Large-Scale Thermal Program
PON 5614
Round 3 Informational Webinar

Sue Dougherty, Program Manager
Community Thermal Networks
March 19, 2025

NEW YORK STATE | NYSERDA

Meeting Procedures

- ❑ All attendees are muted upon entry
- ❑ Questions and comments may be submitted in writing through the Q&A feature at any time during the event
- ❑ The chat feature will be disabled

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Agenda

- ❑ Large-Scale Thermal definition
- ❑ Program background
- ❑ Eligibility
- ❑ Proposal submission requirements

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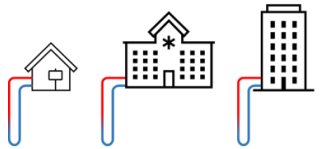
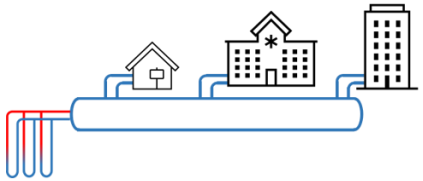
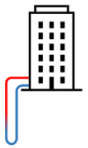
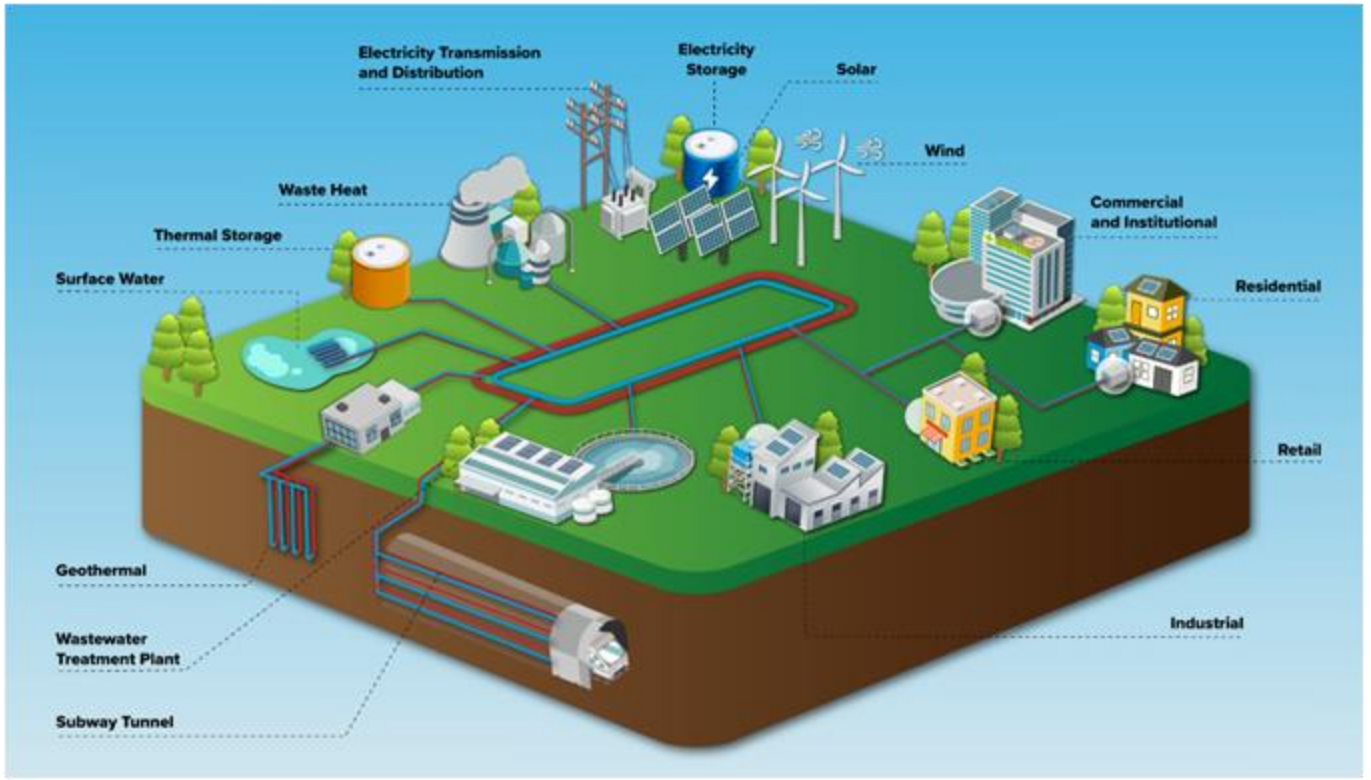
Large-Scale Thermal*

Provides heating, cooling, and hot water to a single building or multiple buildings using **heat pumps** and **low-carbon thermal resources:**

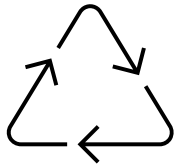
- Geothermal / Ground
- Waste heat
- Surface water
- Wastewater
- Air
- Thermal storage

*Based on eligibility for NYSERDA's PON 5614 Large-Scale Thermal program

Min. Conditioned Space	Standalone	Networked
250,000 SF		
100,000 SF		



Large-Scale Thermal Benefits

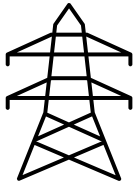


System Efficiency

- Heat pumps
- Heat recovery
- Simultaneous heating/cooling
- Thermal energy sharing

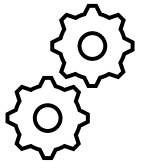
Low Carbon Resources

- Geothermal
- Wastewater
- Surface water
- Local thermal resources



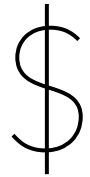
Grid Friendliness

- Integrate thermal storage for peak shaving and load shifting
- Load smoothing through aggregation
- Integrate solar PV, battery storage



Reliability/ Resiliency

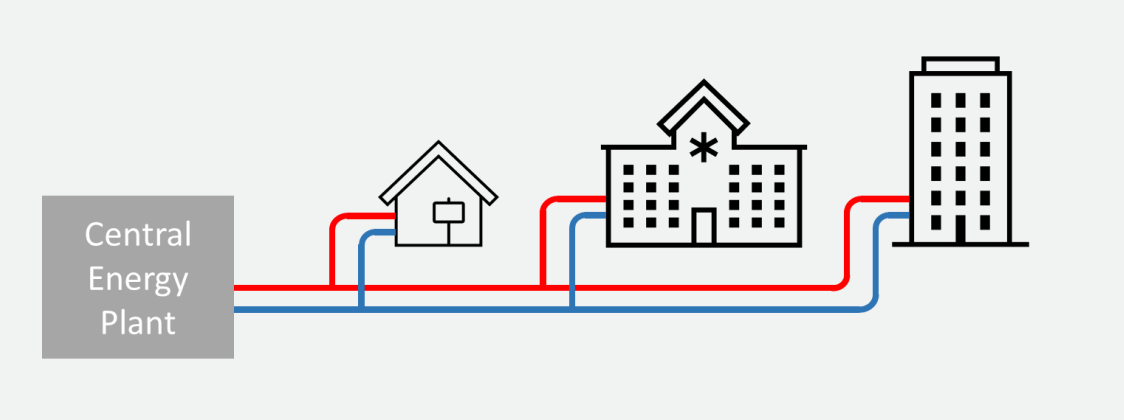
- Multiple thermal resources
- Long useful life of system components
- Underground infrastructure resistant to extreme weather conditions

