

Climate Action Plan & Thermal Systems Task Force

Steve Mital, *Director of Energy and Sustainability*

Brian Fox, *AVP Budget, Financial Analysis and Data Analytics*

Reducing Carbon Emissions, Improving Energy Efficiency, and
Maintaining Resiliency



Forum Agenda

- Thermal Systems Task Force Overview
- Energy and GHG Usage on Campus
- Climate Action Plan Successes
- Heating System Engineering Report
 - Replacement Options
- Campus Impacts



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Thermal Systems Task Force

- Task Force Membership:
 - Board members, faculty, students, staff
- Task Force Charter:
 - **Review technical reports**, energy markets/regulations and complete due diligence on a potential thermal system transition
 - **Engage the campus community** on available options and incorporate feedback
 - **Recommend to the president** a long-term plan to support the recapitalization of the UO's campus heating infrastructure, balancing the following goals:
 - reduction of greenhouse gas emissions,
 - resiliency of campus heat production to energy markets and natural hazards,
 - limited disruption to student's campus experience, and
 - appropriate fiscal stewardship.



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Thermal Systems Task Force Timeline

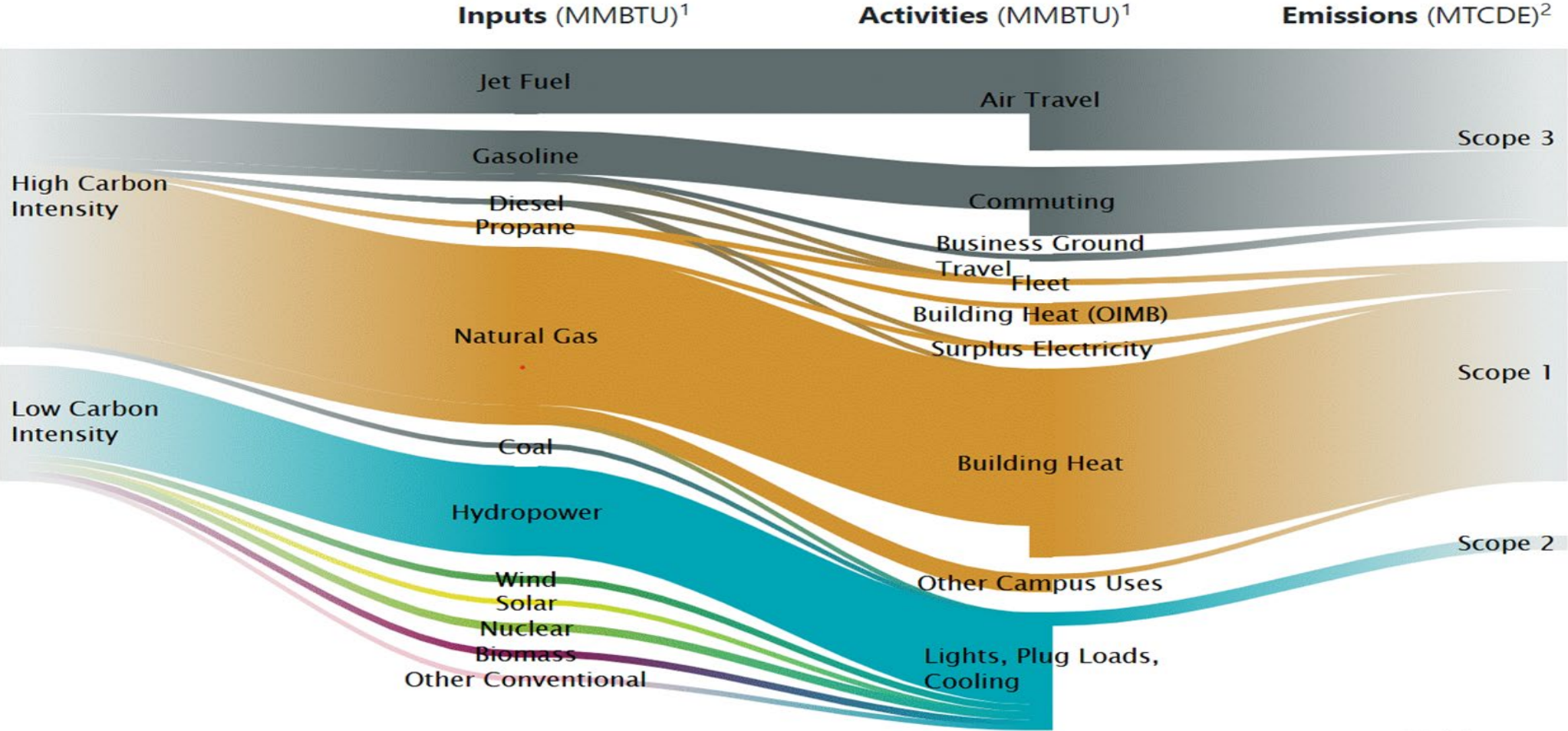
- Fall 2022
 - Task Force review phase I heating study, UO emissions, set workplan
 - Commission phase II technical analysis
- Winter 2023
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 - Launch CAP 3



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University of Oregon Energy Flow FY20



