

IV. RESILIENCE

Resiliency in planning and development helps to ensure the prosperity, livability, equity, and sustainability of a community for future generations. Resilience planning focuses on all aspects of community, ensuring the economy, the environment, and social/living conditions are vibrant and upheld through adversity.

A. Resilience Goals and Policies

Goal: Encourage the use of renewable, local and diverse forms of energy in order to increase use of local resources, mitigate the local risk from fossil fuel scarcity and price increases, and help meet Minnesota's climate protection goals.

Objectives:

- Encourage the use of alternative renewable heating fuels as biomass while establishing standards to limit nuisances associated with such systems.
- Encourage the use of alternative fuels and alternative means of transportation for City residents and businesses.

Goal: Encourage energy efficient housing that exceeds the minimum efficiency levels required in the State building codes.

Objectives:

- Protect solar access for homes and businesses.
- Promote the use of renewable energy systems on housing and in areas where such systems can be safely operated and produce a minimum level of visual impact.

Goal: Review the goals of the Minnesota GreenStep Cities Program. Implement GreenStep Cities Best Practices as appropriate.

B. Solar

The Metropolitan Land Planning Act (Minnesota Statutes 473.859, Subd. 2) requires local comprehensive plans to include for the protection and development of access to direct sunlight for solar energy systems.

Within Scandia's development code, the administration chapter details the allowance of variances in regard to solar access. § 6.4.7 reads, "Practical difficulties include, but are not limited to, inadequate access to direct sunlight for solar energy systems."

Also, the subdivision regulations, in § 13.2.7, states "All new subdivisions, where appropriate, should be designed to accommodate use of passive and active solar energy systems with special attention given to street, lot and building orientation."

According to the Metropolitan Council, Scandia has the following solar potential, detailed in Table 17. These calculations assume a 10% conversion efficiency and current (2016/17) solar technologies. The average home in Minnesota consumes between 9 and 10 Mwh/year (Solar Energy Industries Association; US Energy Information Administration). Using only Scandia's rooftop generation potential, between 2,778 and 3,086 homes could be powered by solar energy annually.

Table IV-A – Solar Resource Calculations			
Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr²)	Rooftop Generation Potential (Mwh/yr²)
51,157,938	277,765	5,115,793	27,776