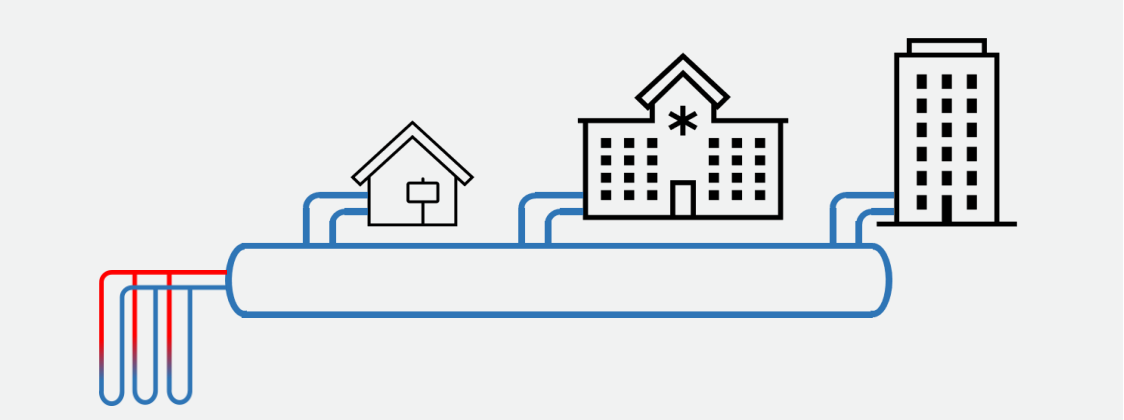


Economics

- Economies of scale with multiple buildings
- Lower lifecycle costs than business as usual option
- Expand system in phases over time

Thermal Energy Network Types





Centralized

- Heat pump(s) at central plant produce hot/chilled water
- Hot/chilled water distributed to each building to provide heating/cooling and domestic hot water

Distributed

- Low temp (“ambient”) water distributed to each building
- Heat pumps in each building provide heating/cooling and domestic hot water

Background

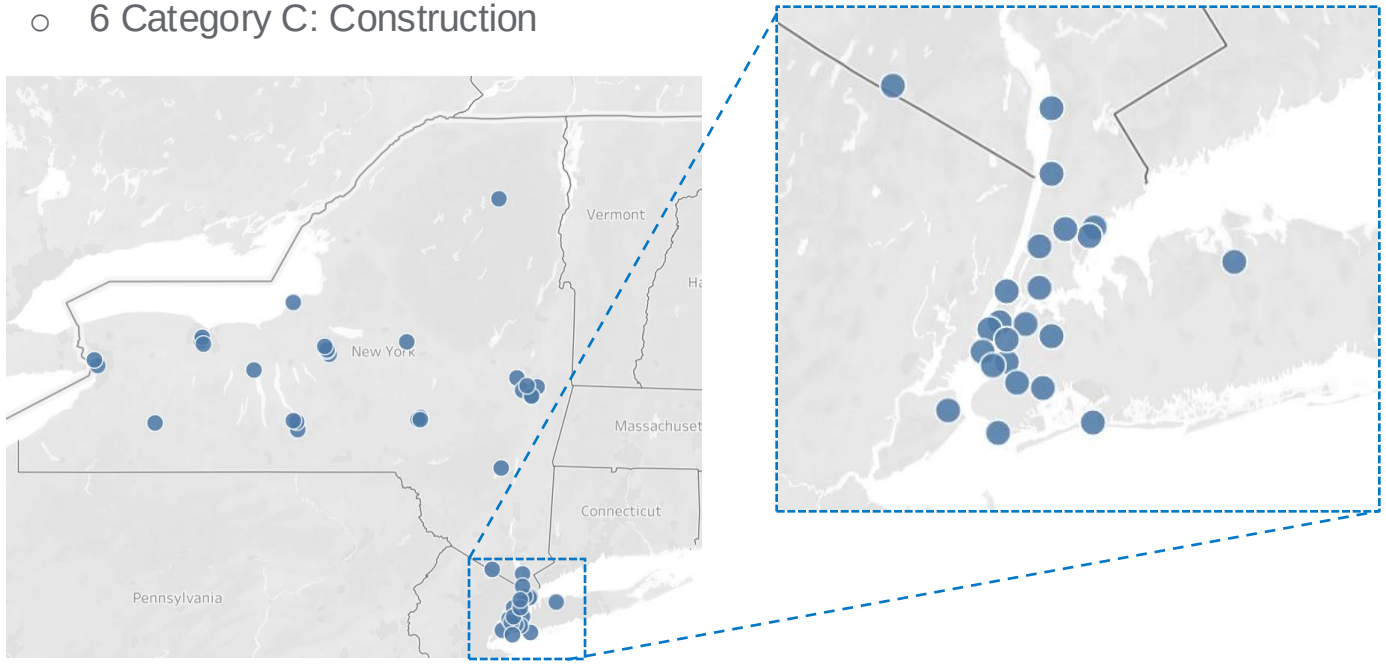
>60% of funded projects are single-owner sites
- College/university campuses
- Medical campuses
- Multifamily residential complexes
- Commercial real estate

