1 budget.

Activity 1 Status as of December 31, 2019:

Activity 1 is complete. Pilot staff worked closely with Xcel Energy to finalize preparation and planning to test a more aggressive demand response dispatch than originally planned within the overarching geotargeting pilot. This included planning for logistic changes in Xcel Energy’s operations at the distribution level, instead of the status quo of operating at a larger scale as a system resource. This planning included a statistics-based demand response dispatch algorithm proposed to Xcel Energy, which was based on analysis of historical weather data patterns in target area.

Activity 1 Status as of July 31, 2020: Complete

Activity 1 Status as of December 31, 2020: Complete

Final Report Summary: Activity 1 was completed prior to December 31, 2019 and served as the foundation for the pilot implementation. Some important policy recommendations from this step are listed below and included in more detail in the final project report.

Integrated Distribution Planning

- Project screening should identify and prioritize potential projects, given desired outcomes.
- Forecasting should incorporate historical load data to forecast the timing, duration, and frequency of peak capacity needs.
- Expand the use of scenario planning to identify likely DER futures, including additions of large-scale community solar and electric vehicles.

Identification of costs and benefits

- Produce location-specific avoided costs for distribution deferrals, and include cost ranges or uncertainty for projects more than two years into the future.
- Clarify and formalize the method for quantifying the present value of grid deferrals.

Disclosure of grid needs, locational values, and data access

- Disclose grid needs for projects selected through screening, rather than for the whole system.
- De-emphasize access to locational values that change frequently, especially if there is no near-term project identified.
- Include developer data from solar garden production if a garden exists at the site.
- Provide aggregate customer data that aligns with data privacy guidelines.

ACTIVITY 2: Implement Programs

Description:

Based on the planning phase, the project would implement innovative program strategies to achieve distributed clean energy investments in the selected project area. This is expected to include aggressive programs and outreach to get homes and businesses to adopt more energy-efficient equipment and other distributed energy resources like rooftop solar, and participate in sufficient numbers to achieve the necessary electric demand reductions. Project funds would go into outreach and implementing programs, while matching funds would be provided in the form of capital dollars to install equipment from the utility and individual homeowners and businesses.

The implementation of Activity 2 is dependent upon receiving a commitment for at least \$200,000 in matching funds. Once that is received, we will submit a revised work plan for Activity 2, along with a request for matching funds approval. Consistent with the legislative appropriation language, no activity under Activity 2 will be started and no funds spent until the revised work plan and matching funds have been approved.

The implementation plan (an outcome of Activity 1) would provide the details of the work plan for this phase. The specifics of the implementation plan will be highly dependent on the area-specific characteristics of the project area, including the demographic characteristics, the exact mix of residential, commercial and industrial customers, and the appropriate distributed energy resources that will be used. For illustrative purposes, this could involve the following range of customers that would be targeted for participating in programs:

- Residential customers: 500 – 2,000
- Small business customers: 50 – 300
- Large commercial customers: 5 – 25
- Industrial customers: 0 - 10

The activities below are likewise illustrative of what would be anticipated to be included in this plan, in order to achieve those levels of participation.

Refinement of program-specific communications

The goal of Activity 2 is to recruit participants in several target market segments (e.g., single-family residential, small business, large commercial, industrial) to participate in the distributed clean energy programs that have been defined by Activity 1.

These programs will include a range of segment-specific and technology-specific offerings, such as:

- A window air conditioner trade-in program for single-family homeowners to replace their inefficient air conditioners with more efficient models;
- A rooftop solar program for single-family homeowners to install solar on their rooftops;
- A large business emergency back-up power program, that provides financial incentives for large businesses to install an emergency back-up battery array, that the utility can also use to deploy during peak power times, and charge up with excess wind power during the night;
- A small business air conditioner optimization program, where small businesses can retrofit their rooftop air conditioning units with a controls package that can save them up to 40% on their electric bills, and reduce peak demand for electricity.

For each of these programs, messaging would be developed to outline program features and benefits, for the specific market segment that was being targeted. In addition, an overall communications frame would be developed – establishing the unique nature and limited-time nature of the opportunity, and making a compelling case for participation. This messaging may need to be validated with specific focus-group or survey research.

