

LOCAL ENERGY ACTION CASE STUDY

ST. LOUIS PARK

JULY 2018

MINNESOTA



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ABOUT ST. LOUIS PARK

St. Louis Park is an urban center community¹, a first-ring, relatively dense² suburb of 47,933 people. It shares its eastern border with Minneapolis and is known for being “comfortably close” to large city attractions while maintaining neighborhood-scale benefits.³ The city is historically committed to good schools, housing stock, parks, and cultural opportunities. The city has a growing population⁴ and has been a sustainability leader for a decade.⁵ Building upon an energy action plan, St. Louis Park’s most notable accomplishment has been adoption of a landmark Climate Action Plan, the most aggressive city plan in Minnesota.⁶



ST. LOUIS PARK LEADERSHIP HIGHLIGHT: AGGRESSIVE CLIMATE ACTION PLAN & YOUTH ENGAGEMENT

St. Louis Park is a national leader in its recently adopted Climate Action Plan, calling for the city to be carbon neutral by 2040.

- ✓ Strongest city goals in Minnesota
- ✓ Climate Action Plan builds upon prior Energy Action Plan work
- ✓ City youth led the initiative, working with city elected officials and staff

¹ Metropolitan council “Thrive MSP 2040” classification <https://metro council.org/Planning/Projects/Thrive-2040/Thrive-MSP-2040-Plan.aspx>

² According to U.S. Census data, SLP’s density is 4250 residents per square mile. St. Louis Park Energy Action Plan (EAP), 2; <https://www.stlouis park.org/home/showdocument?id=3382>

³ St. Louis Park Energy Action Plan, 2.

⁴ Census data from Metropolitan Council, <https://metro council.org/Data-and-Maps/Data/Census,-Forecasts,-Estimates-NEW/Census-Data.aspx>

⁵ St. Louis Park Energy Action Plan, 7.

⁶ Frank Jossi, “Minneapolis suburb adopts student-endorsed plan to boost EVs, efficiency”, *Energy News Network*, March 6, 2018. <https://energy news.us/midwest/minneapolis-suburb-adopts-student-endorsed-plan-to-boost-evs-efficiency/>

CLIMATE ACTION PLAN

In early 2018 the St. Louis Park City Council unanimously approved the city's ambitious Climate Action Plan,⁷ which calls for city-wide carbon neutrality by 2040. The target was inspired by the Paris Agreement and its call for global greenhouse gas reductions to limit global warming to 1.5 degrees Celsius.⁸ The Plan's aggressive goals include sourcing 100% renewable electricity by 2025 and net zero greenhouse gas emissions by 2040, to be achieved primarily through large commercial efficiency, small commercial efficiency, net zero construction, residential efficiency, transportation emissions reduction, and zero waste. This represents the most aggressive climate action policy of any city in Minnesota. In comparison, Minneapolis- and the state of Minnesota - have a goal of an 80 percent greenhouse gas emissions reduction by 2050. The Climate Action Plan builds upon St. Louis Park's ambitious Energy Action Plan, in which the city committed to 100% clean energy and net zero greenhouse gas emissions.

St. Louis Park is notable for the attention it paid to setting measurable targets in the plan for both 2030 and 2040. Emissions reductions assigned to each strategy were calculated using the wedge diagram tool, described in the next section. While the Climate Action Plan represents the best strategies and forecasts that can currently be projected, the city acknowledges it must also "be a living document, updated as new trends, technologies, and ways of measuring evolve in this ever-advancing field."⁹

Meeting the plan will require cutting energy use in public and private buildings, encouraging the use of electric vehicles, purchasing renewable energy through Xcel Energy's Windsource and Renewable Connect programs, and community solar. Policy changes could include passing a building energy disclosure ordinance requiring buildings of 20,000 square feet or more report electricity and natural gas consumption, strengthening an existing green building policy and design, and requiring all new buildings be net zero energy by 2030.