50% of funded projects located in Disadvantaged Communities

~33% of total conditioned space in PON 4614 is multi-family in NYC

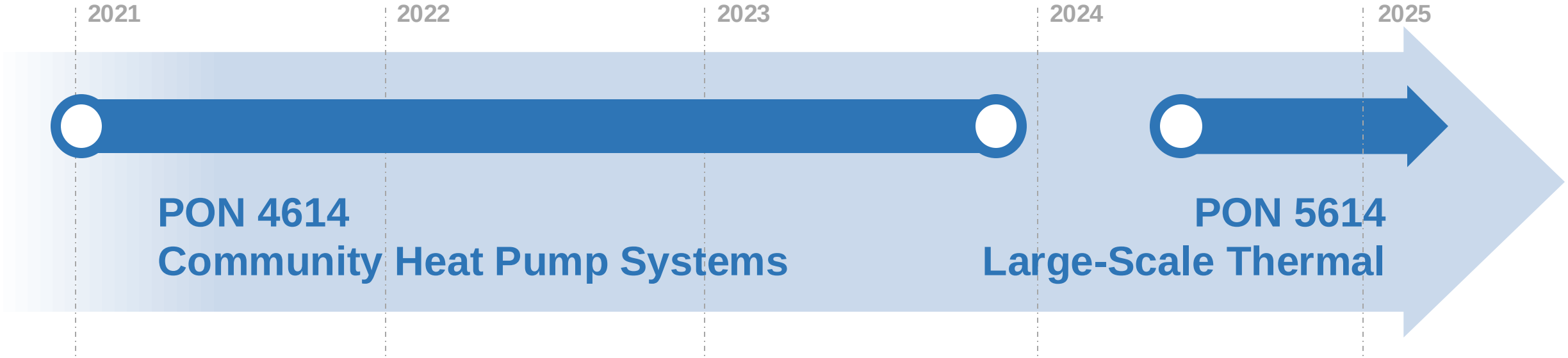
PON 4614: Community Heat Pump Systems

- Pilot program that funded feasibility, design, and construction of Community Heat Pump Systems (aka Thermal Energy Networks)
- 10 funding rounds from Q1 2021 to Q4 2023 [CLOSED]
- Provided funding to 50+ project sites with min. 40,000 SF conditioned space
  - 48 Category A: Feasibility
  - 12 Category B: Design
  - 6 Category C: Construction



https://www.nyserda.ny.gov/All-Programs/Large-Scale-Thermal/Winners

Support for Design Projects



Funding support for **thermal energy networks** (multiple buildings):
(1) **feasibility** studies,
(2) **design** projects, and
(3) **construction** projects

Funding support for single or multiple building **design** projects
(in particular **existing** buildings and **single-owner** campuses)

Large-Scale Thermal (PON 5614)

- Strategic focus on **single-owner projects,** such as educational or medical campuses
- Funding for replicable large-scale thermal system **design projects** that significantly reduce GHG from heating, cooling, and hot water, primarily in existing buildings
- Supports technically and economically feasible projects, such as projects studied in PON 4614 and FlexTech, to become **shovel-ready projects**
- Support for **new feasibility studies** available through NYSERDA's FlexTech program

Colleges and Universities

Medical Campuses

Residential Complexes

Large Commercial Buildings

Multi-owner Nodes

(such as downtown corridors)

PON 5614 Project Attributes

Efficiency	• Designs that minimize energy use and maximize energy recovery to the greatest extent practical • Designs that minimize impact on the grid
Resiliency	• Designs elements that minimize risks of flooding and extreme heat
Economics	• Projects that present a clear business case, economics, and ownership model • Workforce needs
Equity, Customer Engagement and Protections	• Preference for projects that serve low-income[1] housing and/or located in DACs • Tenant outreach and education

1. Low-income is defined as a total household income that is less than 60% of the State median income

PON 5614 Incentives

Funding for replicable large-scale thermal system **design** projects that significantly reduce GHG from heating, cooling, and hot water, primarily in existing buildings.

Single or Multiple Buildings	Minimum Conditioned Space (SF)	Maximum NYSERDA Funding Per Award	Required Proposer Cost-Share
Multiple	250,000	Up to $750,000 (existing buildings[1])	50% of total project cost
Single	100,000	Up to $300,000 (new construction[2])	

1. Total conditioned space ≤ 50% new construction
2. Total conditioned space > 50% new construction

Other Funding Conditions

Eligible Cost-Share:

- Cost-share is a requirement.
- Cost-share may include direct labor (for which the laborer is a paid employee), purchased materials, cash contributions from a co-funder.
- Contributions of unpaid labor or for which the laborer is a municipal official or employee do not qualify as proposer cost-share.

Award Limits:

- Projects are limited to one award per funding round.
- Projects with multiple phases may only receive one award per round but may request a second award for a subsequent project phase.
- Projects may not receive more than two awards total.

Proposer Eligibility

Eligible Proposers

- Team members with experience designing a system of comparable size and complexity
- NYS-licensed PE or NYS-licensed registered architect
- For Geothermal Projects, Certified geothermal designer (CGD)
  - Or a prescribed combination of education/experience
- For projects that address multiple buildings, the team should consider including an organization experienced in direct outreach to customers/building owners
  - Examples include community-based organizations or climate justice advocacy organizations

Preference Given

- Minority-owned and Women-owned business enterprises
- Service-disabled veteran-owned businesses
- Benefit corporations (as defined within Article 17 of NYS Business Corporation Law)

Ineligible

x Utilities subject to UTENJA are **not** eligible to propose

Project Eligibility

Minimum Qualification Requirements

- Project located in New York State
- Project focused on decarbonization of heating/cooling/hot water
- Meet size requirements for single (150,000 sqft) or multiple buildings (250,000 sqft)
- Completed feasibility study (Examples: FlexTech study or PON 4614 Category A feasibility study)

Additional Project Requirements

- Evidence that thermal resource(s) adequate for project
- Project should demonstrate replicability and reference similar use-cases in New York State
- Project should adhere to or exceed existing codes and standards

Preference Given

- Projects in Disadvantaged Community and/or serve low-income housing
- Projects incorporating other decarbonization elements (Examples: solar PV, battery electric storage)

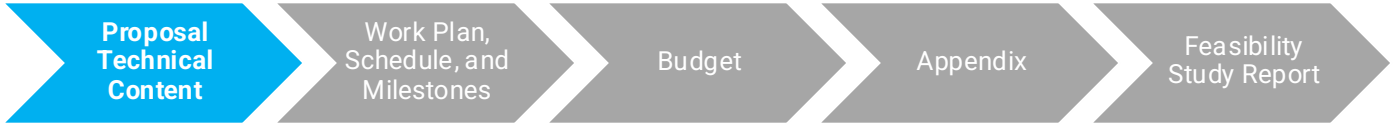
Ineligible

x Design project already funded through NYSERDA or utility program [partial funding available on case-by-case basis]
x Completed design project
x Utility Thermal Energy Network pilot project approved by the Public Service Commission

Proposal Requirements Overview

- Proposal Technical Content
- Work Plan, Schedule, and Milestones
- Budget
- Appendix
- Completed Feasibility Study Report

Section 1: Proposal Technical Content



1. Executive Summary

- Team members
- Buildings served by system
- How the project is an optimal and replicable decarbonization approach for heating/cooling/DHW
- Regulatory issues/permitting/franchising
- Is it located in a disadvantaged community?
- Preliminary financing approach

2. Proposer Information

- Identify team member(s) certified as a PE or RA
- Identify a representative who will sign NYSERDA contract
- Identify all interests/organizations/customers involved

Section 1: Proposal Technical Content

(cont.)