Targeted, intensive outreach campaign

A typical, successful utility-funded energy efficiency program might achieve 1%-5% customer up-take per year. A geotargeting approach will need a much higher up-take, in the range of 10%-30% uptake for select target customer segments. To achieve such a high penetration, typical mass-marketing techniques are necessary but not sufficient.

The outreach efforts will contain traditional marketing techniques such as email, an “earned” media strategy, and direct-mail campaigns. Local papers and e-newsletters may be interested in reporting on the project, and we would work with them closely. Direct mail and email campaigns would also be employed, and can be an effective way to build awareness.

However, to achieve the high penetration necessary for this pilot, a more personalized and one-to-one approach will need to augment traditional marketing techniques. Project staff will need to connect deeply with specific community members in the project area.

One such personalized approach is to recruit and employ influential champions in the outreach campaign, specific to the customer target market being sought out. The idea here is that locally, certain individuals are considered thought leaders, and their behavior can influence the decisions of others. For example, in the small business segment, there might be a local business leader, who is well-known to her colleagues, perhaps because of her involvement with the local chapter of the Chamber of Commerce. Other business leaders may look to her for advice and leadership. If she enrolls her business to participate in energy efficiency and solar energy efforts sponsored by the pilot, her example may bring others on board, particularly if she is willing to speak publically in favor of the programs.

Other one-on-one approaches that may be used include:

- Door-knocking campaigns;
- Presentations to local community and business organizations; and
- Hosting of “model home” or “model business” tours to demonstrate adoption of new technologies.

Technical assistance, segmented by industry sector

Once there is interest generated in the participating in one or more of the offered programs, some of the homeowners or business owners will need to have customized technical assistance. This assistance will help them determine the best scope of services for their situation, and work with them to address any concerns or challenges that they have in participating in specific programs. The technical assistance would primarily involve site-visits to the home or business to discuss site-specific issues or to develop a detailed work scope for the project. Providing technical assistance will be crucial for achieving high penetration of customer participation in the implementation programs.

Analysis of utility data, and targeted messages for high users

Within a given project area, there may be a small number of electric customers that are responsible for a large percentage of the total system electricity load. Thus, when trying to reduce overall load, these customers will be of utmost importance. Further, within a given segment, the highest-using customers may have the greatest potential for reducing their load.

The implementation pilot will identify and target high-usage customers, and also work to engage and motivate customers in energy saving strategies through utility bill analysis. Effective identification of these customers, as well as motivating them, will be important to the success of this project. Usage of 15-minute or higher-frequency utility bill data can allow even deeper insight into site-specific opportunities. Trained energy analysts can also review these energy usage patterns, along with knowledge of the building, to identify energy savings opportunities. A more simplified energy pattern analysis can be done with advanced algorithms. While Xcel does not currently have “smart-meter” technology that would enable the most advanced types of energy bill

analysis, in the future these smart meters may be essential to cost-effectively implementing a geotargeting approach. Thus, where possible, the project will consider installation of advanced meters for specific high-value customers in order to utilize some of the more advanced opportunities to identify and implement energy saving strategies. This analysis can also be helpful in determining the site-specific feasibility for renewable energy systems as well.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 200,000
Amount Spent: \$ 162,483
Balance: \$ 37,517

Outcome	Completion Date
1. Launch innovative programs in at least one project area.	Jan 31, 2019
2. End program implementation in at least one project area.	June 30, 2020

Activity 2 Status as of December 31, 2017:

Activity 2 has not begun.

Activity 2 Status as of June 30, 2018:

Activity 2 has not begun.

Activity 2 Status as of December 31, 2018:

Activity 2 has not begun. We will receive a commitment letter from Xcel Energy for a \$200,000 cost share prior to spending any Activity 2 funds. That commitment letter is anticipated by February 2019.

Activity 2 Status as of June 30, 2019:

Activity 2 has begun with pilot launch. Xcel Energy provided a cost share letter dated May 20, 2019, which confirmed our ability to start spending Activity 2 budget. To date, the community marketing plan has been developed and outreach materials are being produced (such as newsletters, mailers, and presentations). The pilot team is coordinating on rebate processing, customer management, and other details on operational implementation.