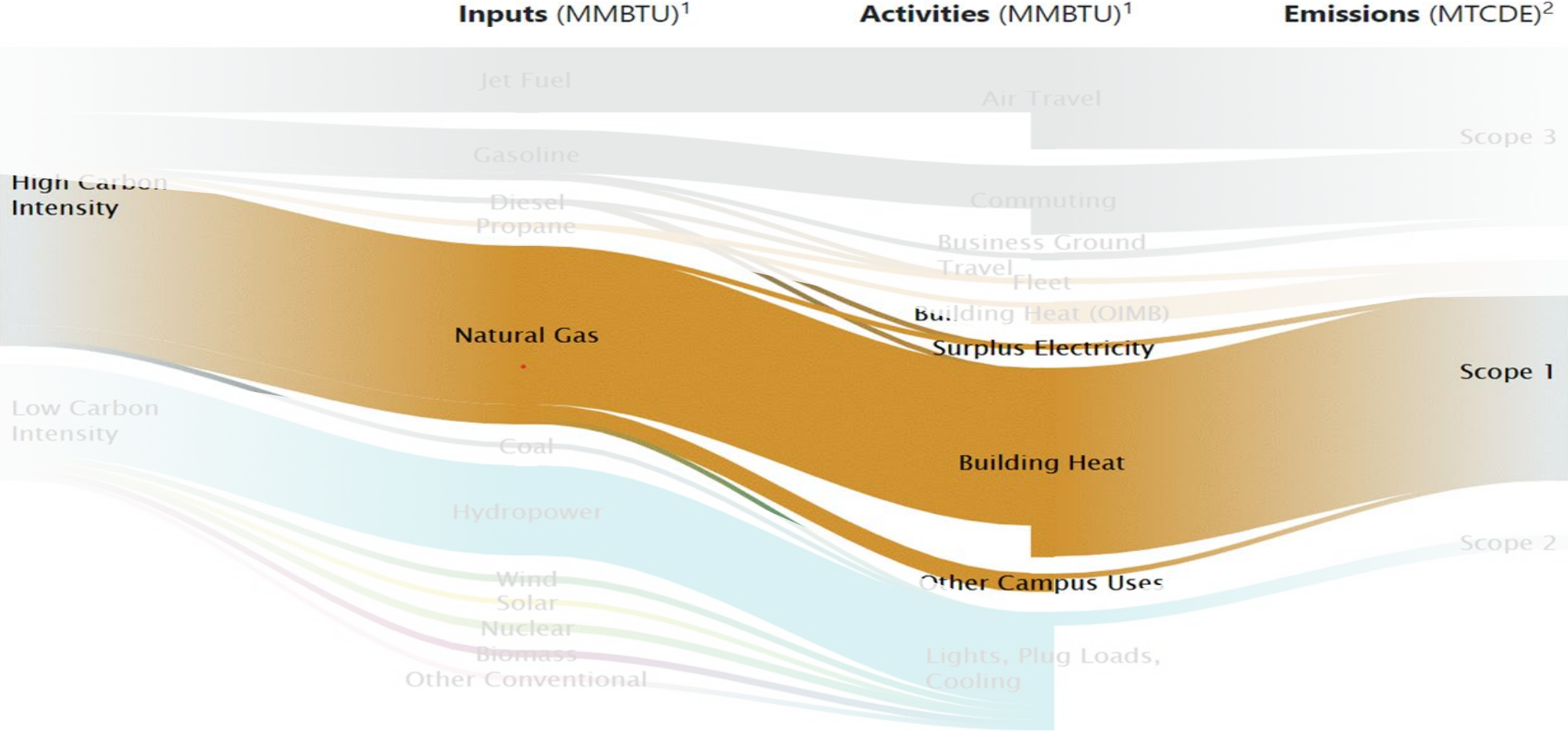
Highcharts.com



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University of Oregon Energy Flow FY20



highcharts.com



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Pre CAP and CAP 1 Focus Areas

Pre-CAP (2000-2010)

CAP 1 (2011-2019):
Oregon Model for
Sustainable
Development



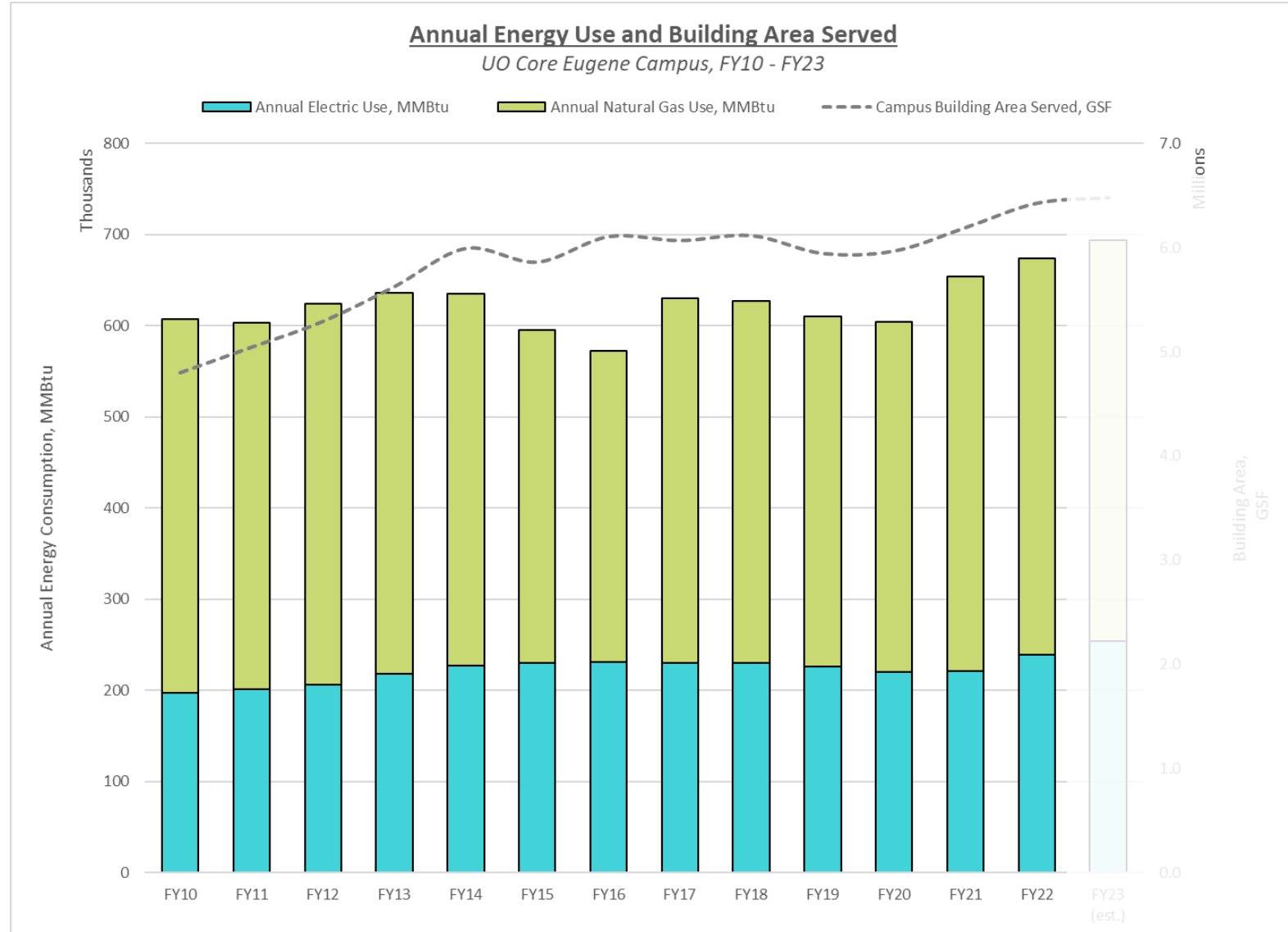
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Results

Success!

