

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



UNIVERSITY OF
OREGON

**Office of
Sustainability**

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.

Thermal Systems Task Force Timeline

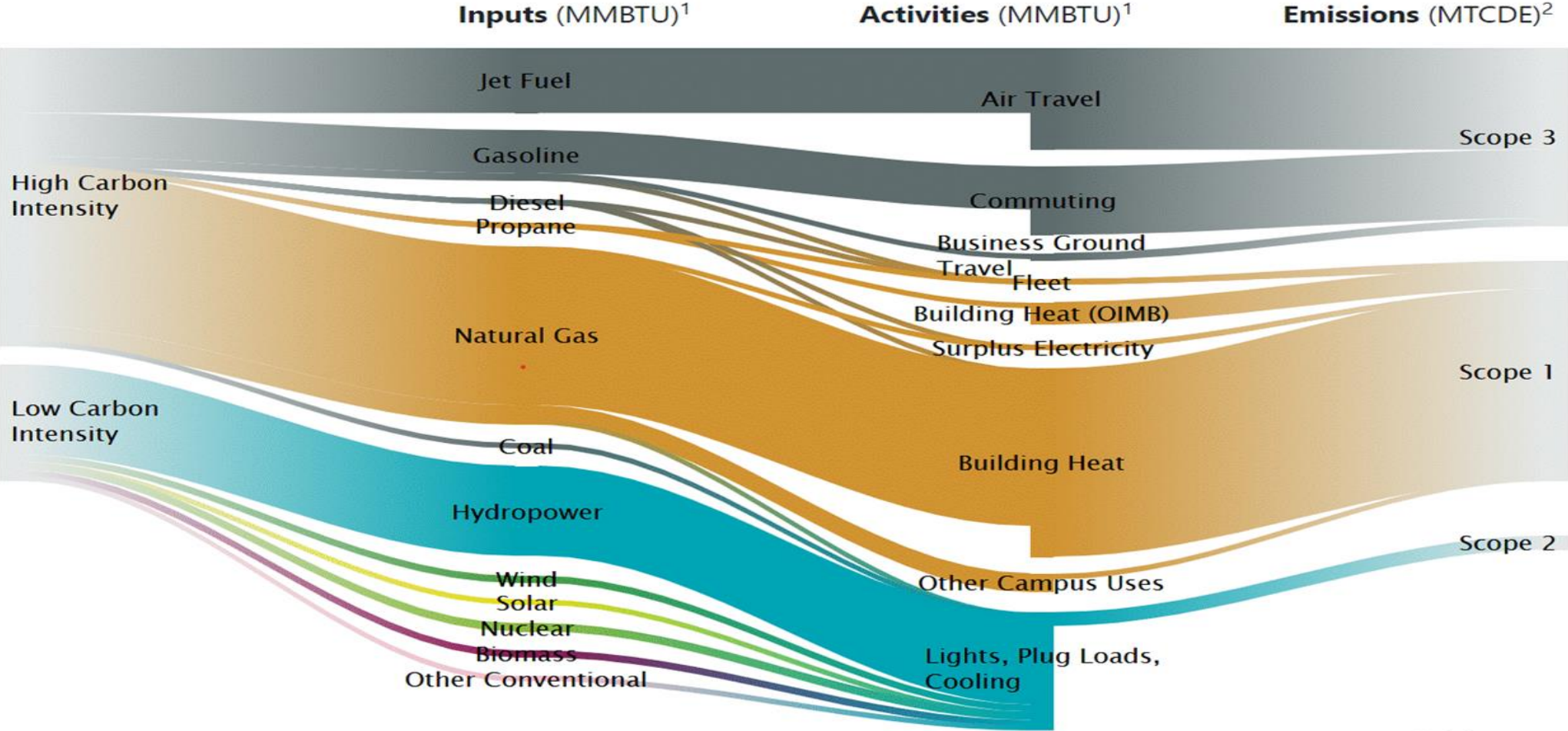
- Fall 2022
 - Task Force review phase I heating study, UO emissions, set workplan
 - Commission phase II technical analysis
- Winter 2023
 - Task Force review existing infrastructure, regulatory and market issues
- Spring 2023
 - Community outreach and hosts campus forums
- Summer 2023
 - Task Force reviews campus feedback
- Fall 2023
 - Receive Concept Design for water-based distribution system
 - Task Force drafts initial report to President
- Winter 2024
 - President receives report, makes recommendation to Board
- Spring 2024
 - Launch CAP 3