Activity 2 Status as of December 31, 2019:

Since the pilot launched in June 2019, the bulk of work has taken place within Activity 2. The first aspect of initiating the pilot included finalizing and deploying marketing strategies such as newsletters, flyers, and mailers, and attending community meetings to promote the effort among local leaders (e.g. chamber of commerce and city council). These outreach strategies set the stage for visits with both residential and business customers.



Example Educational Materials for the Summer Savings Pilot

For the residential sector, the pilot has seen widespread success. CEE's energy efficiency program staff visited 150 homes in the pilot area to install light bulbs and smart thermostats, meeting this participation goal. This participation far exceeds the historical annual average by 650%. The pilot also tested a new customer engagement strategy, which included installation of smart thermostats and signing up customers on the spot for Xcel Energy's smart thermostat demand response program – AC Rewards. This engagement strategy proved successful, with 72 installations and on-the-spot signups. For homes that did not receive a smart thermostat, crews gathered data to help better understand barriers for this engagement approach.

For the business sector, the energy efficiency team used a variety of outreach methods to reach small businesses in the geotargeting area. For smaller customers, this included mailers, calls, emails, door-to-door in-person visits, working through existing contractors, doing outreach in cooperation with cities and chambers of commerce, and connecting with customers through Xcel Energy's account managers and Business Solutions Center representatives. This multi-faceted approach to customer engagement resulted in reaching well over half of the businesses in the area with our messaging, and conducting energy assessments for over 125 businesses.

Although the project team has engaged a large percentage of the area's business customers, one lesson learned is that even with enhanced rebates, the project timeline has been too short for business customers to complete capital investment projects. CEE's organizational experience working with business customers through the One Stop Efficiency Shop program indicates customers take an average of approximately one year to complete the typical small lighting efficiency program process. Furthermore, larger customers with higher savings potential are more likely to face complications with job completion due to large project sizes, extended timelines for ordering materials and busy production schedules. Finally, customer awareness and "word of mouth" of this bonus incentive opportunity took time to spread among community businesses and trade partners in the area.

Due to this lag in business participation, we have worked with Xcel Energy and MN Department of Commerce to grant an extension of the pilot for the business sector for an additional 6-months, through June 2020. This extension will allow for a more realistic timeline that matches future geotargeting/non-wires alternative project schedules and customer recruitment windows for MN utilities. We will use the 6-month extension to follow-up with previously engaged customers, and recruit additional customers by capitalizing on the increased customer awareness and lessons learned testing different outreach methods at the beginning of the project.

Activity 2 Status as of July 31, 2020:

During the first half of the year (Jan - May 2020), we continued to pursue strategies that were successful in the business sector implementation during the first six months of the pilot. These strategies included working with CEE's One Stop Efficiency Shop consultants and Xcel Energy Commercial Refrigeration Efficiency program, as well as the contractors these programs have relationships with, to promote the time-limited geotargeting bonus rebates. We reinforced these efforts with targeted mailers to customers that had previously received energy audits during the first half of the geotargeting pilot implementation phase. In addition, we continued to provide information to and encourage customer outreach by Xcel Energy's Business Solutions Center representatives and account managers who work with customers in the pilot area.

We also launched a new initiative that targeted energy and demand savings through cooling efficiency and demand response. This consisted of offering free smart thermostat installations to businesses that agreed to enroll those thermostats in Xcel Energy's AC Rewards for Business program, which allows Xcel Energy to adjust customer cooling setpoints to reduce energy consumption when the grid is most stressed. The primary method of recruiting customers for this offering was direct calling to businesses in the geotargeting area. There was significant interest in this offering and within the first two weeks of calling we had a growing list of customers scheduled for installations. However, soon after we started building our list of interested customers, the stay at home order due to the 2019 coronavirus pandemic (COVID-19) went into effect, resulting in many businesses

closing. Our efforts at further recruitment were also hampered, and ultimately, we fell short of our implementation goal for commercial smart thermostats.