Along with specific strategies to meet targets, the plan includes guidance on how the city can strive to improve its climate impact and how to lead the entire community toward its collective goals. Community engagement will be critical. St. Louis Park's government operations accounts for less than 2% of city electricity use, so officials will need to partner with residents and businesses to meet the goals.¹⁰ For example, St. Louis Park has more than 600 commercial buildings and all of them will need to be retrofitted for the city to reach its goal, the report stated.

The Environment and Sustainability Commission, in approving the plan, noted that it is "in full alignment with, and builds upon" many years of prior leadership in the environment and conservation in the City of St. Louis Park. The Commission's message to residents stated that "global climate change is one of the most challenging problems we will face in the twenty-first century. The urgency with which we must act decisively on this issue is unprecedented, and cities like ours will be the leaders that can enact meaningful change."¹¹

The plan begins with three "kick-start projects" to help spur changes in the community and build momentum. These include 1) a youth-led initiative to increase energy efficiency and renewable energy

⁷ St. Louis Park Climate Action Plan (CAP), <https://www.stlouispark.org/home/showdocument?id=8214>

⁸ United Nations Framework Convention on Climate Change (UNFCCC), *Paris Agreement*, 3; https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

⁹ Environment and Sustainability Commission letter to neighbors, SLP Climate Action Plan, 3.

¹⁰ Frank Jossi, "Minneapolis suburb adopts student-endorsed plan to boost EVs, efficiency"

¹¹ Environment and Sustainability Commission letter to neighbors, SLP Climate Action Plan

in the community, 2) creation of a central, easy-to-find information resource hub for households and businesses to access educational information and help them increase and track actions taken to advance the goals of the CAP, and 3) accelerated adoption of electric vehicles by installing chargers in public parking areas.

The plan establishes seven climate goals addressing the greatest potential for climate impact.

CLIMATE ACTION PLAN: 7 KEY GOALS

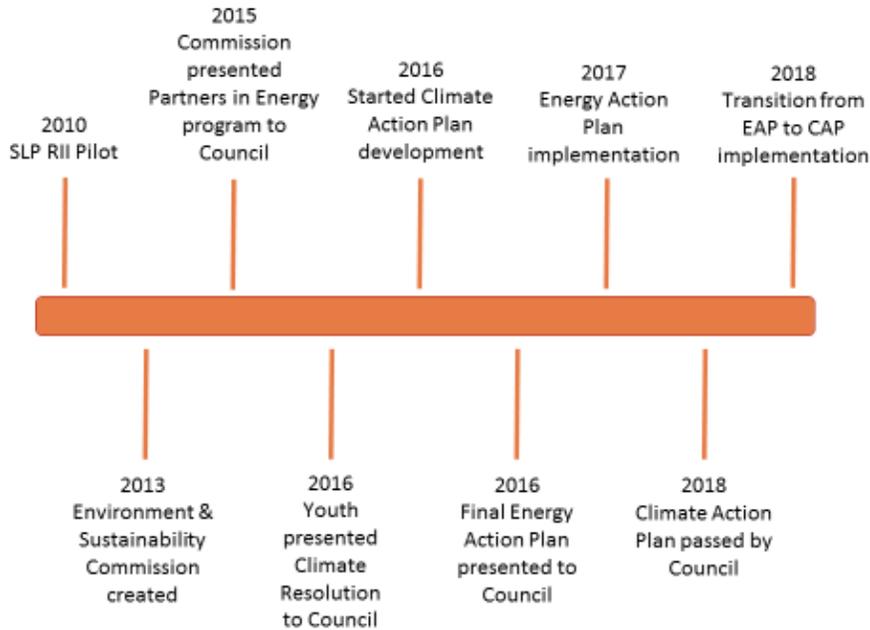
1. Reduce energy consumption in large commercial buildings 30% by 2030
2. Reduce energy consumption in small to mid-size commercial buildings 30% by 2030
3. Design and build all new construction to be net-zero energy (NZE) by 2030
4. Reduce energy consumption in residential buildings 35% by 2030
5. Achieve 100% renewable electricity by 2030
6. Reduce vehicle emissions by 25% by 2030
7. Reduce solid waste 50% by 2030 from Business as Usual