3. Project Description and Benefits

- Objectives and benefits
  - Energy efficiency, impact on DACs and low-income housing, reliability and resiliency, grid impact
- Project site and building characteristics
  - Building types, sizes, loads, existing HVAC equipment; site energy density; climate hazard exposure
- System design
  - Standalone heat pumps, centralized or distributed TEN
  - Thermal resources
  - Waste heat recovery, thermal storage
  - Adjunct renewable electricity and battery storage
  - Climate resiliency considerations
- Business model
  - Ownership structure
  - Lifecycle cost analysis
  - Financing approach
  - System operation and maintenance responsibilities
- Customer engagement and protection

Section 1: Proposal Technical Content

(cont.)

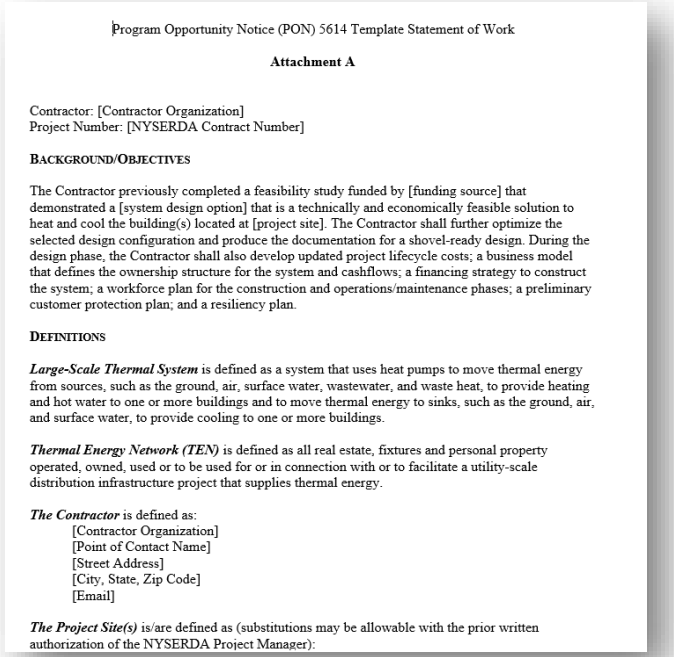
4. Proposer Qualifications

- Proposing organization information
- Organizational chart
- Qualifications of key individuals
- Previous experience

Section 2: Work Plan, Schedule, and Milestones

Use **Attachment A** to complete

1. Work Plan
   - Includes a statement of work
   - Each step used to accomplish project objectives with each task clearly assigned
2. Schedule
   - Schedule tracking major milestones
3. Milestone Payments
   - List of deliverables associated with each task with proposed milestone payments assigned to major deliverables



Program Opportunity Notice (PON) 5614 Template Statement of Work

Attachment A

Contractor: [Contractor Organization]
Project Number: [NYSERDA Contract Number]

BACKGROUND/OBJECTIVES

The Contractor previously completed a feasibility study funded by [funding source] that demonstrated a [system design option] that is a technically and economically feasible solution to heat and cool the building(s) located at [project site]. The Contractor shall further optimize the selected design configuration and produce the documentation for a shovel-ready design. During the design phase, the Contractor shall also develop updated project lifecycle costs; a business model that defines the ownership structure for the system and cashflows; a financing strategy to construct the system; a workforce plan for the construction and operations/maintenance phases; a preliminary customer protection plan; and a resiliency plan.

DEFINITIONS

Large-Scale Thermal System is defined as a system that uses heat pumps to move thermal energy from sources, such as the ground, air, surface water, wastewater, and waste heat, to provide heating and hot water to one or more buildings and to move thermal energy to sinks, such as the ground, air, and surface water, to provide cooling to one or more buildings.

Thermal Energy Network (TEN) is defined as all real estate, fixtures and personal property operated, owned, used or to be used for or in connection with or to facilitate a utility-scale distribution infrastructure project that supplies thermal energy.

The Contractor is defined as:
[Contractor Organization]
[Point of Contact Name]
[Street Address]
[City, State, Zip Code]
[Email]

The Project Site(s) is/are defined as (substitutions may be allowable with the prior written authorization of the NYSERDA Project Manager):

Section 3: Budget

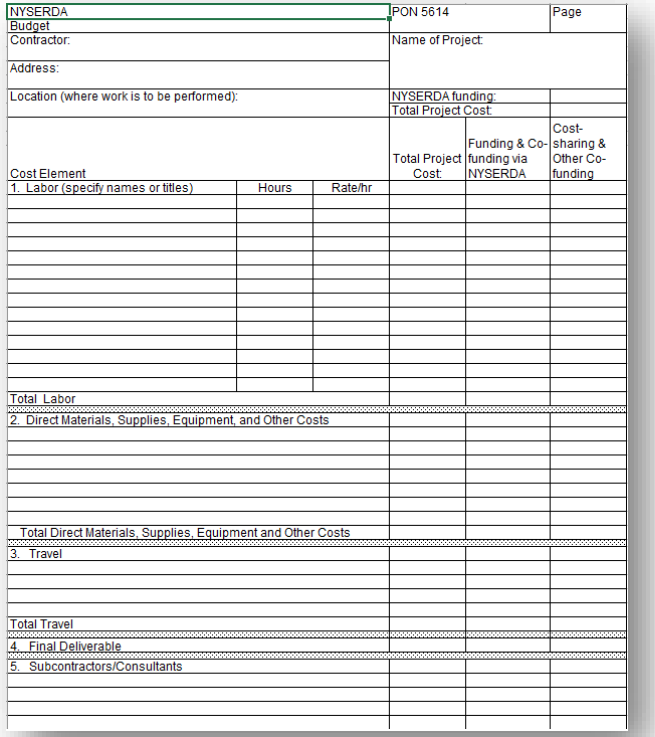
Use **Attachment B** to complete

Tab 1: Budget form

Tab 2: Funding source table

Tab 3: Budget by milestones

Tab 4: Prior/current/competing proposals



NYSERDA			PON 5614		Page
Budget					
Contractor:			Name of Project:		
Address:					
Location (where work is to be performed):			NYSERDA funding:		
			Total Project Cost:		
Cost Element			Total Project Cost:	Funding & Co-funding via NYSERDA	Cost-sharing & Other Co-funding
1. Labor (specify names or titles)	Hours	Rate/hr			
Total Labor					
2. Direct Materials, Supplies, Equipment, and Other Costs					
Total Direct Materials, Supplies, Equipment and Other Costs					
3. Travel					
Total Travel					
4. Final Deliverable					
5. Subcontractors/Consultants					