Campus energy consumption from 2011 – 2019 did not increase despite significant growth in building square footage



Climate Action Plan (CAP) 2019-2024

ACTION	STATUS
GOVERNANCE: Establish CAP Advisory Group	COMPLETE
GOVERNANCE: Update Board Of Trustees Annually	ON-GOING
MONITORING: Conduct Annual Emissions Inventory	ON-GOING
REVIEW & UPDATE: Oregon Model For Sustainable Development	COMPLETE
CONSERVATION & EFFICIENCY: Replace Tunnel Steam Pipe Insulation	COMPLETE
CONSERVATION & EFFICIENCY: Establish Energy Management Program	COMPLETE
CONSERVATION & EFFICIENCY: Re-launch Energy Revolving Fund	COMPLETE
CONSERVATION & EFFICIENCY: Launch Building Optimization Program	COMPLETE
STUDY: Internal Carbon Pricing	COMPLETE
STUDY: Low Carbon Heating Feasibility	IN PROGRESS
STUDY: Temperature Set Points	IN PROGRESS
STUDY: Winter Break Turn-Down Program	NOT STARTED
STUDY: LED Retrofit	NOT STARTED
STUDY: Sustainability Transportation Options	COMPLETE
STUDY: District Heating And Cooling Efficiency Improvements	IN PROGRESS
STUDY: Integration with State Carbon Policy	IN PROGRESS

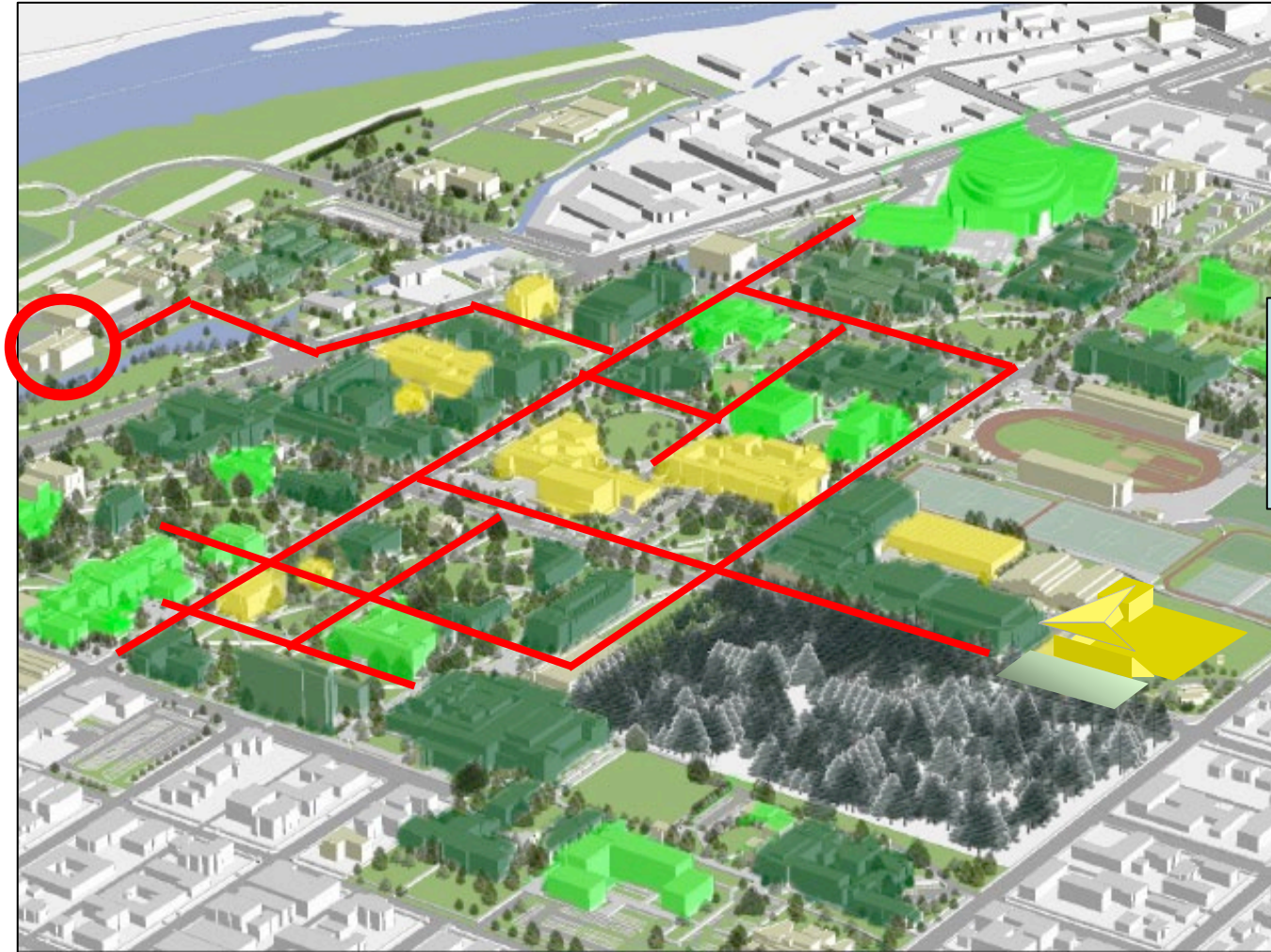


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CAP 2 Focus Areas

Central Boilers
(Heat Source)



Steam Tunnels
(Distribution
System)



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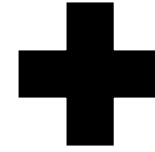
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UO District Heating System