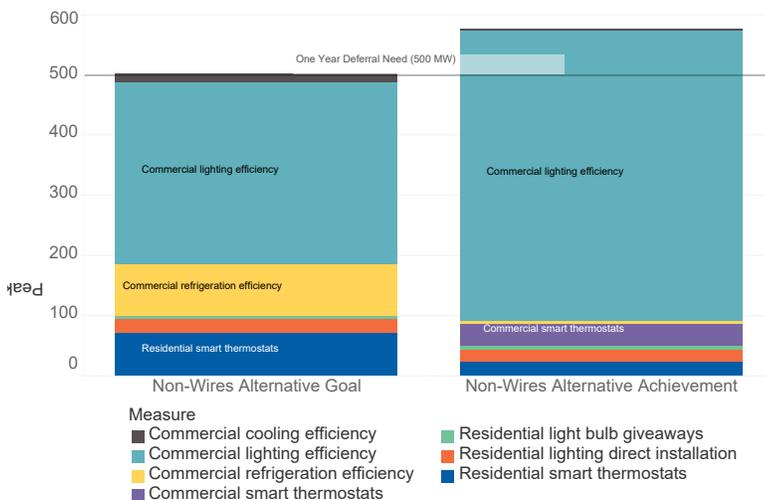
Despite COVID-19 interruptions, some contractors were able to continue work as these were considered essential workers. This included contractors installing efficient lighting, refrigeration, and HVAC equipment.

Activity 2 Status as of December 31, 2020:

The project team worked with Xcel Energy to continue a test of demand response events in the pilot area. These tests lowered the electricity demand from residential homes during times when local solar energy production was decreased, such as by storms. The demand response consisted of warmer thermostat set points for homes and businesses participating in the AC Rewards program, as well as cycling air conditioner compressor use in homes participating in the Saver’s Switch program. During the summer of 2020 the team implemented three local tests at the pilot site along with one system-level test. These data are being analyzed and will be summarized in the final report.

Final Report Summary:

Activity 2 (pilot implementation) was successful overall despite disruptions from COVID-19. The project reached the pilot goal of a 500 kW deferral through clean energy efficiency and demand response (see image below). In addition, our project team was able to test the value of existing demand response resources (primarily from Xcel Energy’s Savers Switch air conditioning program) to manage peak demand, including from large community solar gardens. More information is available in the final technical report, available at <https://www.mncee.org/resources/projects/geotargeted-distributed-clean-energy-initiative/>



ACTIVITY 3: Recommendations on Utility Regulatory Reform

Description:

The project would synthesize any available findings from pilot programs, assess statewide potential, and provide recommendations to Minnesota regulators for reforming utility regulation to defer transmission and distribution investments with energy efficiency and other distributed energy resources when appropriate.

The overall goal of the technical potential study is to provide an order of magnitude estimate of the statewide potential for geotargeted deployment of distributed energy resources. A secondary goal is to identify a generalized method for identifying and screening opportunities for geotargeted deployment of distributed energy resources, including a generalized method for weighting the costs and benefits of geotargeted distributed energy resources versus infrastructure investments. Data collected to assess technical potential on Xcel Energy’s system would be the basis for conducting a statewide technical potential study. This will include an estimate of the benefits of distributed energy resources in replacing or deferring transmission and

distribution infrastructure investments as well as an estimate of costs of installing the distributed energy resources. The project team would work with other utility companies in conducting this assessment, and modifying any findings applicable to Xcel Energy’s territory to other utility service territories.

A national review would be conducted of best practices currently deployed around the country for geotargeting. The review would include in-depth review and assessment of states that have adopted geotargeting policies and programs, as well as states and specific utilities that have implemented high adoption-rate clean energy programs that are necessary for a successful geotargeting approach.

An analysis would be conducted of the barriers to geotargeted distributed energy resource investment under the current regulatory regime. For example, utilities may not have the same incentives or opportunities for cost recovery for investing in distribution infrastructure investment as investing in distributed energy resources instead of that infrastructure investment; or the risks may be different for each of these options. Based on these barriers and the results of Activities 1 and 2, recommendations would be made for utility reform.

Summary Budget Information for Activity 3:

ENRTF Budget: \$ 200,000
Amount Spent: \$ 138,011
Balance: \$ 61,989

Outcome	Completion Date
1. Conduct technical potential study of statewide potential for geotargeted distributed clean energy resources investment.	May 31, 2019
2. Synthesize findings from national best practices review and pilot program(s) as applicable.	May 31, 2019
3. Provide final report, with utility reform recommendations.	February 15, 2021

Activity 3 Status as of December 31, 2017:

Activity 3 has not begun.