Each of the goals include supporting strategies and specific initiatives and actions to help guide St. Louis Park toward intermediary progress by 2030. The plan sets goals to 2030 rather than 2040 in order to “get the city on a trajectory toward its carbon neutral goal and allow an interim point to examine progress and reassess its course of action.”¹² The Climate Action Plan also includes more “aggressive, advanced strategies” necessary to reach the final target of carbon neutrality by 2040.¹³

¹² St. Louis Park Climate Action Plan (CAP),

¹³ Ibid.

St. Louis Park was already implementing its Energy Action Plan (EAP) when it ramped up ambition and adopted the Climate Action Plan. The Climate Action (CAP) Plan builds upon the EAP and it will be a transition from one to the other. The city was able to reach consensus on an aggressive plan in part because it has continuously ramped up ambition while simultaneously implementing its existing plan. The timeline tells this story:



2

THE WEDGE TOOL

St. Louis Park’s CAP identifies specific, measurable strategies and actions that will enable them to realistically make and measure progress towards their ambitious overall targets. The St. Louis Park CAP Advisory Committee used LoGoPEP’s free Wedge Tool analysis to consider different strategies.¹⁴ With this tool, they could plug in the right goals and dates and then revise them based on an iterative process with community engagement.

The [Wedge Tool](#) is based upon the concept of “climate wedges” which assumes that a portfolio of measurable actions will be needed to incrementally reach the total desired greenhouse gas reductions.¹⁵ The tool allows users to explore a city’s potential energy futures through an interactive diagram that shows forecasted city-wide greenhouse gas emissions from building energy consumption.¹⁶ Starting with historic baseline data and a business-as-usual forecast, users can set reduction goals and visualize the predicted impacts of reduction “wedges” that can be achieved through actions taken by residents, businesses, utilities, and local and state governments. Three reduction strategies that represent the impacts of existing policies are shown by default, including Commercial/Industrial Energy Code Enforcement, Residential Energy Code Enforcement, and Planned Portfolio Mix Changes.

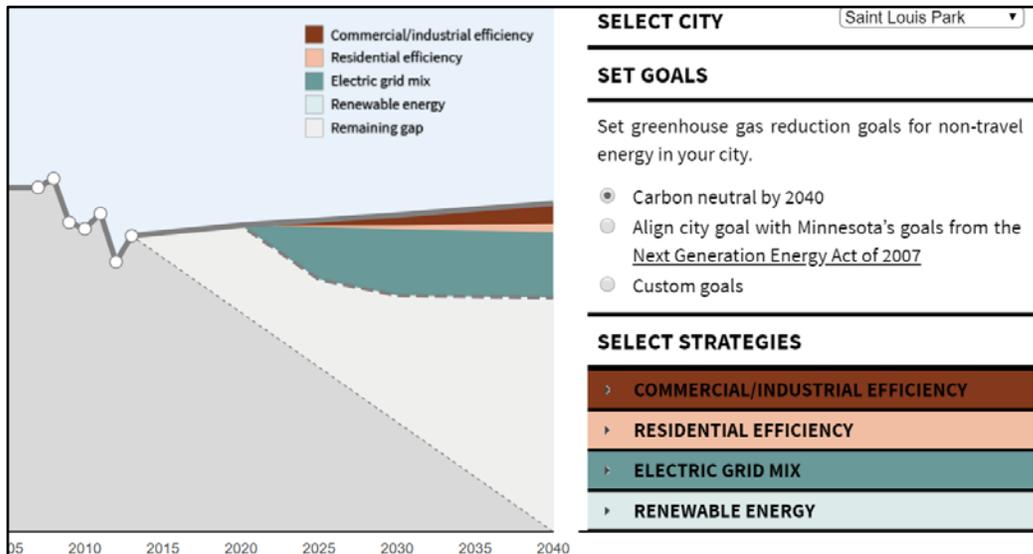
¹⁴ Regional Indicators Initiative LoGoPEP partner website, <https://www.regionalindicatorsmn.com/energy-planning>

¹⁵ S. Pacala, R. Socolow, “Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies” *Science*, 13 Aug 2004, <http://science.sciencemag.org/content/305/5686/968>.