Section 4: Appendix

1. Letters of support or commitment
2. Resumes
3. Project site ownership documentation
4. Low-income housing documentation
5. Thermal resource testing/data
6. Any additional/supplemental information

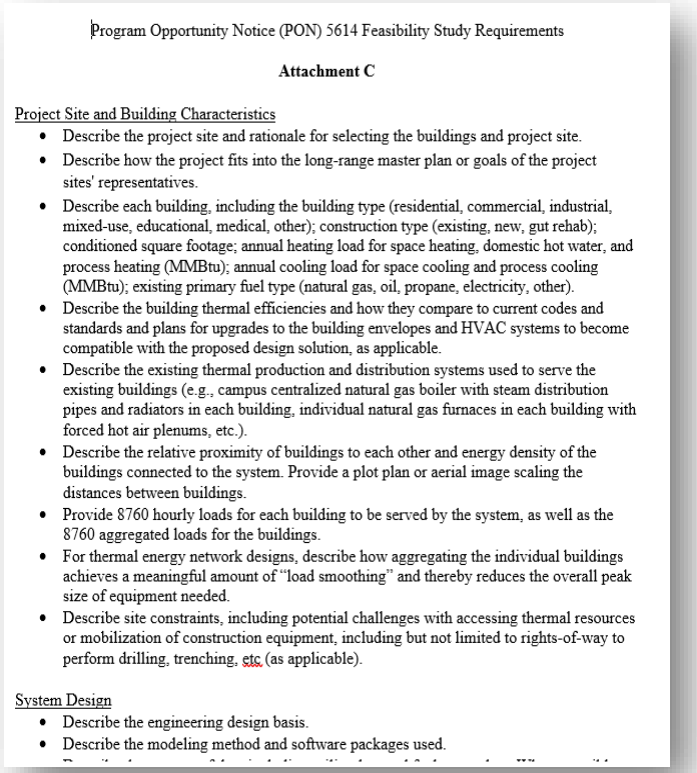
Section 5: Completed Feasibility Study Report

Use **Attachment C** to complete

Proposal Technical Content | Work Plan, Schedule, and Milestones | Budget | Appendix | Feasibility Study Report

A completed feasibility study is a minimum requirement for participation. Must satisfy requirements defined in Attachment C.

PON 4614 Category A study, FlexTech study, or study funded elsewhere can be used to fulfill this requirement.



Program Opportunity Notice (PON) 5614 Feasibility Study Requirements

Attachment C

Project Site and Building Characteristics

- Describe the project site and rationale for selecting the buildings and project site.
- Describe how the project fits into the long-range master plan or goals of the project sites' representatives.
- Describe each building, including the building type (residential, commercial, industrial, mixed-use, educational, medical, other); construction type (existing, new, gut rehab); conditioned square footage; annual heating load for space heating, domestic hot water, and process heating (MMBtu); annual cooling load for space cooling and process cooling (MMBtu); existing primary fuel type (natural gas, oil, propane, electricity, other).
- Describe the building thermal efficiencies and how they compare to current codes and standards and plans for upgrades to the building envelopes and HVAC systems to become compatible with the proposed design solution, as applicable.
- Describe the existing thermal production and distribution systems used to serve the existing buildings (e.g., campus centralized natural gas boiler with steam distribution pipes and radiators in each building, individual natural gas furnaces in each building with forced hot air plenums, etc.).
- Describe the relative proximity of buildings to each other and energy density of the buildings connected to the system. Provide a plot plan or aerial image scaling the distances between buildings.
- Provide 8760 hourly loads for each building to be served by the system, as well as the 8760 aggregated loads for the buildings.
- For thermal energy network designs, describe how aggregating the individual buildings achieves a meaningful amount of "load smoothing" and thereby reduces the overall peak size of equipment needed.
- Describe site constraints, including potential challenges with accessing thermal resources or mobilization of construction equipment, including but not limited to rights-of-way to perform drilling, trenching, etc (as applicable).

System Design

- Describe the engineering design basis.
- Describe the modeling method and software packages used.

Proposal Scoring and Evaluation

PON 5614 is a competitive solicitation, and a scoring committee will evaluate each proposal. Each proposal must first fulfill the minimum proposer and project eligibility requirements; then proposals will be evaluated based on criteria below:

Marketplace Benefits and Impact	Project Economics	Organization, Participation, and Commitment	Other
• Scalability and replicability • System efficiency and GHG reduction • Adherence to codes and best practices • Resiliency, mitigation against future climate conditions • Located in DAC or serving low-income housing • Workforce needs defined • Load diversity to improve performance and reduce infrastructure needs	• Cost reasonable relative to scope • Sufficient cost share amount • Minimum amount of funds requested for a project • Demonstration of technique/method for future designs • Financing strategy and system ownership, operation, maintenance responsibilities defined	• Competencies demonstrated beyond minimum requirements • Likelihood of project implementation • Part of a larger plan • Labor requirements described • MWBE, SDVOB, Benefit Corp, Climate Justice org, CBO, low-income tenant associations • Reasonableness of staffing and schedule	• Reasons for building system and ancillary benefits • Benefits associated with DAC involvement • Customer engagement and protection • Clear and easy to understand proposal/plan • Major assumptions easily defended

Proposal Process

Complete Feasibility Study

Ensure there is thermal resource testing/data

Partner with eligible proposer

- A list of solutions providers available on website: http://www.nyserda.ny.gov/district-thermal-systems
- Providers on the list have not been vetted by NYSERDA

Submit 5614 proposal

Proposer submits application in Salesforce portal before due date

NYSERDA evaluation

- Competitive process
- A proposer not selected may request a debrief and apply under a successive round

Funding awarded

- Funding is disbursed in milestone payments
- Max contract term of 4 years

Program Funding and Rounds

Round 3

Submissions due July 31, 2025 by 3:00 PM Eastern Time

All proposal documents must be submitted through NYSERDA's Salesforce portal:

https://portal.nyserda.ny.gov/CORE_Solicitation_Detail_Page?SolicitationId=a0r8z000000Hl6V

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Getting Started with a Feasibility Study

Step 1:

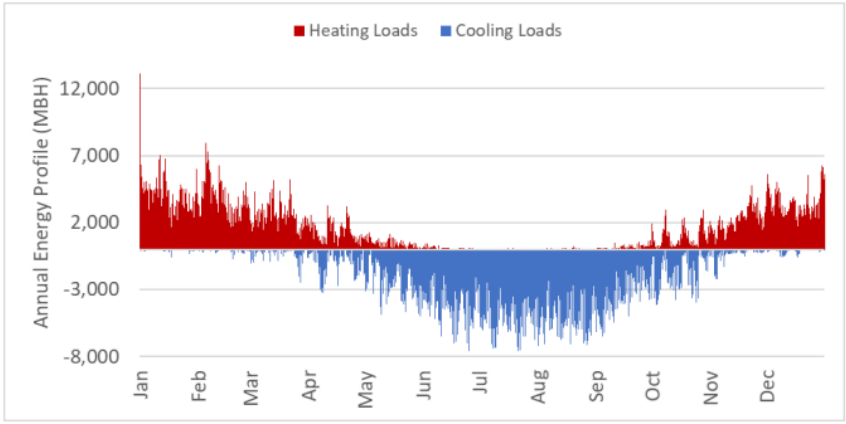
Select solution provider to assist with site energy and decarbonization planning

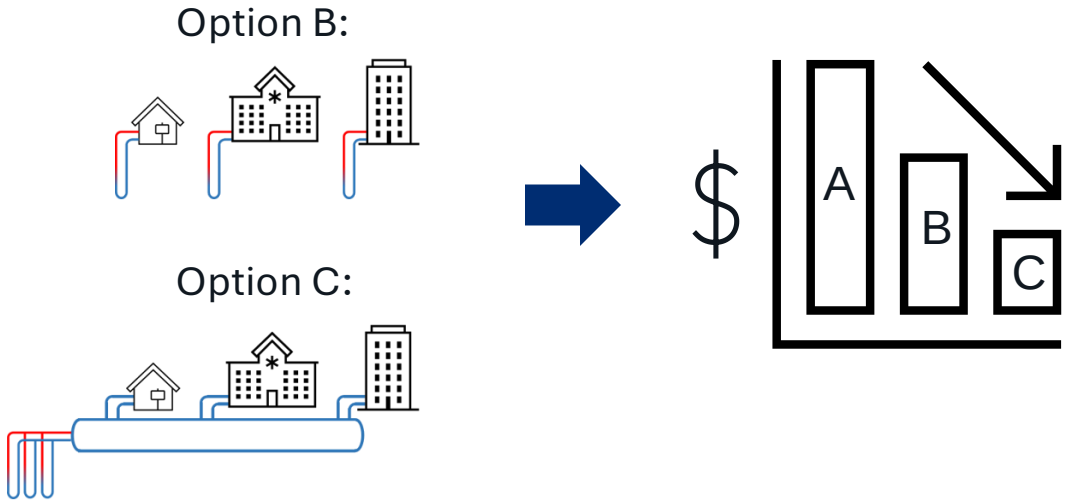
- NYSERDA FlexTech Consultant or an independent solution provider
- Open enrollment, apply anytime

Step 2:

Solution provider performs a feasibility study to evaluate electrification options for heating, cooling, and hot water loads

- NYSERDA's FlexTech program (PON 4192) offers cost-sharing for a study
- Helps building / site owners to select the optimal *technical and economic solution*





Case Studies

1 Java St

Location	Brooklyn
No. Buildings	5
Existing/New	New Construction
Type	Multifamily (20-story, 37-story), retail
Housing Units	834 (30% affordable housing*)
Size (SF)	557,000
Building Owner(s)	Lendlease Real Estate Group
System Cost ($)	~$55M
NYSERDA Award ($)	$3.9M (PON 4614 Category C)
System Design	• 100% electric buildings • Closed loop geothermal • 320 500 FT boreholes under buildings
Project Stage/Status	• Borefield construction complete • Building completion in 2026

*Affordable New York Housing Program

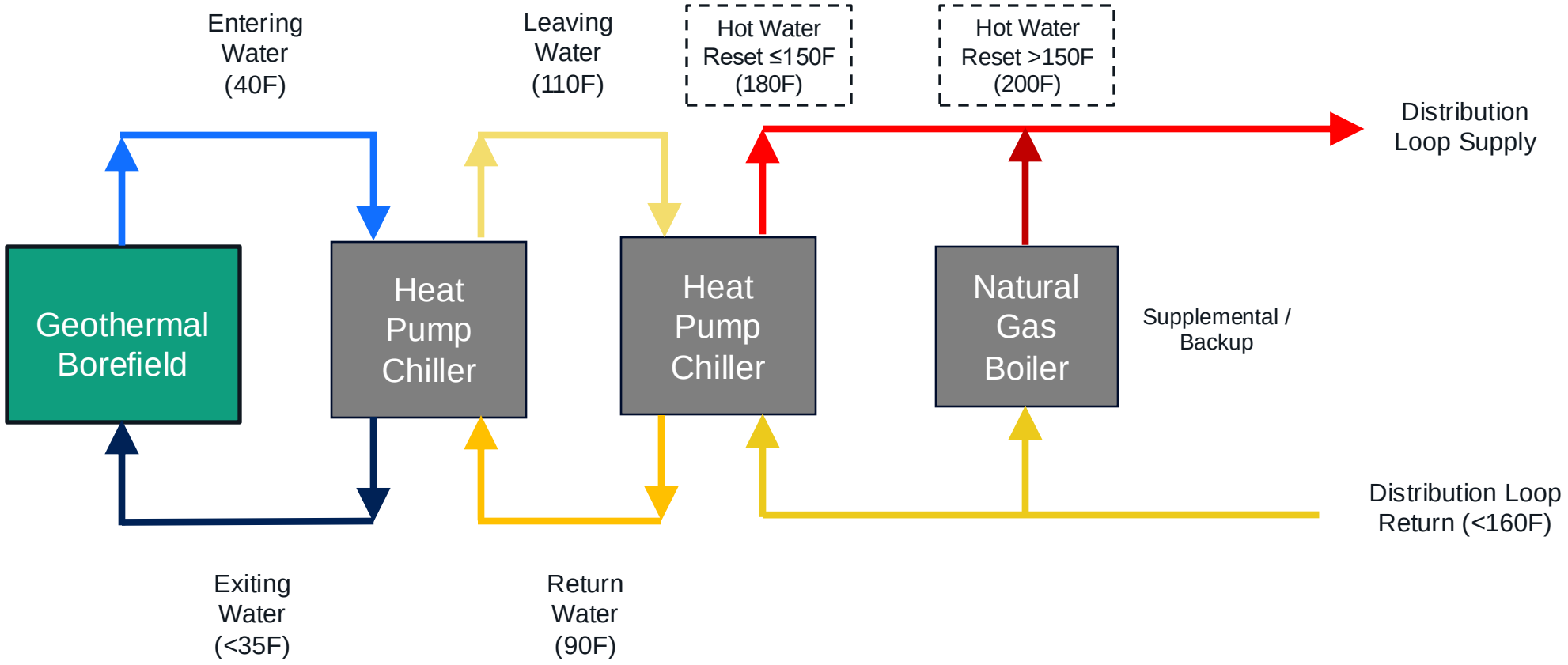
Cornell AgriTech

Location	Geneva
No. Buildings	11
Existing/New	Existing (primarily) New Construction (National Grape Institute)
Type	College campus used for agriculture and food research
Size (SF)	362,419
Building Owner(s)	Cornell University
System (Existing)	• Central plant steam for heating • Distributed air-cooled chillers for cooling
System Design (New)	• Central plant with heat pump chillers • 4-pipe distribution network • Closed loop geothermal • 300 500 FT boreholes • Natural gas boilers for peaking and backup
Project Stage/Status	Design