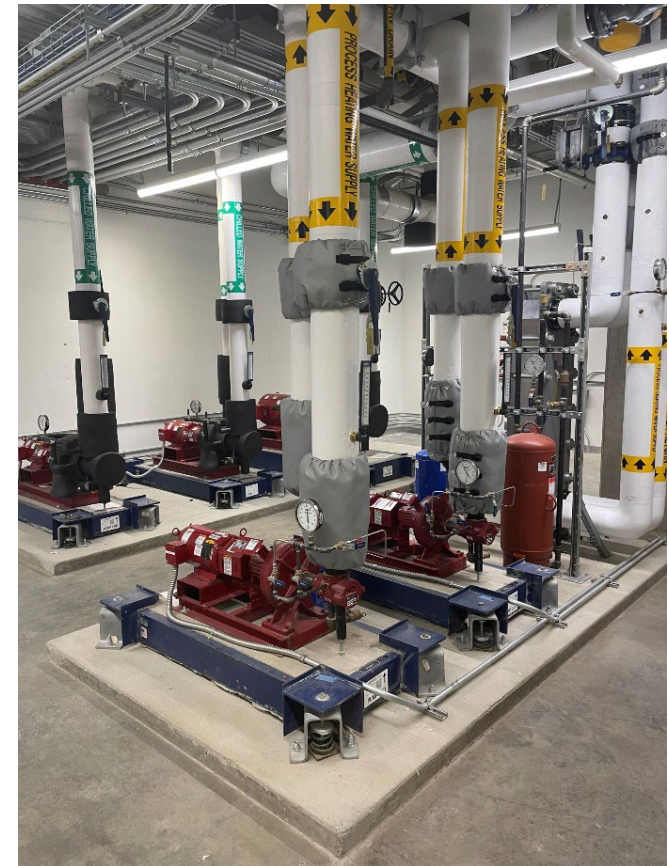
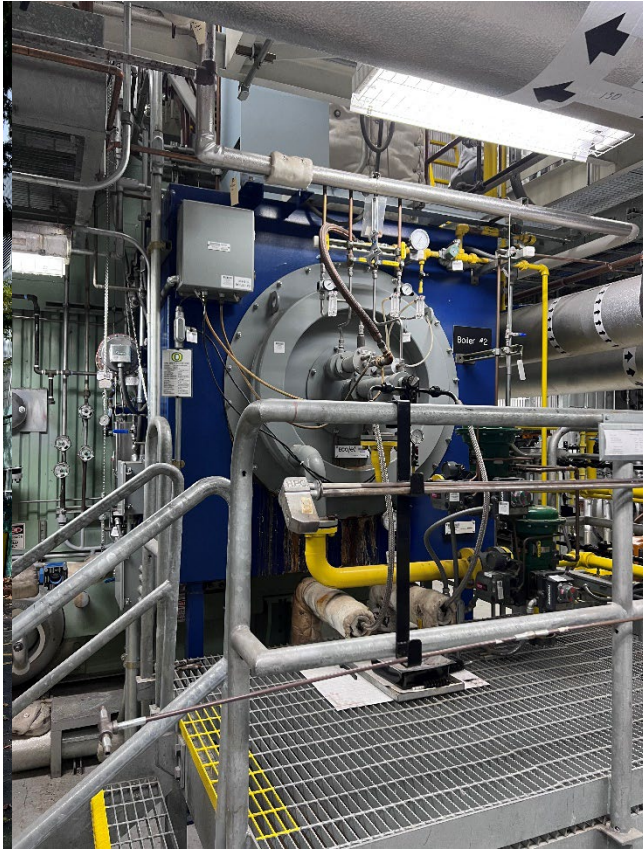
Central
Boilers



Steam
Tunnels



Building
Heat Systems



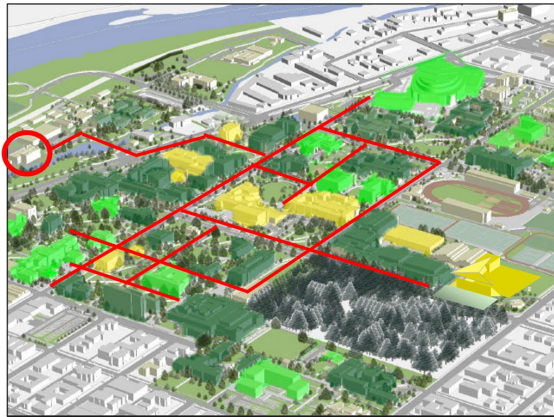
University of Oregon Thermal Systems Transition Study



TASK FORCE WORKSHOP
February 3, 2023

AEI Options

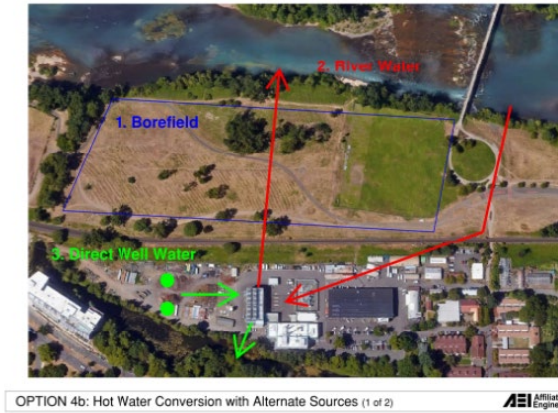
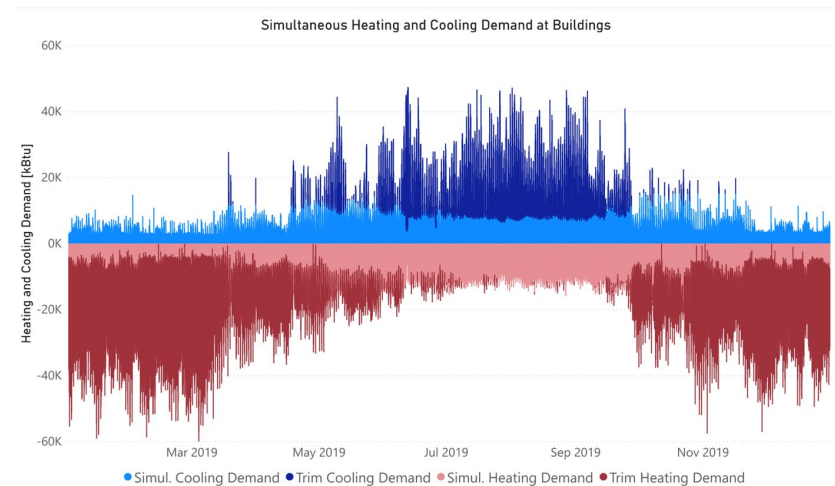
(1): SYSTEMS AS USUAL



