

# POWERING CHELSEA WITH COMMUNITY SOLAR

Visualization of solar array placement (large). *Photo courtesy of Dow Fellows Team.*  
Representation of community solar electricity distribution (inset). *Photo courtesy of CleanTechnica.*

**S**olar for anyone, solar for everyone! This is the call of the growing community solar movement, which seeks to bring affordable electricity generation to households that may not have the capital or ownership status to contract their own solar installation.

With a goal of net-zero electricity emissions by 2035, the Chelsea Sustainability Advisory Committee is considering a community-distributed solar program to green its municipally-owned power grid. The community solar model works by allowing households to subscribe to a portion of the electricity generated by a solar array and receive utilities tax credit based on their share of the power produced. Community solar projects are currently online in over 40 U.S. states, and can be especially impactful when catered to households in need and subscribers who could not otherwise access the economic and environmental benefits of solar energy generation.

A 2020 Dow Sustainability Fellows team partnered with the City of Chelsea, Michigan, to evaluate the feasibility of a community solar installation through a series of financial, environmental, regulatory, and stakeholder analyses geared toward low-to-middle (LMI) income subscribers. With expertise spanning sustainability, engineering, law, business, and public policy, the team brought a strong interdisciplinary perspective to the project and produced a detailed roadmap for Chelsea to integrate a cost-effective community solar program into its renewable energy portfolio.

**//** The City of Chelsea stressed a low-to-middle income component for the community solar project, which we thought was a great way to incorporate equity,”

— Elena Essa, *Dow Fellows Team*

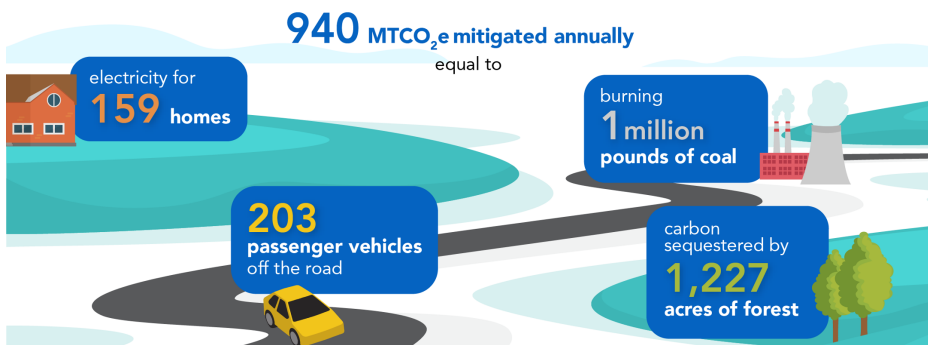
## FROM WORDS TO WATTS: NEXT STEPS FOR CHELSEA

Following extensive analyses, the Dow Fellows determined two sites with optimal shading and sun-angle conditions for a glimmering 1MW solar array. The team also proposed a financing model with opportunities for lasting public-private partnerships and identified a host of potential stakeholders to support the implementation of an inclusive community solar project. These stakeholders include faith-based organizations, solar developers, small businesses, and community action groups.

With siting options at the Wastewater Treatment Plant and the Water Treatment Plant, implementing a community solar program has the potential to bring underutilized public land into production and beautify the grounds with vibrant native plant gardens that are pollinator-friendly and aesthetically pleasing. Recommendations from the team center on sustainable financing for lower-income households and transparent marketing of the program.

The Dow Fellows team laid much of the groundwork for the City of Chelsea to move forward with its community solar project. The team provided the tools for Chelsea to accomplish all of the following:

- Maximize the energy production and efficiency of a solar array through site-specific placement and orientation
- Finance a subscriber community solar project with or without a tax equity investor
- Create opportunities for low-income households to qualify for subscription through affordable financing options and inclusive eligibility requirements
- Make significant progress towards the city’s renewable energy production and carbon emissions goals



Chelsea’s proposed 1MW solar array could provide 1.3GW of affordable, clean energy while increasing the city’s renewable portfolio. The Dow Fellows team estimates the project would reduce greenhouse gas emissions by approximately 940 megatons of carbon dioxide annually. *Graphic courtesy of Dow Fellows Team.*

### PROJECT TEAM

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### CLIENT

- **City of Chelsea, Michigan**

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This project addresses the following United Nations Sustainable Development Goals.

## SUSTAINABLE DEVELOPMENT GOALS