UNIVERSITY OF
OREGON

Office of
Sustainability

University of Oregon Energy Flow FY20



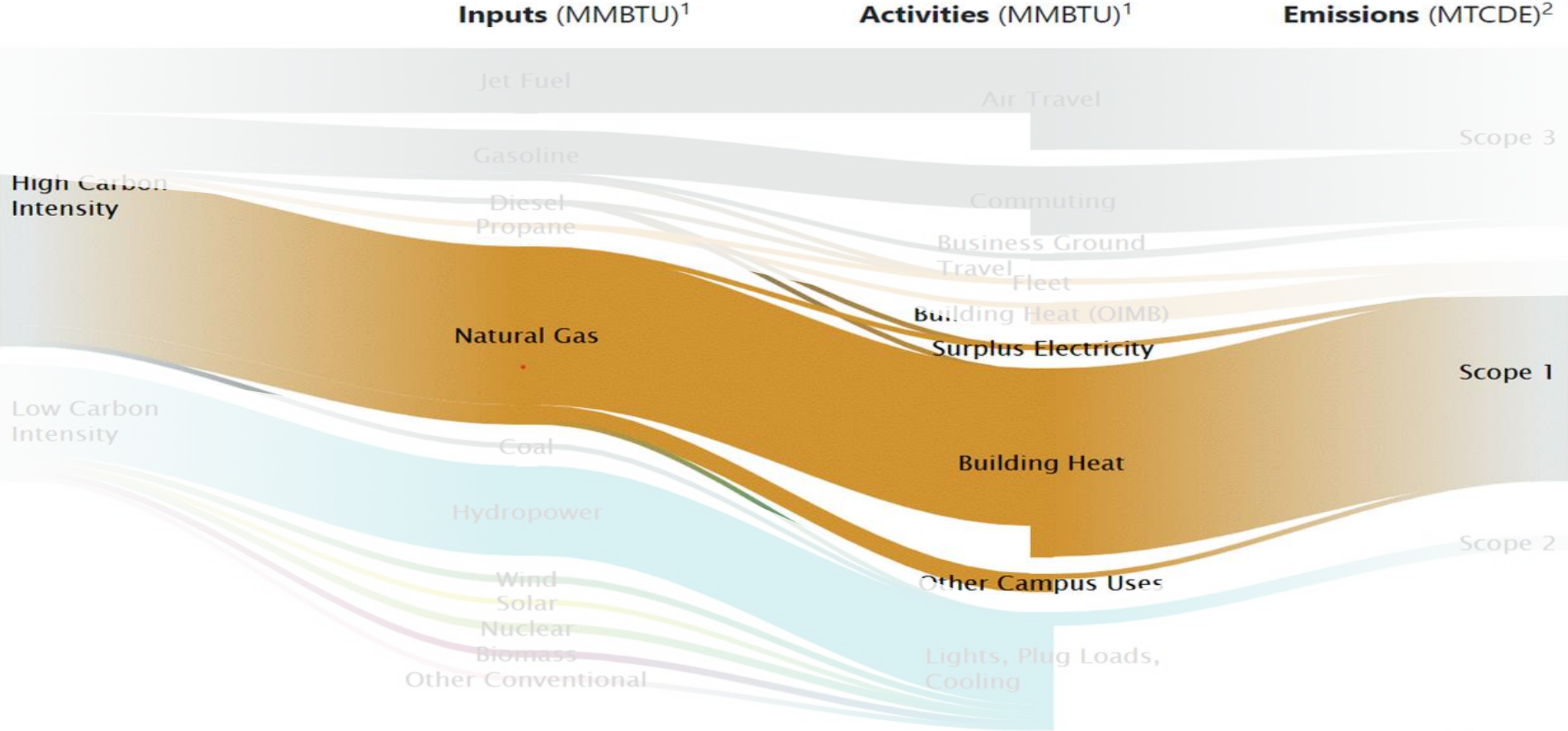
Highcharts.com



UNIVERSITY OF OREGON

Office of Sustainability

University of Oregon Energy Flow FY20



Highcharts.com



UNIVERSITY OF OREGON

Office of Sustainability

Pre CAP and CAP 1 Focus Areas

Pre-CAP (2000-2010)