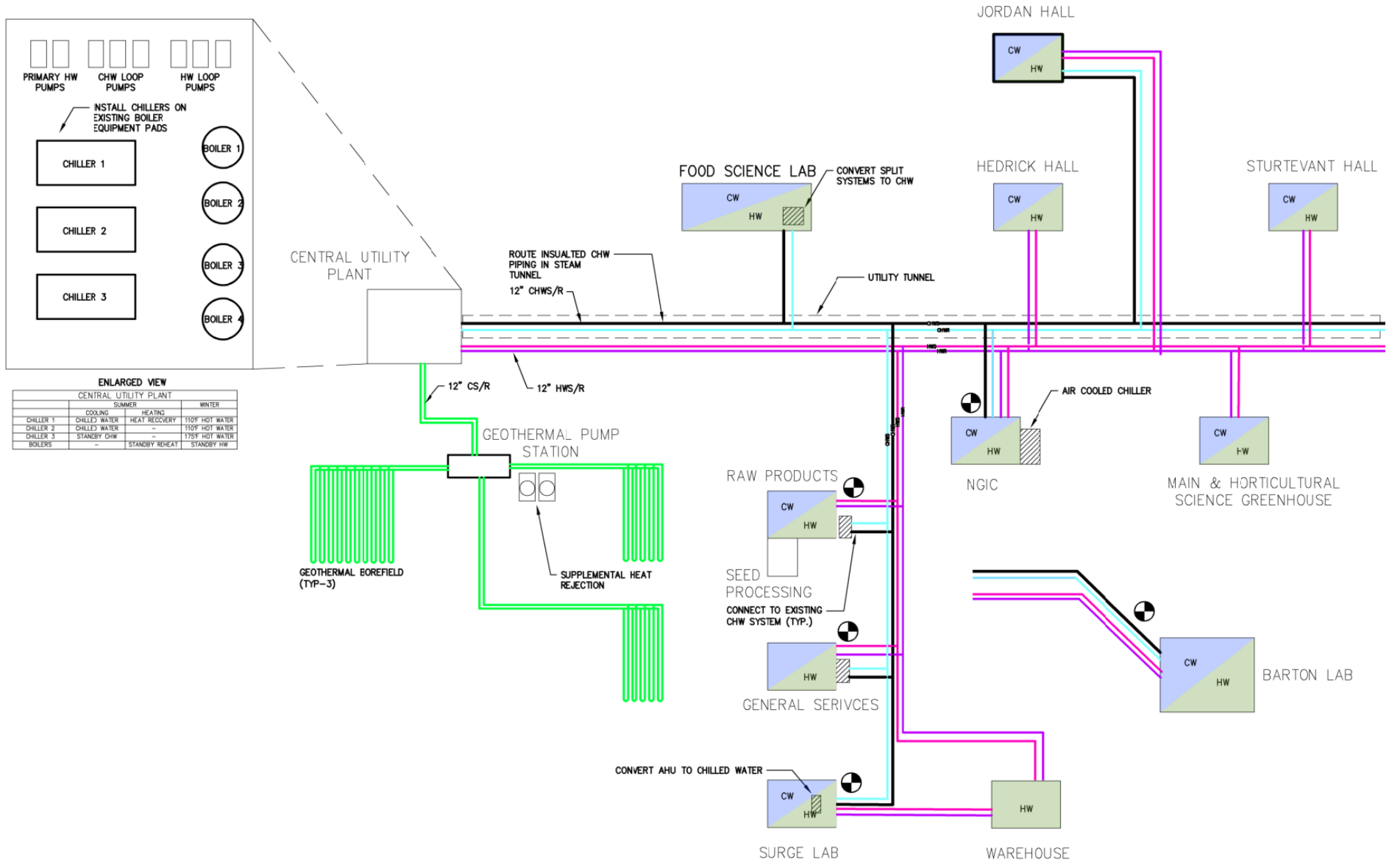
Bldg #	Building Name	Building Address	Type	Square Footage
1	National Grape Institute		Research Lab	60,200
2	Hedrick Hall	635 West North Street	Research Lab	30,061
3	Sturtevant Hall	617 West North Street	Research Lab	21,306
4	Main Greenhouse	14 Castle Creek Drive	Other	14,038
5	Horticultural Sciences Greenhouse	14 Castle Creek Drive	Other	10,427
6	Food Research Laboratory	665 West North Street	Research Lab	84,063
7	Barton Laboratory	15 Castle Creek Drive	Research Lab	82,296
8	Raw Products Building	7 Crabapple Drive	Other	15,183
9	Surge Laboratory	101 Castle Creek Drive	Research Lab	8,909
10	Campus Warehouse	81 Castle Creek Drive	Warehouse	18,502
11	General Services	33 Crabapple Drive	Other	17,434
			Total	**362,419**