Activity 3 Status as of June 30, 2018:

Activity 3 has not begun.

Activity 3 Status as of December 31, 2018:

Activity 3 has not begun

Activity 3 Status as of June 30, 2019:

No spending has begun on the Activity 3 budget. However, there is a project stakeholder meeting scheduled for July 10th and this will serve as the kickoff for Activity 3 outreach to other utilities.

Activity 3 Status as of December 31, 2019:

CEE staff began analyzing regulated electric utility integrated distribution plans and associated docket proceedings (19-666, 19-693, 19-684, and 19-674). These plans contain sections specifically outlining geotargeting examples for utilities (referred to as non-wires alternatives or non-wires solutions). These dockets highlight this pilot project (in Xcel Energy’s plan), other specific distribution-level projects, barriers, and opportunities for utilities. Further analysis in 2020 will inform the statewide potential and utility reform recommendations for the final report for this project.

Activity 3 Status as of July 31, 2020:

Work on the final report and appendices began in earnest over the past 6 months. We conducted in-depth interviews with other national experts to hear updates on their experiences since the time when we launched this pilot. We also reached out to Minnesota stakeholders with initial findings and suggestions from the pilot to gain insight. These stakeholders included the Minnesota Department of Commerce, Public Utilities Commission Staff, utilities, and policy advocates. We have drafted an initial set of policy recommendations that will be sent out for formal review. These recommendations are being built upon existing policy, including integrated resource plans, the state conservation improvement programs, and integrated distribution planning.

Activity 3 Status as of December 31, 2020:

We are in process of finalizing the project report and appendices to summarize the pilot project. We received feedback on our policy recommendations and incorporated these into the report document. Below is the Table of Contents:

- I. Acronyms and Abbreviations
- II. Executive Summary
- III. Introduction
- IV. Background and Project Context
 - a. Introduction to Non-Wires Alternatives
 - b. Distribution Planning
 - c. Minnesota’s Utility Landscape
- V. The Pilot
 - a. Project Background
 - b. Pilot Planning
- VI. Evaluation & Lessons Learned
 - a. Pilot Results
 - b. Statewide technical potential
- VII. Policy Recommendations
 - a. Policy Examples from Leading States
 - b. Themes from Statewide Policies for Non-Wires Alternatives
 - c. Minnesota Regulatory Pathways
 - d. Other Policy Opportunities
- VIII. Conclusion

Final Report Summary: This project led to robust recommendations for how Minnesota can support development of geotargeted clean energy to offset grid investments and avoid air and water pollution from Minnesota’s electricity generation. The final project report and all associated files are available here <https://www.mncee.org/resources/projects/geotargeted-distributed-clean-energy-initiative/>. This report outlines the key lessons and policy recommendations to advance the use of non-wires alternatives by Minnesota utilities.

V. DISSEMINATION:

Description:

The project final report from Activity 3 will be disseminated widely to relevant policymakers via electronic format, and available on CEE’s website (www.mncee.org). The project team will look for opportunities to present at relevant conferences and meetings. As the project is progressing and as key information is developed throughout the project, the project team will update utilities and policy staff at the Public Utilities Commission and Department of Commerce, Division of Energy Resources as appropriate.

Status as of December 31, 2017:

Project dissemination has not begun.

Status as of June 30, 2018:

CEE has highlighted this geotargeting project and contributed early lessons learned in an open docket at the Public Utilities Commission on utility distribution planning. (See: IN THE MATTER OF THE DISTRIBUTION SYSTEM PLANNING FOR XCEL ENERGY, OTTER TAIL POWER COMPANY, MINNESOTA POWER, AND DAKOTA ELECTRIC DOCKET NO. E999/CI-15-556, DOCKET NO. E002/CI-18-251, DOCKET NO. E017/CI-18-253, DOCKET NO. E015/CI-18-254, DOCKET NO. E111/CI-18-255). Final comments will be filed prior to July 6, 2018.

Status as of December 31, 2018:

Xcel Energy has included this geotargeting pilot in the Company's Integrated Distribution Plan, Filed November 2, 2018 in the abovementioned docket. The process has convened three stakeholder meetings to date, and geotargeting pilot projects were discussed at these meetings.