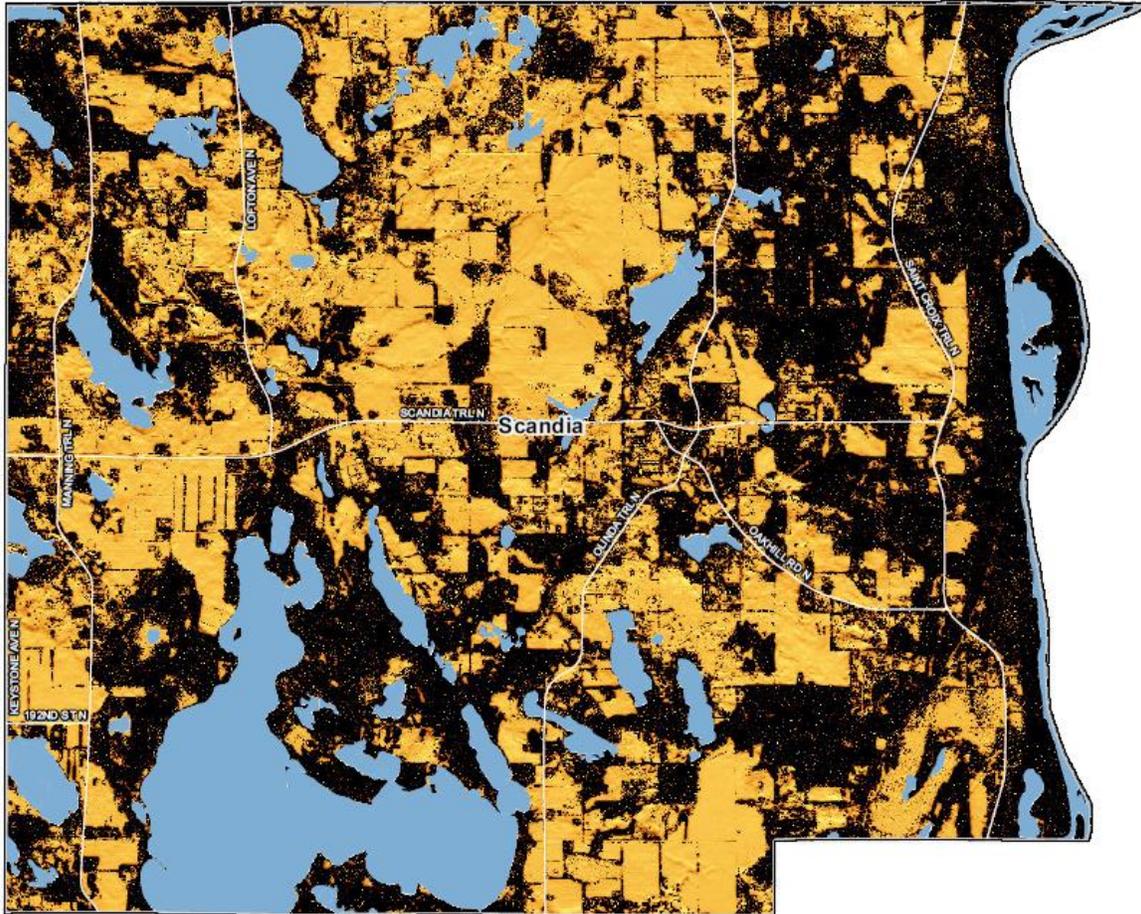
Source: Metropolitan Council

These calculations done by the Metropolitan Council are not necessarily an absolute number. Due to limitations in data and maps, some areas may be left out from gross and rooftop potential.

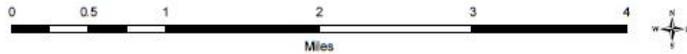
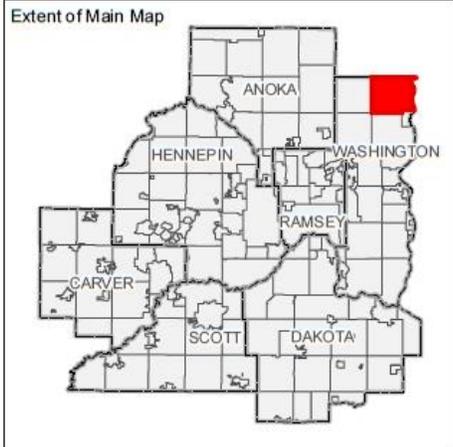
These numbers should be interpreted as a baseline; if more accurate numbers are desired, the Metropolitan Council advice a more extensive, community-specific analysis of solar development potential for both solar gardens and rooftop or accessory use installations. On average, communities would be able to expect between 30% and 60% of total energy used to be able to be generated by solar rooftops. The rooftop potential estimated here does not consider ownership, financial barriers, or building-specific structural limitations. Solar potential in the City of Scandia is displayed in Figure IV-A.

Figure IV-A - Solar Potential Map

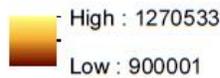
Gross Solar Potential
City of Scandia, Washington County



1/8/2017



Gross Solar Potential
(Watt-hours per Year)



■ Solar Potential under 900,000 watt-hours per year

▬ County Boundaries

▬ City and Township Boundaries

■ Wetlands and Open Water Features

Source: University of Minnesota U-Spatial Statewide Solar Raster.

C. Minnesota GreenStep Cities

In May 2014, the City Council approved a resolution to make Scandia a GreenStep City through the MPCA and League of Minnesota Cities' program. As of 2017, the city has implemented 11 actions for four best management practices: buildings and lighting, land use, environmental management, and economic and community development. Scandia is currently a Step 1 City but is anticipated to achieve Step 2 in June 2018.

- **Buildings and Lighting** – Scandia has implemented two actions in efficiency in building operations and lighting. The city has earned two stars for entering building information in the Minnesota B3 Benchmarking database, allowing the city to track their monthly energy and water use in all city-owned buildings. Scandia has also earned one star for the use of a solar-powered light on the flagpole of the Veterans Memorial in Lilleskogen Park.
- **Land Use** – The city has implemented three actions regarding comprehensive plans and two practices for natural resource conservation design.

In comprehensive planning, Scandia has earned one star for adopting a comprehensive, long-range land use plan and another star for updating its zoning code and ordinances with the comprehensive plan. The city has also earned two stars for adopting the Carnelian-Marine St. Croix's watershed plan and for entering agreements with May Township and Osceola, WI. Scandia provides fire services to a portion of May Township, and Scandia entered a mutual aid agreement with Osceola in 2009.

In natural resource conservation design, the city has earned two stars for implementing an Open Space Subdivision process that allows development to occur while preserving woodlands, natural corridors, agricultural land, open space, and significant natural resources. Scandia has also earned two stars for adopting a Woodland and Tree Preservation Plan requirement in the City Code. A Woodland Preservation Plan is required whenever significant trees or woodlands exist in a proposed construction zone.

- **Environmental Management** – Scandia has implemented two actions for this best management practice. The city earned two stars for adopting a shoreland overlay district with shoreland management regulations. Scandia also earned one star for contracting with a service provider to provide single-sort curbside recycling for all Scandia households.
- **Economic and Community Development** – The city has implemented two actions for this best management practice area. Scandia has earned two stars for adopting a solar farm and community solar garden ordinance, which has resulted in four solar farms being approved for construction. The city has also earned two stars for partnering with the Gammelgarden to bring a Farmer's Market to Scandia. This effort helped bring fresh, locally grown produce to residents while creating an enjoyable, safe community event in the cultural/social heart of Scandia.

As Scandia plans for the future, it will continue to consider GreenStep City Best Management Practices as they relate to the goals and objectives of this comprehensive plan.