Cornell AgriTech

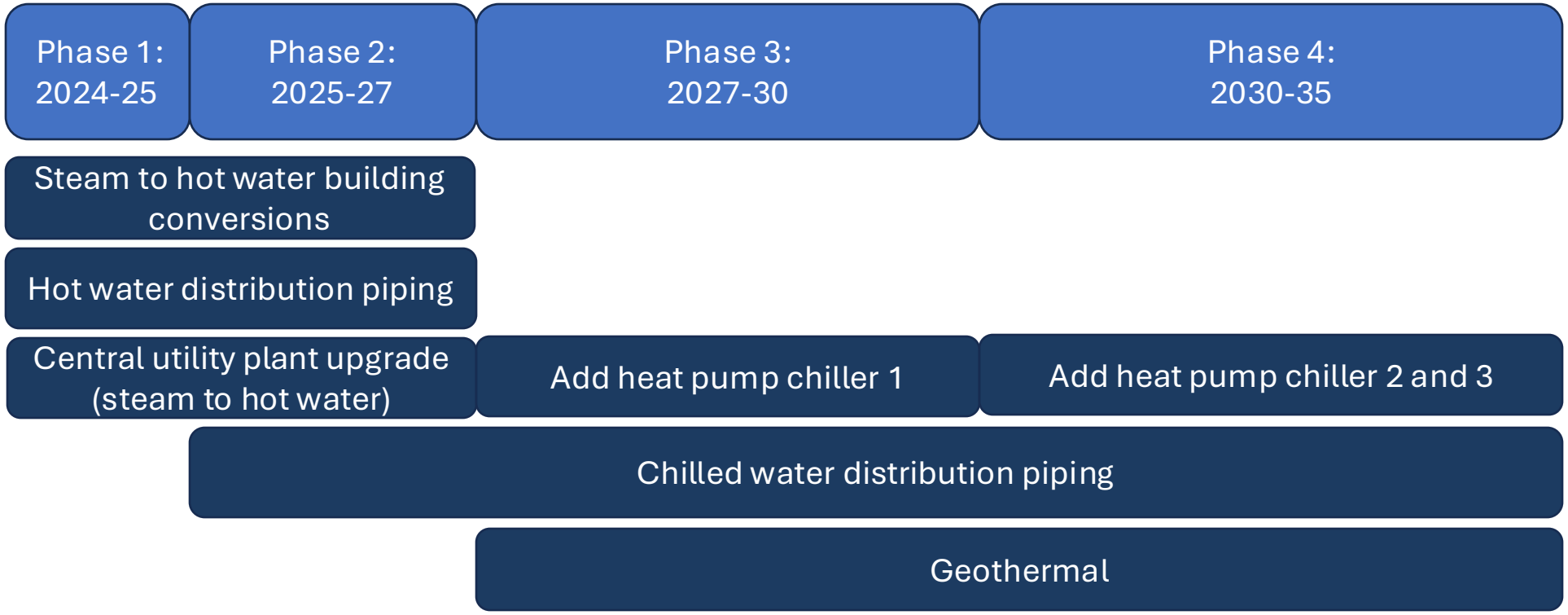
- Greenhouses require >160F for heating loads
- Design includes cascading heat pumps to produce 180F hot water



Cornell AgriTech

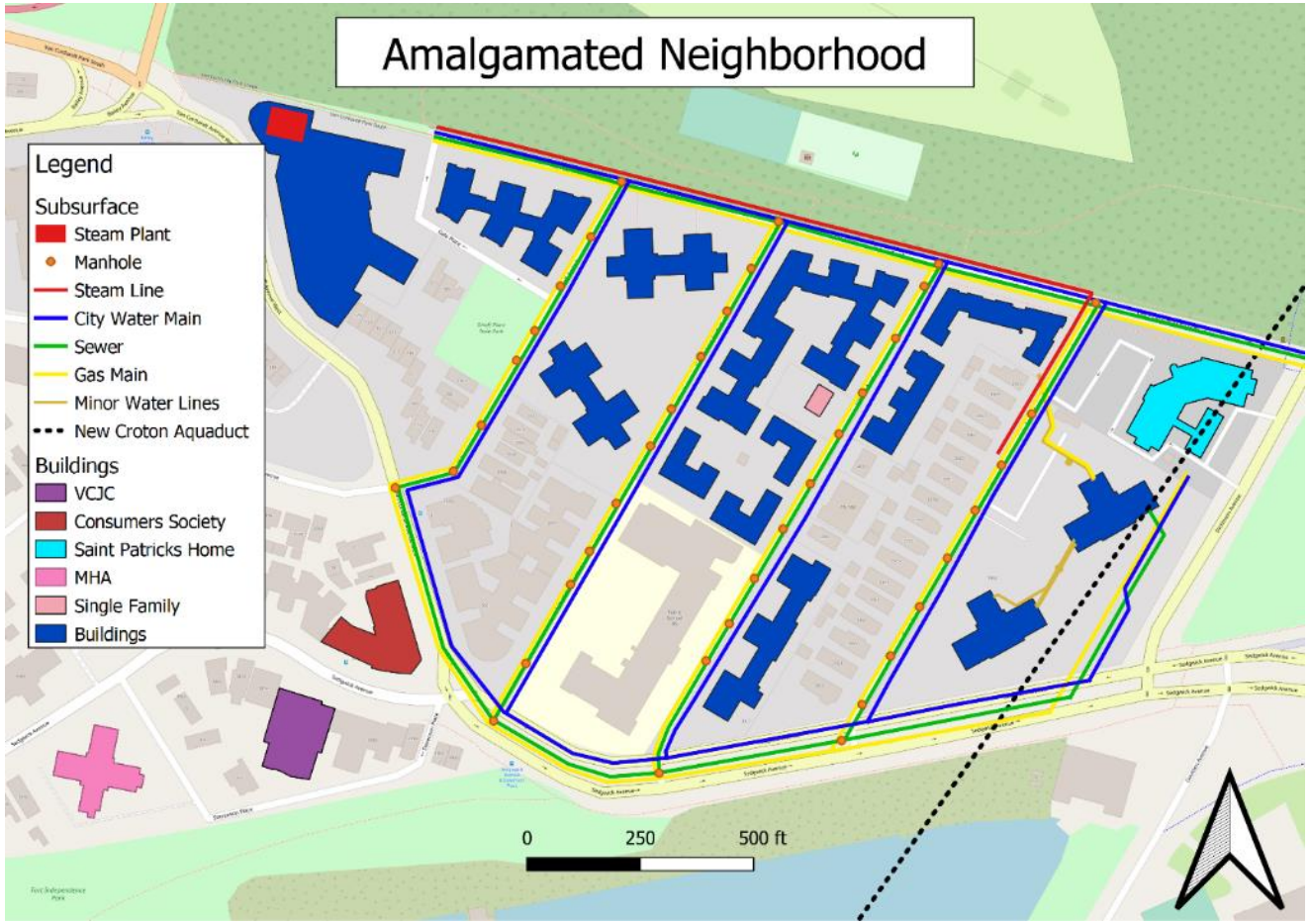


Cornell AgriTech



Amalgamated Housing Corporation

Location	Bronx
No. Buildings	18
Existing/New	Existing
Type	Multifamily
Housing Units	~1,500
Size (SF)	1.6M
Building Owner(s)	Amalgamated Housing Corporation owns most of the buildings
System (Existing)	• Central steam plant for heating, cooling, DHW • Beyond useful life
System Design (New)	• Wastewater heat recovery covers most DHW loads • Closed loop geothermal, inclined drilling • >500 boreholes, up to 850 FT • 1-pipe ambient loop distribution • Geothermal covers ~50% of peak loads and 90% of annual thermal energy • Natural gas for peaking and backup
Project Stage/Status	Feasibility Study



Thank You

Please type your questions in the Q&A tool.

Additional questions can be sent to:
district.thermal@nyserda.ny.gov

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