Status as of June 30, 2019:

A stakeholder dissemination meeting is scheduled for July 10, 2019. This meeting will include policymakers and other Minnesota utilities to receive an update of the pilot to date, and set the stage for discussion about the potential for statewide activity. The invite list includes approximately 40 individuals from organizations across Minnesota.

Information about the pilot also continues to be included in Xcel Energy's Integrated Distribution Plan, including mention at the Public Utilities Commission hearing on May 30, 2019. Xcel Energy's next plan is to be filed on November 1, 2019.

Status as of December 31, 2019:

CEE staff presented the pilot project to a large audience of peers at the Association of Energy Service Professionals 2019 Summer Conference on August 27th in Toronto, Ontario. This presentation contained highlights related to site selection, planning, marketing methods, lessons learned, and a status update of the project to date.

Status as of July 31, 2020:

In addition to ongoing stakeholder outreach, we will be presenting preliminary results of the pilot at the 2020 Summer Study on Energy Efficiency in Buildings hosted by the American Council for an Energy Efficient Economy (ACEEE). This national conference is well attended by utilities, policymakers, and energy service professionals and will help garner national attention for this pilot.

Status as of December 31, 2020:

Our paper summarizing the pilot project was accepted by ACEEE for its flagship conference, 2020 Summer Study on Energy Efficiency in Buildings. The forthcoming publication of these proceedings may be viewed at the following url: <https://www.aceee.org/proceedings>.

Final Report Summary: All information is hosted at CEE's website, <https://www.mncee.org/resources/projects/geotargeted-distributed-clean-energy-initiative/>. The final report and corresponding summaries for decisionmakers have been widely disseminated using CEEs marketing channels, including email lists and relevant newsletters. Results have been presented at national conferences including the ACEEE Summer study on Buildings, and the Association of Energy Service Professionals Summer 2019 Conference. In addition, we are waiting to see if staff from the public utilities commission would like to arrange a briefing of the project.

VI. PROJECT BUDGET SUMMARY:

A. Final ENRTF Budget Overview:

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$ 524,601	CEE staff are primarily responsible for meeting all project outcomes.
Project Manager: \$171,932 (83% salary, 17% benefits); 45% FTE yr 1; 40% FTE yr 2; 45% FTE yr 3	\$171,932	
Policy Reform Lead: \$7,428 (81% salary, 19% benefits); 3% FTE yr 3	\$7,428	
Technical Lead: \$139,011 (83% salary, 17% benefits); 38% FTE yr 1 -yr 3	\$139,011	
Program Coordinator*: \$153,291 (76% salary, 24% benefits); 60% FTE yr 1; 75% FTE yr 2; 65% FTE yr 3	\$153,291	
Engineering support*: \$12,441 (78% salary, 22% benefits); 15% FTE yr 2	\$12,441	Salary is based on the average salary & benefits of this job classification at CEE
Program outreach and implementation staff*: \$40,498 (76% salary, 24% benefits); 60% FTE yr 2	\$40,498	Salary is based on the average salary & benefits of this job classification at CEE
Professional/Technical/Service Contracts:	\$ 18,000	Technical consulting services
TOTAL ENRTF BUDGET:	\$ 542,601	

Explanation of Use of Classified Staff: n/a

Explanation of Capital Expenditures Greater Than \$5,000: n/a

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 5.3

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: 0.1

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state			
Xcel Energy	\$200,000	\$163,000 in direct costs plus estimated \$45,000 in staff in-kind expenses	This section will track the required matching funds for Activity 2; no ENRTF funds for Activity 2 will be spent until this match has been approved.
State			
TOTAL OTHER FUNDS:	\$200,000	\$208,000	

VII. PROJECT STRATEGY:

A. Project Partners:

This project will be a collaboration between Center for Energy and Environment (CEE) and Xcel Energy.