(3): HEAT RECOVERY CHILLER



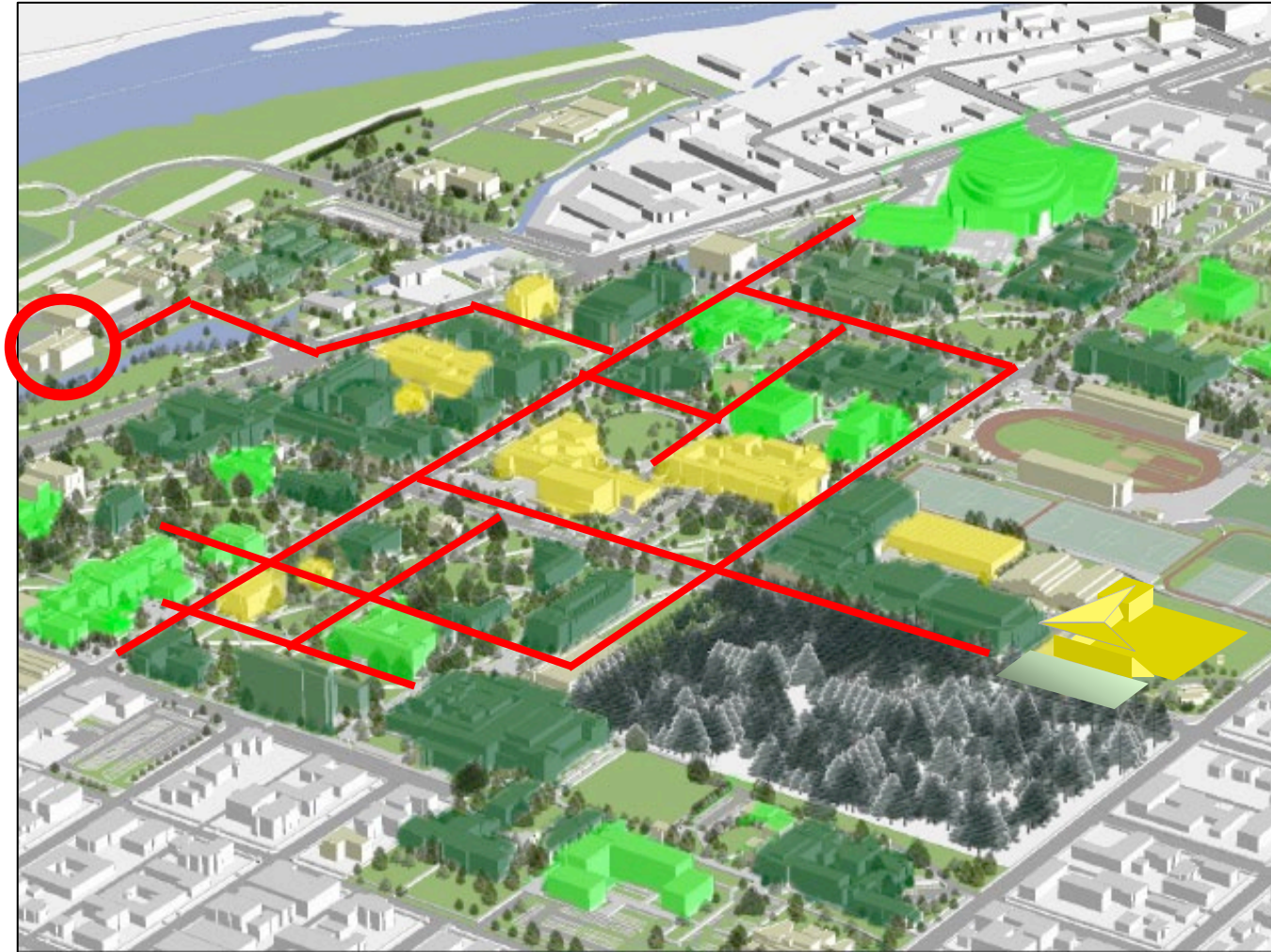
Figure 2 - Cleaver Brooks 18 CEJS Electrode Boiler



(2): ELECTRODE BOILER

**(4): HEAT RECOVERY CHILLER
ALTERNATE SOURCE**

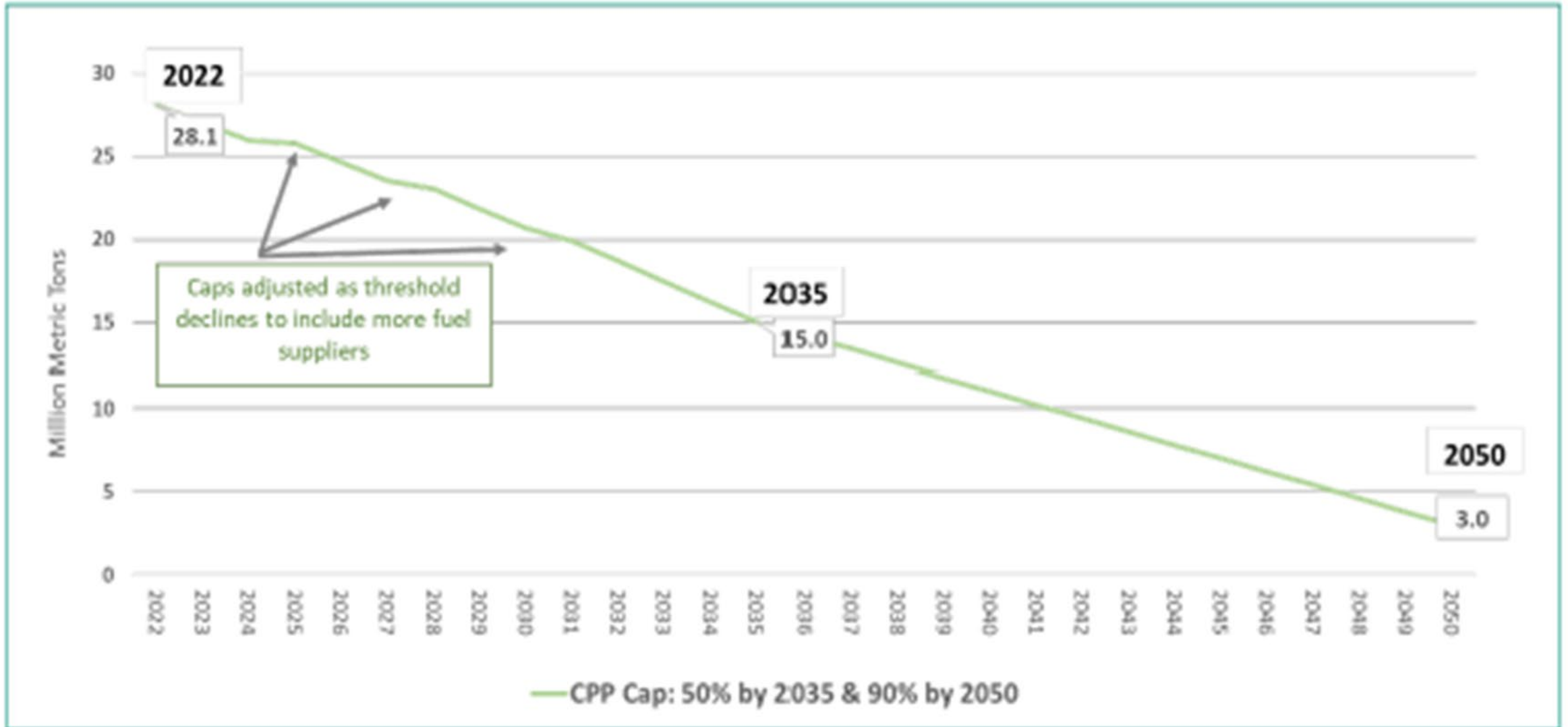
OPTION 1: SYSTEMS AS USUAL



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Oregon's Climate Protection Program (CPP)



