

## Grantee's Duties

- A. Project Goal:** The City of Saint Paul will contract with District Energy St. Paul to evaluate the technical feasibility of deploying a geothermal solution at Mount Airy Homes, a District Energy customer located near downtown Saint Paul. The feasibility study will help to determine reliability and function for the 301 townhomes, and the nearby community center to transition the current production substation to an independent geothermal network loop. The study will help to clarify the reduction in greenhouse gas emissions and the cost benefit of the transition.
- B. The Grantee shall do all things necessary, including partnering with subcontractors, to complete the following tasks according to the following schedule:**

| Task           | Description  | Completion Date |
|----------------|--|-----------------|
| <b>Task 1.</b> | <b>Analysis of Heating/Cooling Demand</b>  | 8/29/2025       |
| 1.1.           | Identify the proposed service area and evaluate the HVAC systems for compatibility and limitations. This will include Mt. Airy homes, the community center, boys and girls club, and the Mt. Airy hi-rise.   |                 |
| 1.2.           | Provide mapping of the existing distribution network, including current unit entry locations.  |                 |
| 1.3.           | Evaluate historical heating demand and use profiles in aggregate for the system, with estimated per unit values.   |                 |
| 1.4.           | <b>Deliverable:</b> Provide mapping of the current thermal network to the proposed service area along with projected energy use profiles and any specific HVAC recommendations or limitations. Section of final report on analysis of the heating demand of the building or buildings that would consume energy from the geothermal energy system. |                 |
| <b>Task 2.</b> | <b>Evaluation of Low-Carbon and No-Carbon Solutions</b>  | 9/10/2025       |
| 2.1.           | Conduct desktop research into aquifer thermal energy storage (ATES) as primary geothermal energy solution.   |                 |
| 2.2.           | Evaluate other low-carbon geothermal solutions for integration with, or in lieu of, ATES.  |                 |
| 2.3.           | <b>Deliverable:</b> Section of final report on evaluation of equipment that could be combined with a geo-exchange energy system to meet the townhomes' and the community center's heating and cooling requirements.  |                 |
| <b>Task 3.</b> | <b>Energy Modeling</b>   | 10/1/2025       |
| 3.1.           | Develop an energy model for the proposed district energy system showing peak energy loads and annual energy consumption for the prospective customers of the system. Create model dynamics that enable "what-if" options for multiple customer base scenarios.   |                 |
| 3.2.           | Include model options for the various low-carbon geothermal solutions that are found to be viable for the proposed energy system.  |                 |
| 3.3.           | <b>Deliverable:</b> Section of final report on prospective energy profiles for low-carbon geothermal solutions, including both the customer loads and proposed energy sources.   |                 |
| <b>Task 4.</b> | <b>Geo-exchange Alternatives Analysis &amp; Modeling</b>   | 12/1/2025       |
| 4.1.           | Assess hydrogeologic conditions by reviewing publicly available data on aquifers, including records from local well construction.  |                 |
| 4.2.           | Evaluate groundwater flow and thermal characteristics of the aquifers under the site. Analyze wellfield depth, diameter and other hydrogeologic parameters needed to assess options for appropriate geo-exchange technology compatible with the analysis of the underground conditions.  |                 |
| 4.3.           | Develop an analysis of the optimal geo-exchange technology suitable for the site, and determine optimal locations for supply and injection wellfields.   |                 |
| 4.4.           | Identify city, state, and federal regulatory and permitting requirements such as water rights  |                 |

| Task           | Description   | Completion Date     |
|----------------|---|---------------------|
| 4.5.           | requirements, well construction permit, and other environmental protection requirements.<br><b>Deliverable:</b> Section of final report on analysis of the geologic conditions with supporting tables and figures comparing alternatives and summarizing the preferred approach of geo-exchange technology, expected energy efficiency of the technology, and potential reductions in greenhouse gas emissions. |                     |
| <b>Task 5.</b> | <b>Conceptual Schematic Design</b>  | 1/1/2026            |
| 5.1.           | Develop 30% conceptual design drawings for the proposed mechanical systems that interconnect the low-carbon solution with the identified energy loads.  |                     |
| 5.2.           | <b>Deliverable:</b> 30% design deliverables, including:   |                     |
| 5.2.1          | A basis of design narrative describing the system and how it will operate   |                     |
| 5.2.2          | Major equipment selections  |                     |
| 5.2.3          | General layout of proposed geo-exchange wells and mechanical equipment  |                     |
| 5.2.4          | A schematic flow diagram for the proposed equipment and piping, including schematic design of connection for each proposed building   |                     |
| 5.2.5          | Two-dimensional distribution drawings showing proposed routing of underground piping interconnecting geo-exchange wells with the building being served  |                     |
| 5.2.6          | A basic electrical one-line drawing for the proposed systems  |                     |
| <b>Task 6.</b> | <b>Financial Analysis</b>   | 1/15/2026           |
| 6.1.           | Develop a life cycle cost analysis for the preferred geo-exchange solution(s) comparing costs under the preferred option to the current energy solution serving Mt. Airy residents.   |                     |
| 6.2.           | <b>Deliverable:</b> Section of the report showing financial models with current energy costs under the business-as-usual energy supply scenario and energy costs under the proposed geo-exchange energy solution.   |                     |
| <b>Task 7.</b> | <b>Reporting/Invoicing</b> (submit all reports/invoices via email by the 15th of each month following work completed).  |                     |
| 7.1.           | Conduct phone conferences as needed with the State's Authorized Representative to apprise him/her on progress accomplishments and issues encountered.   | Ongoing             |
| 7.2.           | Schedule project update meetings as necessary to inform the State's Authorized Representative of deviations to the project schedule, the need to modify the scope of the project or at the request of the State's Authorized Representative to discuss any item related to the project's progress.  |                     |
| 7.3.           | On monthly basis submit:  | 9/1/2025 – 3/1/2026 |
| 7.3.1          | Status reports to the State for the preceding month's work detailing progress made toward completing individual project tasks as well as any deviations from the project schedule.  |                     |
| 7.3.2          | Invoices and supporting documentation to the State for the preceding month's work completed within the project scope; and   |                     |
| 7.3.3          | Budget overview for the preceding month's expenses and expenses to date using the details in Exhibit B.   |                     |
| 7.4.           | Submit the Final Report, including executive summary, and a final invoice to the State upon completion of the project. District Energy St. Paul will provide a report brief and energy/financial models that will reflect the recommended geo-exchange solution. It will include recommendations and next steps, with budgets.  | 3/16/2026           |

**C. Promotional Materials** All promotional and informational materials distributed by or for the Grantee shall contain the following statement: "This project was made possible by a grant from the Minnesota Department of Commerce," unless this requirement is waived in writing by the State.

## Grantee's Budget

**Budget:** Eligible costs include actual costs incurred for subcontractors. Other expenses may be eligible only if pre-approved in writing by the State's Authorized Representative.

[Note: all expenses by the Subcontractor should be listed under Subcontractor. For example, if the Subcontractor is purchasing Supplies, that expense is part of the Subcontractor Amount.]

| Category                 | Amount       |
|--------------------------|--------------|
| District Energy St. Paul | \$144,958.33 |
| Grant Award:             | \$           |

|                     |              |
|---------------------|--------------|
| Total Project Cost: | \$144,958.33 |
|---------------------|--------------|