Project Partners Receiving Funds:

- Center for Energy and Environment will lead the project and is responsible for all outcomes (\$524,601)
- An energy analysis consultant, Nancy Lange, assisted with the assessment of policy reform recommendations (\$18,000)

Project Partners Not Receiving Funds:

- Xcel Energy will advise, provide technical support and provide funding for distributed clean energy programs (matching funds estimated at \$208,000)

B. Project Impact and Long-term Strategy:

This project will help catalyze and inform a shift in Minnesota energy policy, to focus on deferring transmission and distribution investments when it is feasible to do so with distributed clean energy options. This would result in decreases in carbon dioxide and other air emissions. Our partnership with Xcel Energy and state regulators will help to ensure that our recommendations are not only practical, but will also be adopted by regulators. Once adopted as regulatory practice, it would be funded as part of routine utility operations.

Furthermore, the program strategies developed here may be more broadly applicable in utilities’ cost-effective energy efficiency portfolios. Because we would deliberately develop more aggressive and cutting edge program strategies, the efficacy of these program strategies could help inform the whole of a utilities program portfolios.

C. Funding History:

Funding Source and Use of Funds	Funding Timeframe	\$ Amount
No funds have been spend to-date on the project		\$ N/A
		\$
		\$

VIII. REPORTING REQUIREMENTS:

- **The project is for 3.5 years, will begin on 7/1/17, and end on 2/15/2021.**
- **Periodic project status update reports will be submitted June 30th and December 31 of each year.**
- **A final report and associated products will be submitted between December 31, 2020 and February 15, 2021**
- **IX. VISUAL COMPONENT or MAP(S):**

IX. VISUAL COMPONENT or MAP(S): See final report including Executive Summary here; <https://www.mncee.org/resources/projects/geotargeted-distributed-clean-energy-initiative/>

X. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS:

A. Parcel List: N/A

B. Acquisition/Restoration Information: N/A

**Environment and Natural Resources Trust Fund
M.L. 2016 Final Project Budget**



Project Title: Geotargeted Distributed Clean Energy Initiative

Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 07e

Project Manager: Jennifer Edwards

Organization: Center for Energy and Environment

M.L. 2017 ENRTF Appropriation: \$ 800,000

Project Length and Completion Date: 4 years, February 15, 2021

Date of Report: 03/05/21 (work performed through 02/15/21)

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	Activity 3 Budget	Amount Spent	Activity 3 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	Planning for Geotargeted Clean Energy Investment			Implement Programs			Recommendations on Utility Regulatory Reform				
Personnel (Wages and Benefits)	\$300,000	\$242,107	\$57,893	\$200,000	\$162,483	\$37,517	\$175,000	\$120,011	\$54,989	\$675,000	\$150,399
Project Manager: \$163,000 (83% salary, 17% benefits); 45% FTE yr 1; 55% FTE yr 2; 30% FTE yr 3		\$77,425			\$26,787			\$67,720			
Policy Reform Lead: \$65,000 (81% salary, 19% benefits); 5% FTE yr 1; 10% FTE yr 2; 15% FTE yr 3		\$7,019			\$0			\$409			
Technical Lead: 120,000 (83% salary, 17% benefits); 50% FTE yr 1 & yr 2		\$70,571			\$53,519			\$14,921			
Program Coordinator*: \$88,000 (76% salary, 24% benefits); 15% FTE yr 1; 60% FTE yr 2; 42% FTE yr 3		\$78,909			\$44,760			\$29,622			
Engineering support*: \$159,000 (78% salary, 22% benefits); 75% FTE yr 1; 60% FTE yr 2; 42% FTE yr 3		\$2,481			\$9,960			\$0			
Program outreach and implementation staff*: \$80,000 (76% salary, 24% benefits); 60% FTE yr 2; 57% FTE yr 3		\$5,702			\$27,457			\$7,339			
Professional/Technical/Service Contracts		\$0			\$0			\$0		\$0	\$0
Technical consultant for assisting with technical potential of geotargeting and technical assistance with distribution engineering analysis; technical consultant for policy recommendations	\$100,000	\$0	\$100,000		\$0	\$0	\$25,000	\$18,000	\$7,000	\$125,000	\$107,000
COLUMN TOTAL	\$400,000	\$242,107	\$157,893	\$200,000	\$162,483	\$37,517	\$200,000	\$138,011	\$61,989	\$800,000	\$257,399

Note: for personnel categories marked as *, salaries are based on the average salary & benefits of these job classifications at CEE