¹⁶ Regional Indicators Initiative

In many cases, the CAP Advisory Committee made adjustments to goals based on projected emissions from the tool's options. For example, originally they proposed a goal of 25% emissions reduction from the small to mid-sized Commercial/Industry sector by 2030. The Wedge tool showed that it should be increased to a 35% reduction by 2030 to reach the sector's desired greenhouse gas reduction goals.

The tool only evaluates non-travel energy, which comprises 55% of statewide emissions. To comprehensively address city-wide emissions, local governments should also consider vehicle travel, air travel, waste, wastewater, and agricultural emissions. St. Louis Park included transportation and waste in its Climate Action Plan.



YOUTH AND COMMUNITY ENGAGEMENT

St. Louis Park has recognized that making progress on energy and climate goals requires the participation of citizens, businesses, organizations, and strong city leadership. The city has fostered broad community engagement for all of their sustainability work, and city youth have been community leaders.

- ✓ In 2016, local youth presented climate resolution to City Council.
- ✓ Council passed Climate Inheritance Resolution calling for immediate action
- ✓ City issued RFP for Climate Action Planning
- ✓ Youth participated in city planning process along with many community members

In 2016 the city was still finalizing its energy action plan. In March of 2016 St. Louis Park High School students in the “Roots and Shoots” Environmental Club worked with nonprofit organization iMatter to present a Youth Climate Report Card and student petition to the St. Louis Park City Council, evaluating the city's strengths and weaknesses on climate solutions. The students asked the Council to adopt a “Climate Inheritance Resolution” that would confirm the city's commitment to climate solutions. The resolution passed and inspired the city and its residents to advance a Climate Action Plan. The youth's letter in the Plan's introduction says:

The climate crisis will have a huge impact on our future. An inadequate response now will cause dangerous economic and environmental disruptions, many of which are already being felt around the globe. But we see this as an opportunity to rethink our current actions and imagine a better, more sustainable future.... St. Louis Park has an opportunity to be a leader in the movement to restore a healthy climate and set the standard for the rest of the state and country.¹⁷

Students were both involved in the development of the Climate Action Plan and incorporated into implementation strategies. Students are charged with driving on-the-ground efforts to mobilize residents and businesses to take action to achieve the goals of the CAP. For the first “kick-start” project, on Earth Day, April 22, 2018, youth leaders led the community-wide launch of the Climate Action Plan with over 150 community members. The event hosted inspirational speakers including Mayor Spano, Congressman Keith Ellison and Superintendent Osei while also connected community members with resources designed to help everyone participate in the work towards carbon neutrality.

PLANNING AND GOALS

St. Louis Park has entered numerous partnerships to help plan and advance their energy and sustainability efforts. In 2010, the city partnered with LHB and the Regional Indicators Initiative (RII)¹⁸ to measure and track their energy, waste, water, and travel emissions. Data was updated for 2014 and 2015.

In early 2015, the city directed its focus more intentionally to community-wide energy and climate goals when it became the 4th city to participate in Xcel Energy’s Partners in Energy (PIE) program. Through the program, the city created a community-wide Energy Action Plan in 2016 with four priorities that would lead to the development of the climate action plan.

- 1) Create a climate plan with the goal of achieving carbon neutrality by 2040
- 2) Drive energy efficiency in business
- 3) Increase renewable energy purchase
- 4) Create a partnership with the youth

The partnership with Xcel Energy included additional energy usage analysis to help the city set and meet goals related to renewable electricity and more. The initial focus on the electricity sector was a launching pad to the more comprehensive Climate Action Plan, which covered all fuels and sectors. The city hired the Great Plains Institute, a nonprofit clean energy advocacy organization in Minneapolis, to produce the strategy for reaching the suburb’s ambitious carbon goal.