OPTION 2: ELECTRODE BOILER



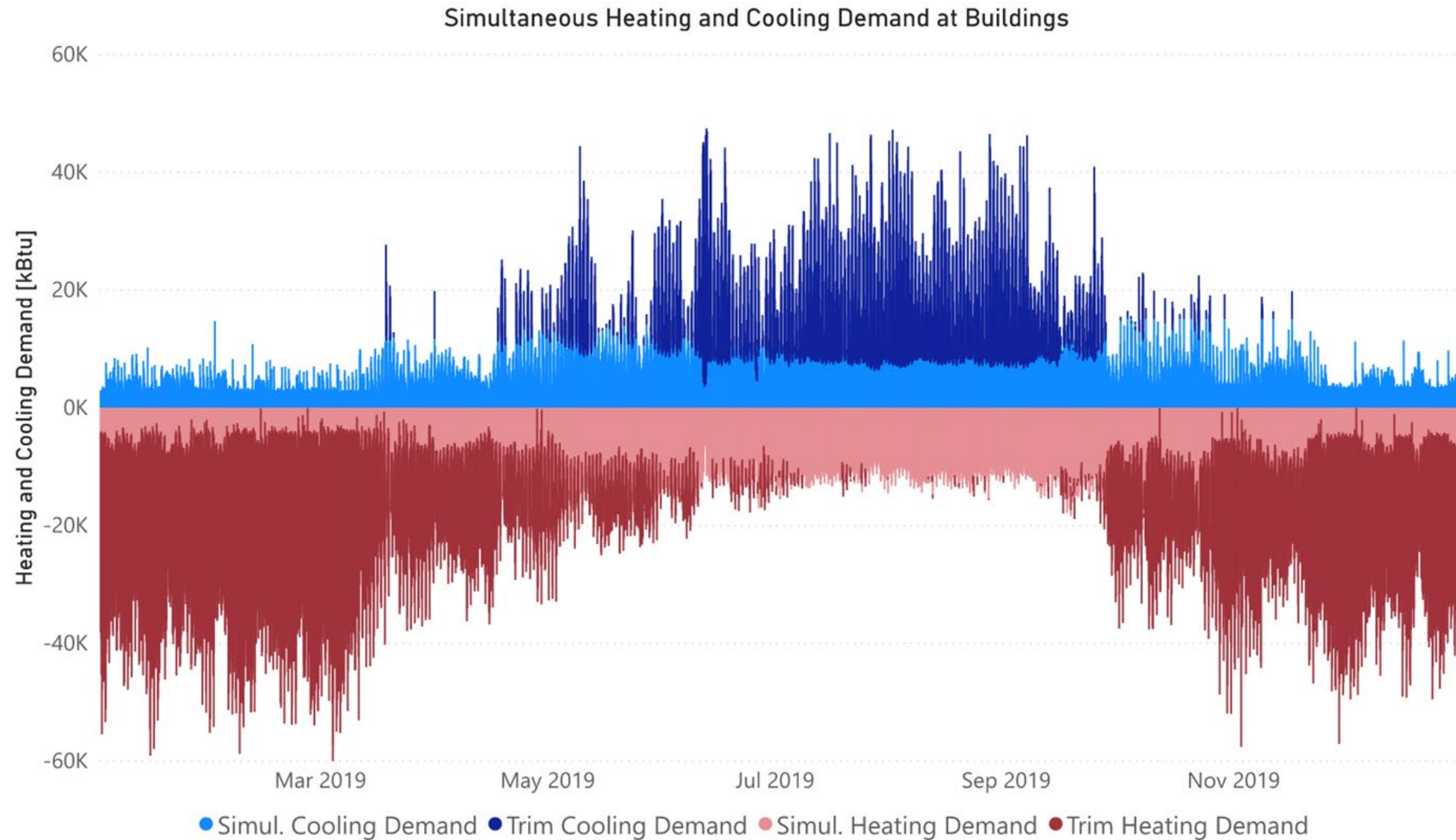
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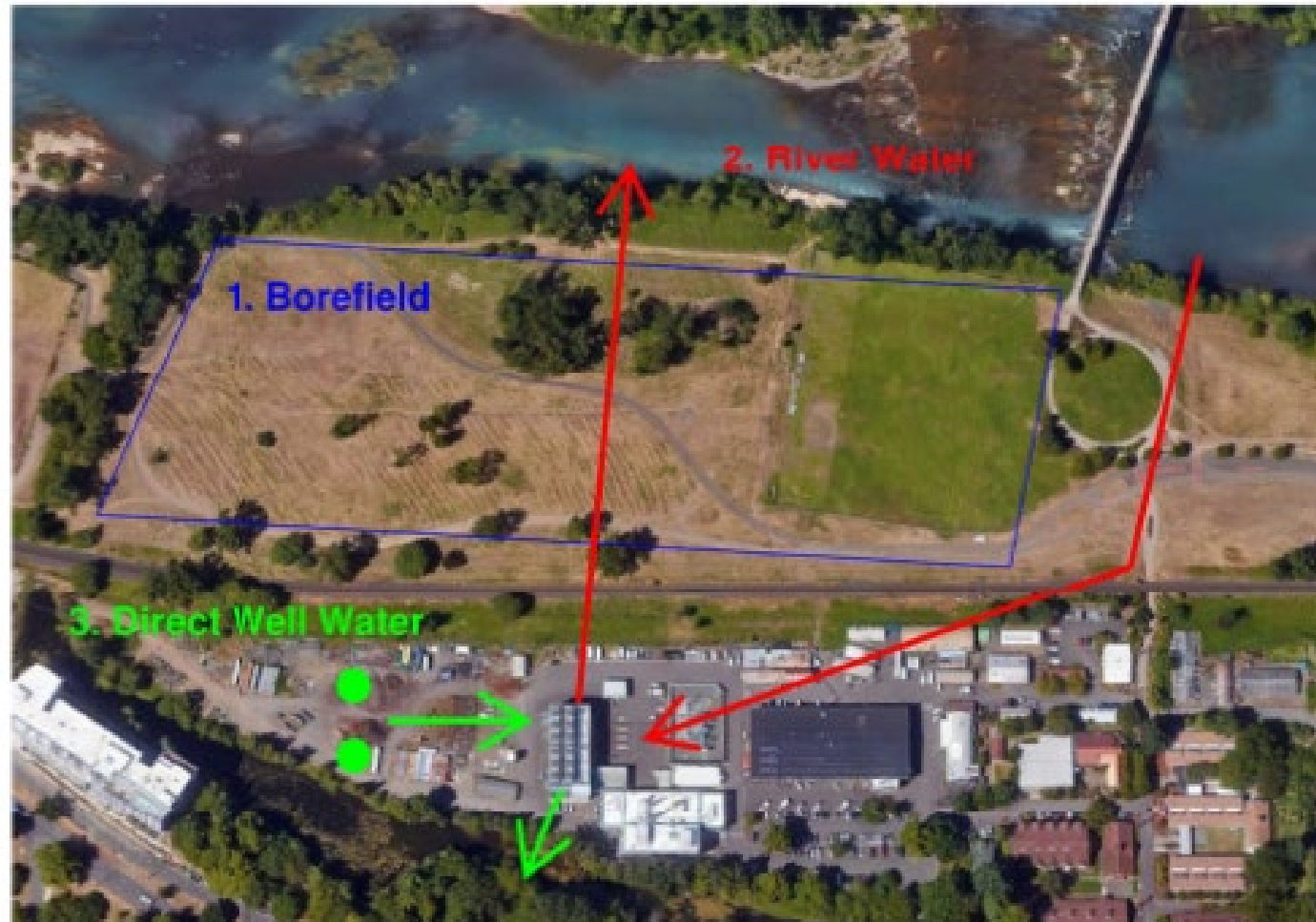
OPTION 3: HEAT RECOVERY CHILLER WITH BUILDING SOURCE



