**U.S. Department of Energy (DOE)  
Clean Energy to Communities (C2C) Program**

Summary of Technical Assistance (TA) Support

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| Icon  Description automatically generatedBuildings |
| Icon  Description automatically generatedClean Power |
| Climate Mitigation and Resilience |
| Cross-Sectoral Justice |
| A picture containing text, clipart  Description automatically generatedJobs and Economic Development |
| Icon  Description automatically generatedMobility |

**Lansing, Michigan**

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From September 2023 through May 2024, the National Renewable Energy Laboratory (NREL) and Oak Ridge National Laboratory (ORNL) provided technical assistance in three different areas:

* Geothermal system design: ORNL provided analysis on estimated building loads for the new construction Lansing Complex and sizing a ground-source heat pump (GSHP) system to reduce heating and cooling loads compared to a traditional heating, ventilation, and air conditioning system
* Techno-economic analysis: NREL provided REopt techno-economic analysis of solar and storage plus a geothermal heating and cooling system for this building
* Regulatory environment study: NREL provided an analysis of the regulatory environment and permitting needs for geothermal heating and cooling.

 Impact

The analysis on the potential savings of a GSHP allowed the City of Lansing to justify the greater upfront cost and incorporate the novel system, as well as solar, into the building design. The analysis on available incentives and regulatory requirement also supported their decision to move forward with the project.

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**Background**

Ann Arbor is a city of approximately 122,000 people located in southeast Michigan. The city and its residents are leaders in sustainability and climate action. Their A2ZERO Climate Action Plan outlines their just transition pathway to community-wide carbon neutrality by 2030. With equity as a focus, they are implementing strategies to improve home energy efficiency (EE) and electrify appliances. Toward this, the city wants to explore community geothermal heating and cooling to serve a variety of building types including rental and affordable housing. The city has applied to DOE’s Geothermal Heating and Cooling Design and Deployment program and garnered the support of City Council to pursue these projects, but they need to understand the concept’s feasibility in order to make a “go, no-go” decision.

Lansing is a city in Michigan with a population of approximately 100,000. The city is interested in exploring renewable energy (RE) potential at several city sites including a new complex that will house the fire, police, and court systems. Initial estimates (based on work with Arizona State University) suggested this new complex has an RE potential of 2.5 megawatts (MW) of rooftop and 2.5 MW of carport solar potential. The city was interested in a comprehensive techno-economic analysis of solar potential as well as an assessment of a solar and geothermal heating and cooling microgrid system for the complex.

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Description automatically generated with low confidence Expert Match Team

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Sustainability Manager

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Center for Strategic Policy Innovation, non-profit support to the City

For more information, visit:  
**energy.gov/eere/clean-energy-communities-program**

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