MEASURING RESULTS

The Regional Indicators Initiative (RII) process gathered, measured, and analyzed trends over time (annually), familiarizing the city with how to use data to measure performance and to compare their results with peer cities. For example, SLP learned that 2/3 of emissions were from commercial and industrial (C/I) users. Since that time, the city has successfully:

¹⁷ St. Louis Park Climate Action Plan (CAP), 2

¹⁸ Regional Indicators Initiative

- Reduced energy use per capita 8% per capita
- Achieved 17% less energy use for job (C/I sector) and 17% less per household (RII)

Other results of St. Louis Park energy action include:

- Student-led Earth Day 2018 kickoff for Climate Action Plan
- 3 “kick-start” projects underway
- Creation of case studies from student work in partnership with University of Minnesota and Park Nicollet, to use as examples when recruiting businesses and nonprofits to embark on renewable energy and energy efficiency improvements.
- Presentation of Energy Action Plan to St. Louis Park Rotary Club
- Launch of 2 Windsource campaigns, promoted WindSource and Renewable Connect at EcoTacular Fair at Parktacular
- Installation of solar array on Fire Station (39kW), Municipal Service Center (78kW)
- Purchase of Renewable Connect for both Fire Stations and the City Hall and Police Station Campus
- Finalizing of Living Street Policy in 2018: will reduce vehicle miles traveled (VMT) by reducing parking and street sizes and by increasing connectivity opportunities; reduced impervious surfaces and increased green infrastructure.
- Achieved Step3 GreenStep Cities in 2017
- 2018 - Replacement of all streetlights with LEDs

INSTITUTIONAL DEVELOPMENT & NETWORK PARTICIPATION

St. Louis Park works with many partners and participates in both national and state-based networks, including the following:

- The Environment and Sustainability Commission, dedicated to issues related to environmental stewardship and sustainability in the city; 13 members, includes 2 youth¹⁹
- The Environment and Sustainability Coordinator oversees efforts within Administrative Services department²⁰
- Fourth Minnesota city to partner with Xcel Energy in the Partners in Energy (PIE) program
- Partnered with iMatter, youth focused nonprofit, organizing the Climate Inheritance Resolution, and continues active partnership with local youth
- Utilizes the Regional Indicators Initiative to track results and monitor performance.
- One of five cities selected as a partner city in the Local Government Project for Energy Planning (LoGoPEP) project; first city to utilize the Wedge Tool to establish specific goals and policies in the Climate Action Plan
- Partnered with Minnesota Pollution Control Agency and the University of Maryland receiving a Rough Scope 3 Emissions assessment
- Became one of 65 U.S. cities, including Minneapolis, with 100% renewable energy goals
- In 2016, St. Louis Park was selected as one of five LoGoPEP pilot partner cities
- Joined Minnesota’s GreenStep Cities program and achieved “Step Three” status; striving to achieve Step 4 by 2019

¹⁹ St. Louis Park, <https://www.stlouispark.org/government/boards-commissions/environment-sustainability>

²⁰ St. Louis Park, *Environment & Sustainability*, <https://www.stlouispark.org/government/environment-sustainability>

LESSONS LEARNED

- ✓ **Work with youth** – Building a better community means allowing leadership from various demographics. The youth partnership brings a different perspective to the table, which is very important as city staff and council are making decisions today that impact the future.
- ✓ **Use Data** – Data driven decisions are key to achieving goals and writing policy.
- ✓ **City leadership** – although city-only GHG emissions are less than 2% of the total, we must lead by example and show what is possible.
- ✓ **Keep moving forward, meet goals and set goals iteratively.** Use plans and policy to work towards achieving goals, knowing that a change of course may be needed at times.
- ✓ **Partners, collaborations** – Include as many stakeholders into the process as possible to make for a better plan. Using the Wedge Tool from LoGoPep helped us improve the goal setting process for the CAP.