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OPTION 4: HEAT RECOVERY CHILLER WITH ALTERNATE SOURCE

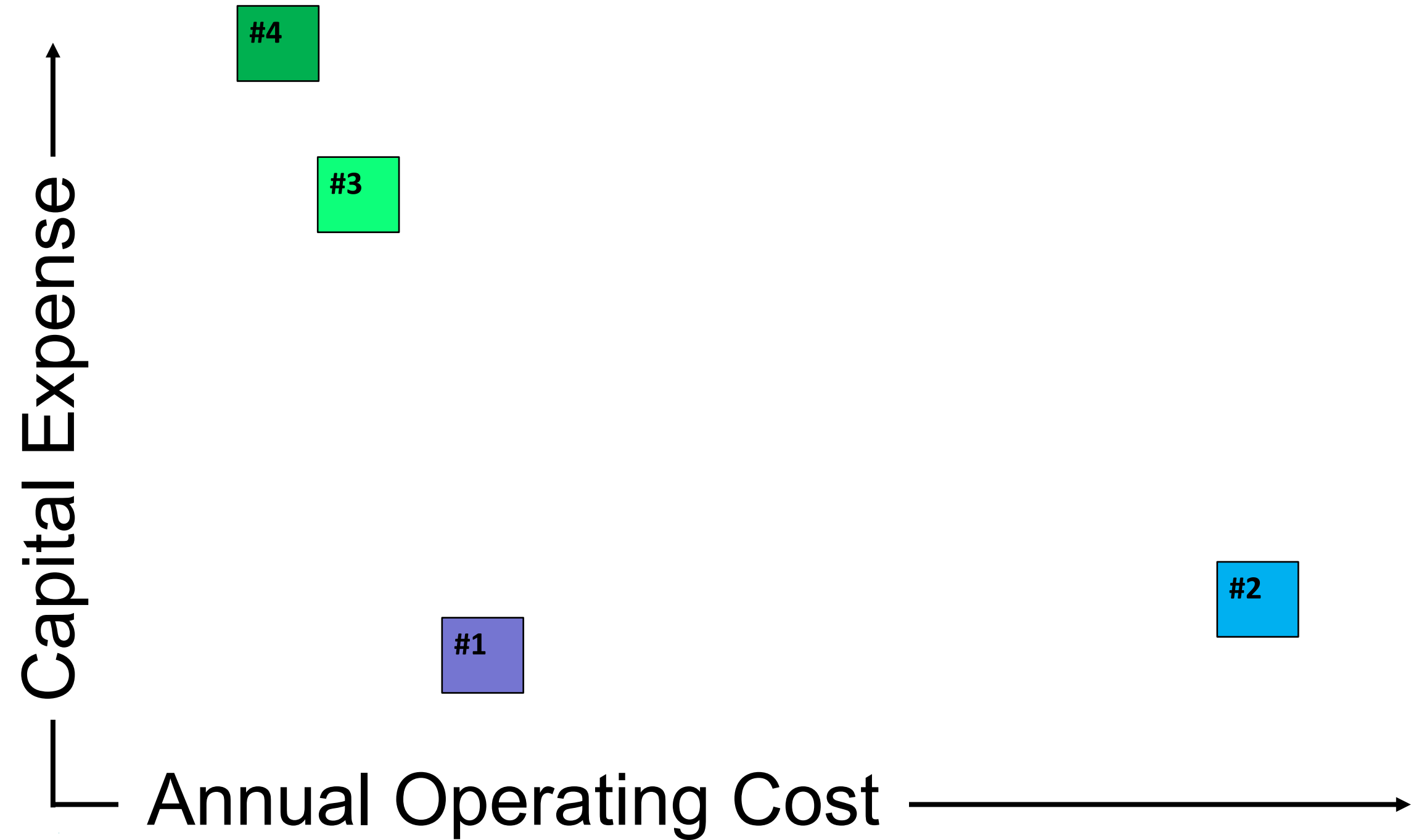


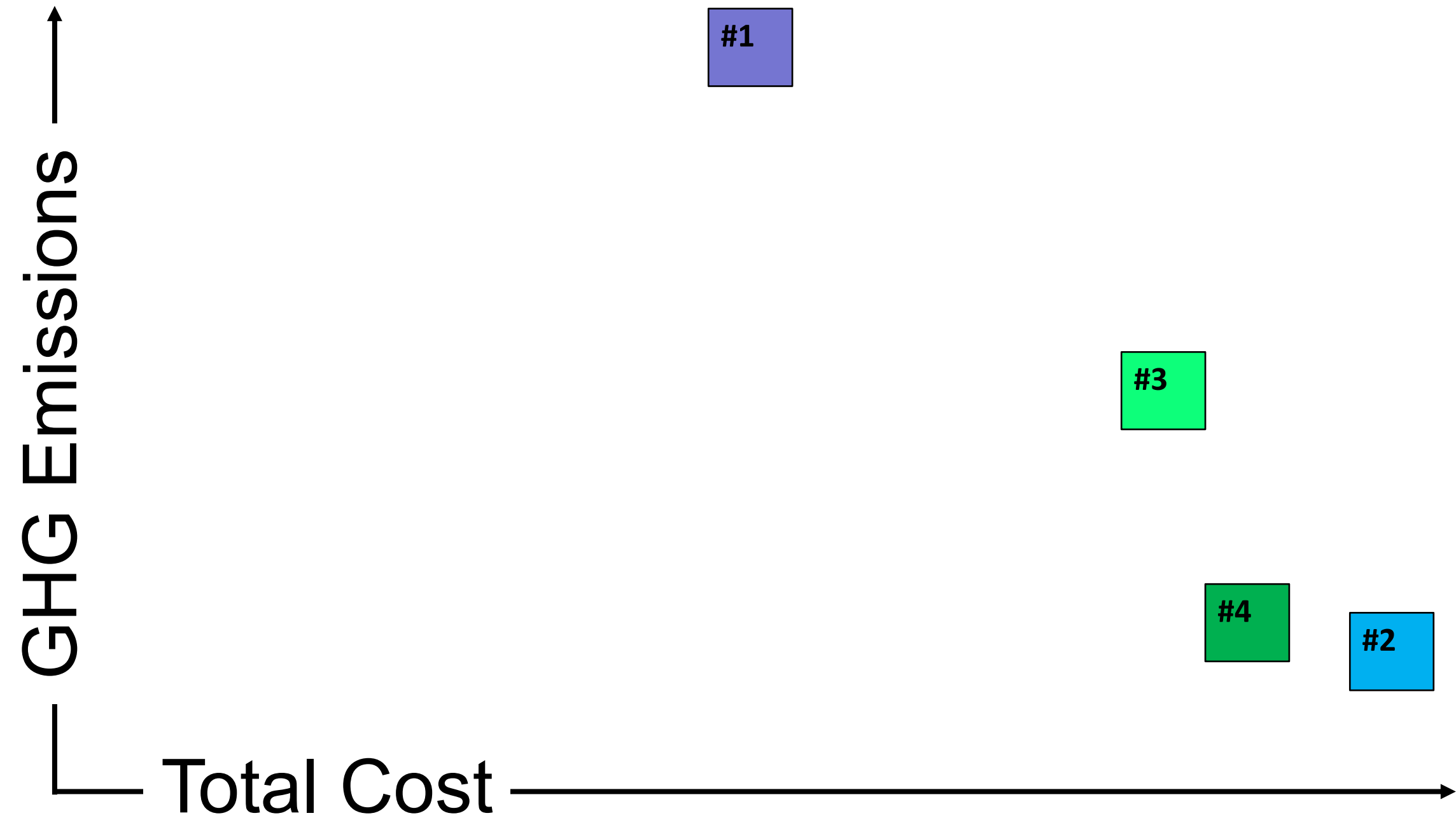
OPTION 4b: Hot Water Conversion with Alternate Sources (1 of 2)



