

Seward Heat Loop Project

Sarah Azmi Wendler, Robbin Garber-Slaght, Matt Mitchell, Dave Wesolowski
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Introductions

Project Team Members



Sarah

Project Manager



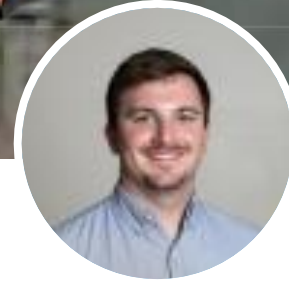
Robbin

Research Engineer



Dave W

Research Tech



Conor

Researcher



Matt Mitchell

Researcher

Project Overview

Project Overview

- Through the Department of Energy's Geothermal Technologies Office, The City of Seward was selected to receive support to enable design and deployment of a community geothermal heating and cooling system that will supply greater than 90% of the heating demand to four of the eight total City buildings.



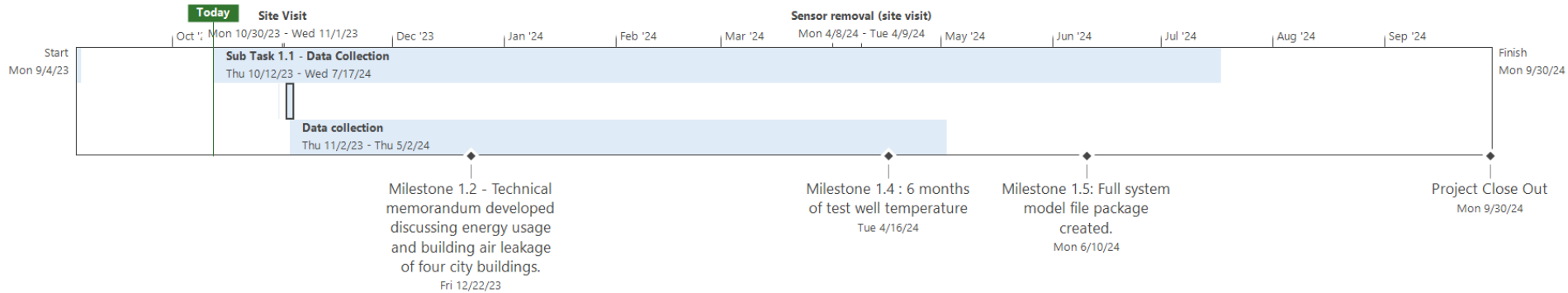
Project Objectives -NREL

NREL's primary project goal is to support The City of Seward in developing and validating a design for a community heating cooling system which meets the project goals of providing more than 90% heating demand for four of the eight City buildings. In support of this primary goal, sub goals are listed below:

- Collect any available metered and utility energy data at the four selected city buildings. Perform level 2 energy audit and blower door test on each of the four city buildings to assess actual energy use and air leakage.
- Collect temperature and salinity vs. depth of water column, and water column depth data on existing well located on beach in Seward, AK. Well log data will be published to the Geothermal Data Repository and used, in part, to help assess the required size and configuration of the geo-exchange wells located on the beach in Seward, AK.
- Develop energy models of four buildings and the thermal network that accounts for pressure and heat loss.
- Develop evaluations to assess system design alternatives.
- Support preparation of documents and budgets, in preparation for phase 2 funding application.

Timeline and Milestones

NREL's Timeline



Deliverables

Task	Description	Deliverable	Date
Sub Task 1.1	Technical memorandum developed discussing energy usage and building air leakage of four city buildings.	Building Audit Report: PDF, Excel	12/22/2023
Sub Task 1.1	6 months of test well temperature, salinity, and water elevation data collected	Data for Geothermal Data Repository: PDF, Excel	4/16/2024
Sub Task 1.2	Full system model file package created. Models will be published to the Geothermal Data Repository.	EnergyPlus, Modelica	6/10/2024

Site Visit

Site Visit

- Tentative Date: 10/30 – 11/1
- Site visit objectives:
 - Kickoff and Network
 - Deploy sensors and begin data collection
 - Building Audit

Site Visit Requests

- Pre-site visit Requests:
 - Test well information:
 - Well depth
 - Well history
 - Is it cased? How deep?
 - Well location
 - is it near a power source?
 - Current well pictures
- Building Audit
 - Building plans + history i.e. remodels etc.
 - Energy data (Min. 1 year of energy usage and cost by month)
 - Plan for buildings to be unoccupied for blower door test and fully accessible i.e. no locked doors

Miscellaneous

Q&A

www.nrel.gov

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