IN DEPTH: CITY ACTIONS

RENEWABLE ENERGY

St. Louis Park has benefited from an in-depth analysis of its wind and solar resources. These existing conditions will be included in the Existing Energy Conditions in the city's upcoming 2018 Comprehensive Plan.

SOLAR RESOURCES

The University of Minnesota developed a high-resolution statewide solar resource map that allows cities to calculate how much electricity they could potentially receive from locally installed solar energy systems. These data (see map, next page) were used to calculate the solar resource, or the city's "solar reserves," in St. Louis Park. The solar reserves are how much solar energy is reasonably economically available for development, similar to the way in which oil or gas reserves are measured. The solar map shows the good sites for solar installations and helps identify where there may be land use conflicts with solar development. Table 2, below, shows the amount of solar energy reasonably available for development in St. Louis Park. The gross potential includes the total available resource, regardless of location; rooftop capacity and generation include only the resource available on the rooftops of commercial buildings located in the city.

Community	Total Generation Potential	Rooftop Generation Potential	Rooftop Capacity	Top 10 Rooftop Potential
St. Louis Park	1,202,804 MWh/year	216,713 MWh/year	167 MW	22,495 MWh/year

Table 2. St. Louis Park Rooftop Solar Resource

The total capacity of the economic rooftop solar resource in St. Louis Park is 167 MW, equal to approximately 55% of all the electricity consumed in the city. This means that if the city wanted to maximize its entire rooftop solar resource, it could set a solar generation goal of up to 45% on-site solar generation (note: this is an upper limit and does not consider individual site limitations due to roof structure, ownership, or local regulations that might limit solar installations). The State mandates 1.5% of electricity must be generated from solar by 2020; St. Louis Park could achieve this goal if solar were installed on the ten buildings with the greatest solar potential. If buildings undergo high levels of energy efficiency investment, the solar resource could meet a higher percentage of electric needs. The efficiency and solar resources are, in this analysis, calculated independently of each other.

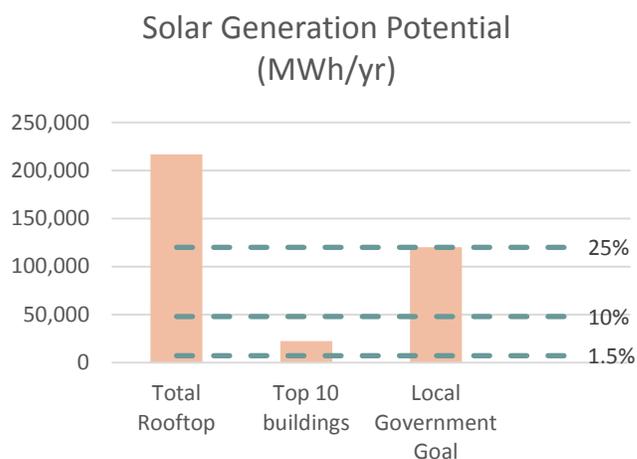


Figure 8 Example of Solar Potential and Community Goal

Solar installations are not limited to rooftop applications. This analysis does not include ground-mount systems, but the city will want to develop criteria for where they would and would not allow solar installations. For instance, commercial parking lots may make good solar resources, or public right of ways; while areas planned for future development or park space may not. These criteria can be used to recalculate potential solar generation and redefine future solar goals for local development.

Xcel Energy’s Community Energy Report states that 11 businesses and 12 residences have solar installations. The business installation has a capacity of 253 kW, and the residential installations combine for 79 kW. In 2016, these residential installations reported a total 5,711 kWh of production.