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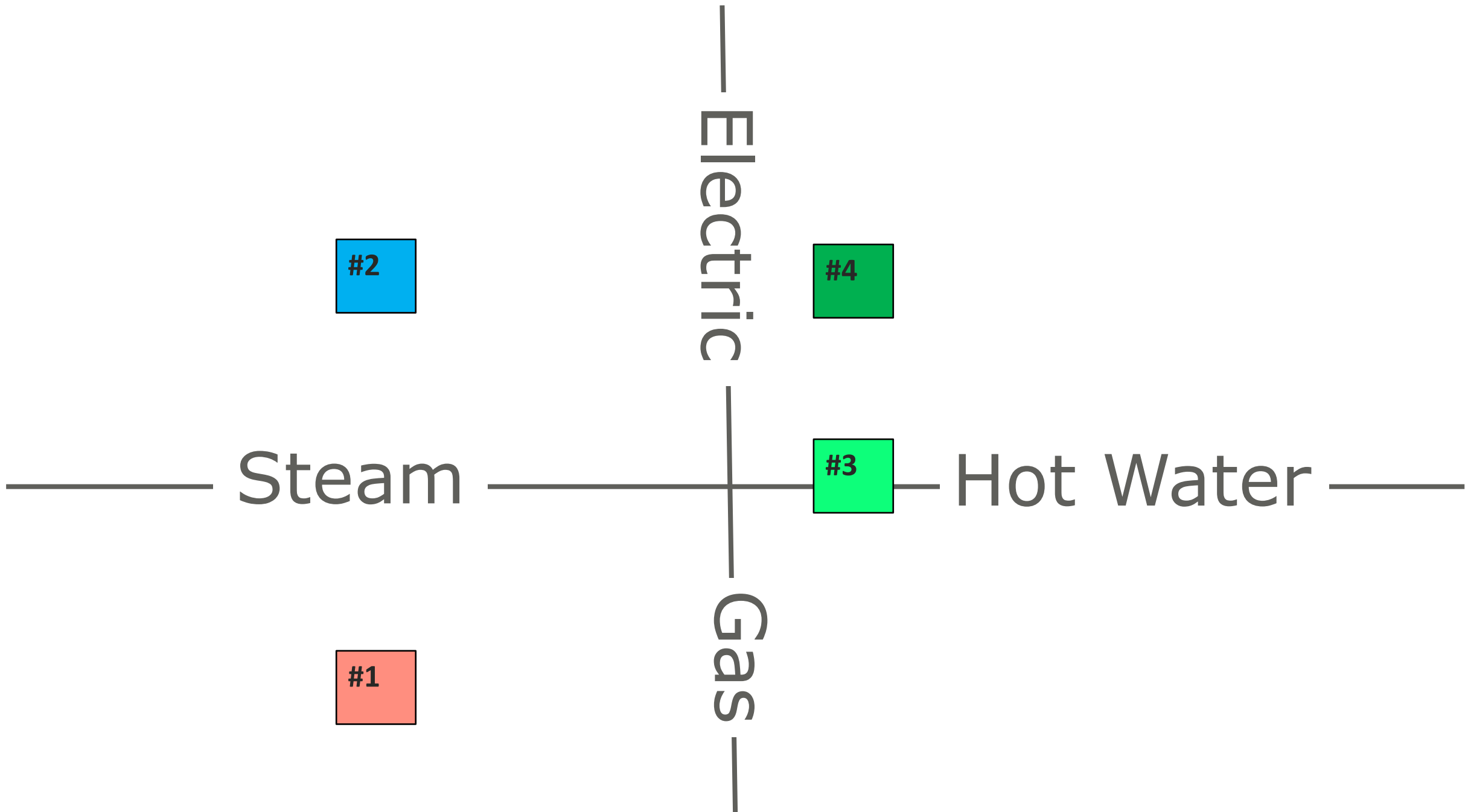
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Logstor Piping System





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Questions & Feedback