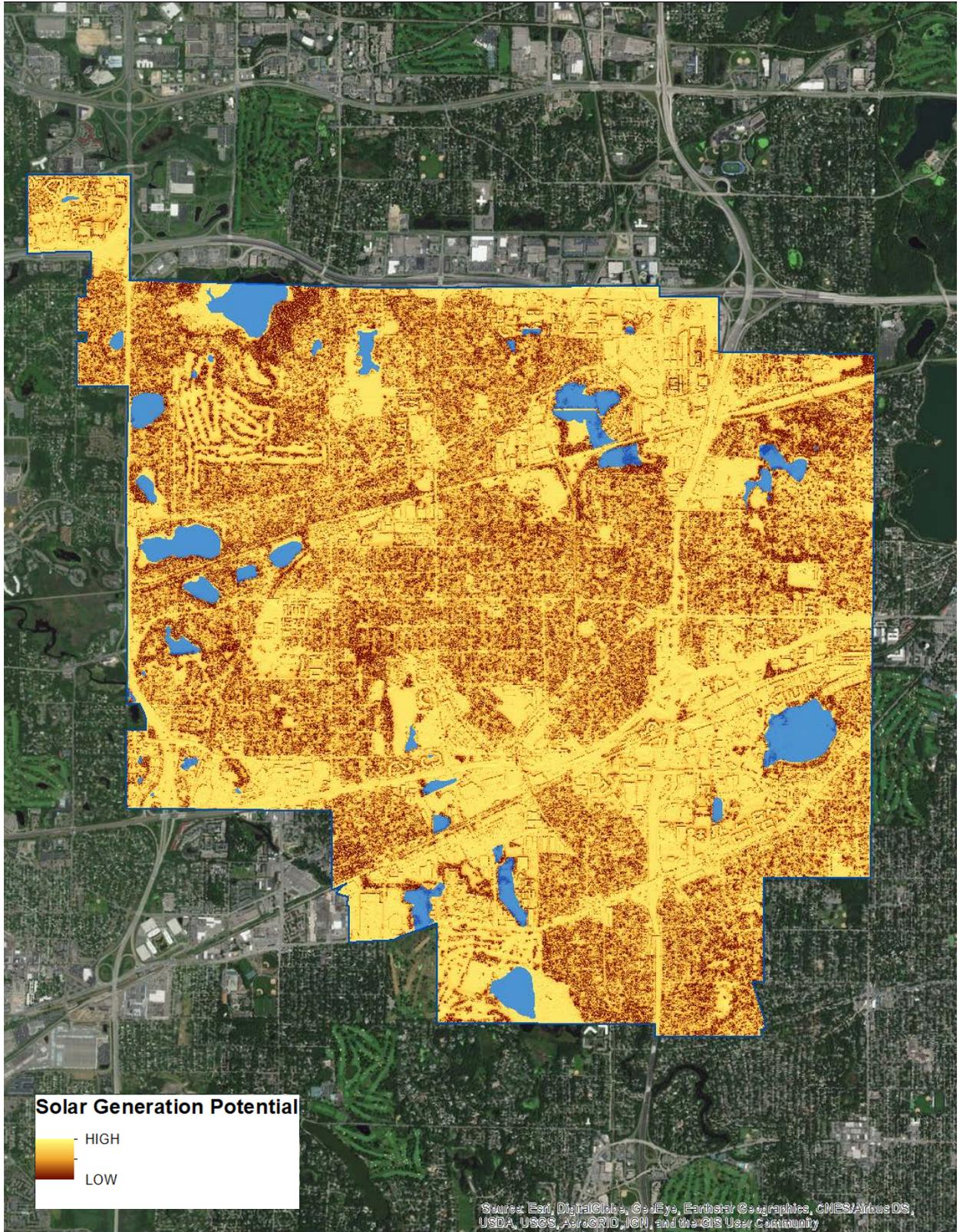


Figure 9 Solar Resource Map

WIND RESOURCES

SITING WIND TURBINES

A good wind energy site needs to meet a number of characteristics, the most important of which is a good wind resource. Other characteristics include soils that can support the weight of the turbine; a site large enough to accommodate safety setbacks from neighboring properties, structures, or other uses; and surrounding land uses for which the visual impact and potential nuisances will not create a conflict. Regarding the wind resource, the height the rotor needs to be at least 30 feet above any disturbance within an ideal radius of 500 feet. The Distributed Wind Energy Association offers this guidance:

The industry guidance on minimum wind turbine height states that the lowest extension of a wind turbine rotor must be 60 feet above the ground, assuming no surrounding obstacles. Where obstacles are present, the wind turbine rotor should be at least 30 feet above the tallest obstacle within a 500-foot radius. If trees are not fully grown, then the tower height must be adjusted for the growth over the next two or so decades, the life of the wind turbine.

St. Louis Park is a suburban community with some urban characteristics and varying suitability for towers above a certain height. The Minnesota Department of Commerce developed wind speed maps at a 500-meter resolution to give a general sense of the wind resource at various tower heights, these are not adequate for a specific site assessment (Figure 9).

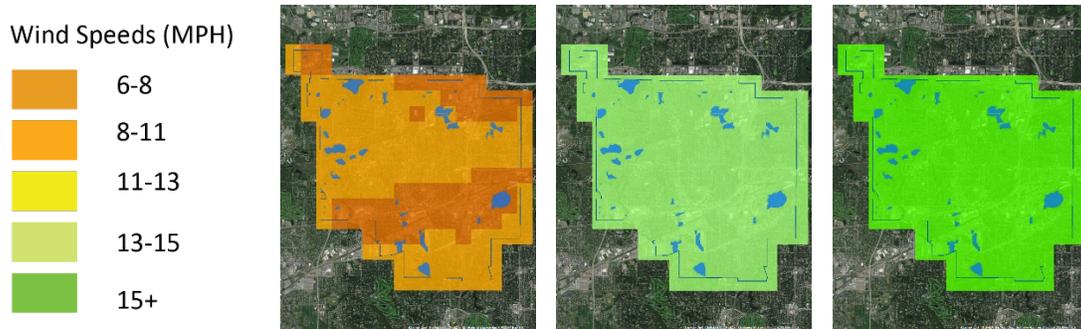


Figure 9 Wind speeds at different tower heights: 30 meters, 80 meters, and 100 meters from left to right. Source: MN Department of Commerce

A good rule of thumb is that 12 mph is typically the minimum average annual wind speed for a good wind resource. At 30 meters, much of St. Louis Park has an average wind speed of less than 11 miles per hour, below the optimal speed needed for a productive wind energy system, suggesting that taller towers would be necessary from a production standpoint. At 80 meters, wind speeds are between 13 and 15 mph, above the minimum wind speed recommendations. At 100 meters, wind speeds are up to 15 mph and higher. While there may be some opportunity to capture the resource at taller tower heights, it may not be feasible in St. Louis Park; the taller towers may run into resistance if residents do not agree that tall wind turbines fit the community's character.

Residents and businesses also have the opportunity to participate in Xcel Energy’s Windsource® or Renewable*Connect programs. These programs provide the clean energy benefit of having local wind (and solar) energy, although the economic benefits of clean energy development are realized elsewhere. According to Xcel Energy, five (5) businesses are subscribed to a total of 28,310 kWh of wind energy, 1,149 residences are subscribed to a total of 2,898,297 kWh of wind energy.

QUESTIONS?

For questions on these activities and to learn more, contact the City of St. Louis Park:

Shannon Pinc
Environment & Sustainability Coordinator
(952) 924-2191
spinc@stlouispark.org

ADDITIONAL RESOURCES

Minnesota’s Local Government Project for Energy Planning (LoGoPEP) builds upon existing efforts to engage local governments in committing to actionable strategies for energy and greenhouse gas emission reductions. LoGoPEP provides communities with planning tools and actual results to measure progress toward their goals. Tools developed for communities can be found on the [LoGoPEP website](#).



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