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



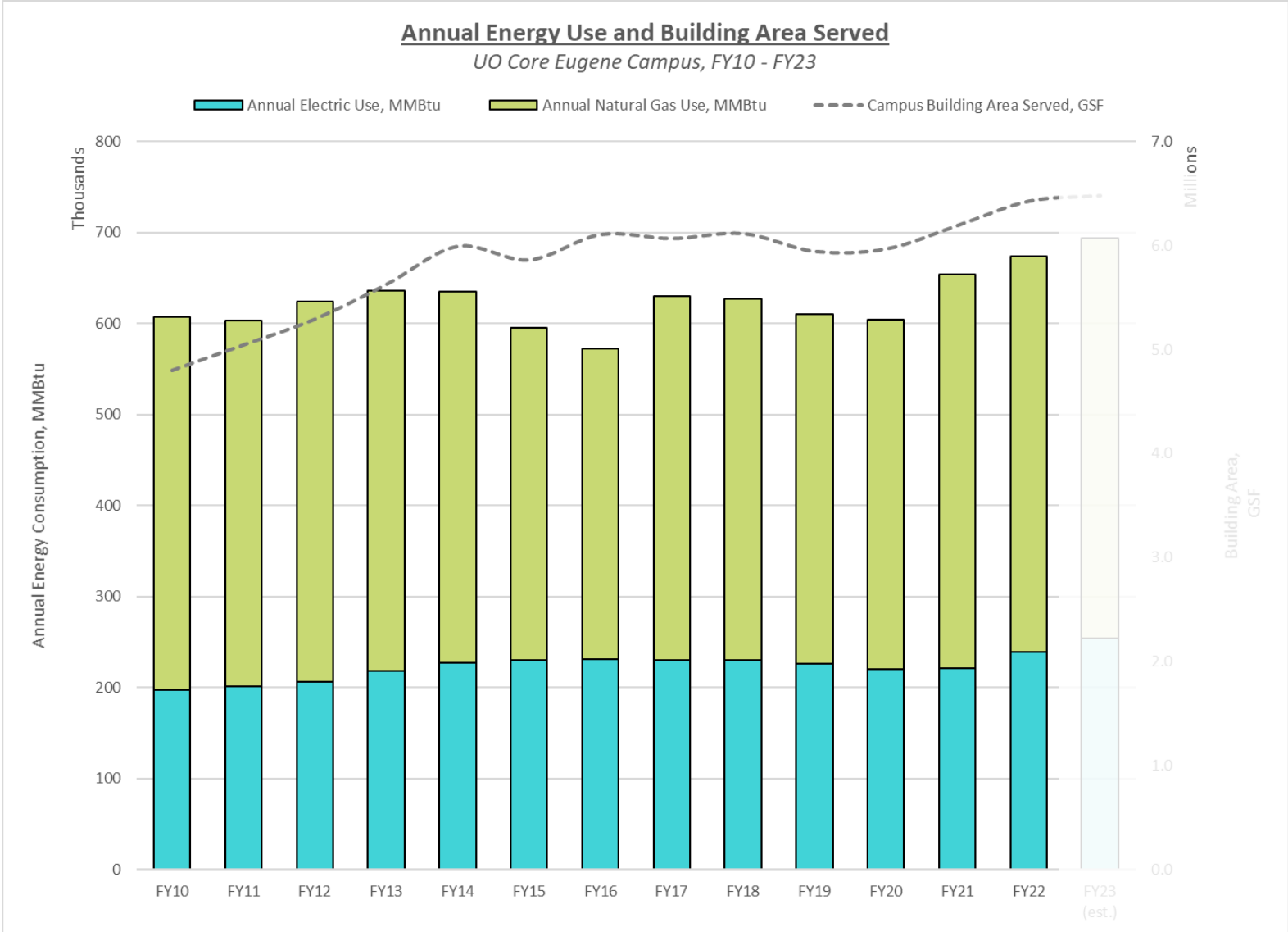
UNIVERSITY OF
OREGON

Office of
Sustainability

Results

Success!

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



UNIVERSITY OF OREGON

Office of Sustainability

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



UNIVERSITY OF
OREGON

Office of
Sustainability

CAP 2 Focus Areas

Central Boilers
(Heat Source)



Steam Tunnels
(Distribution System)



UNIVERSITY OF
OREGON

Office of
Sustainability

UO District Heating System

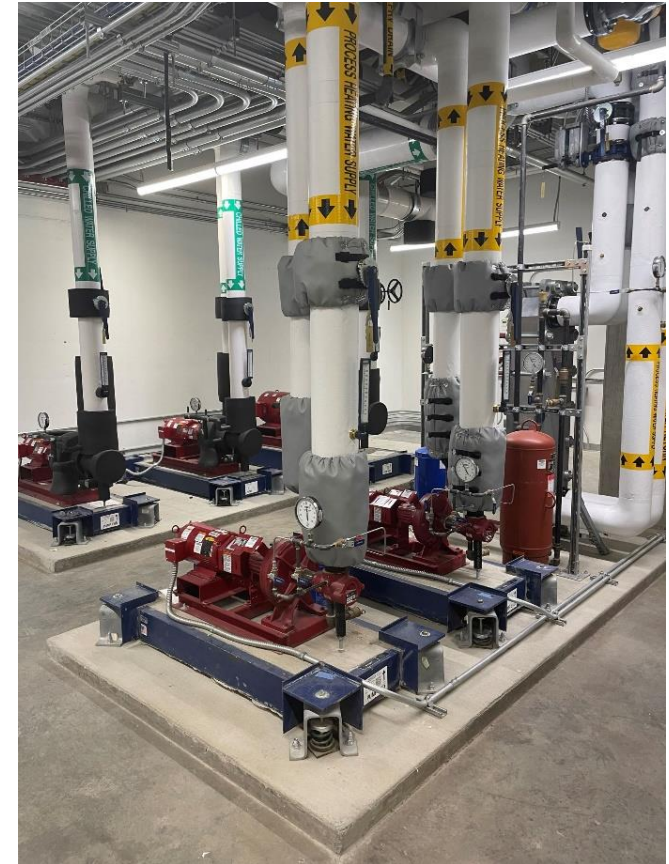
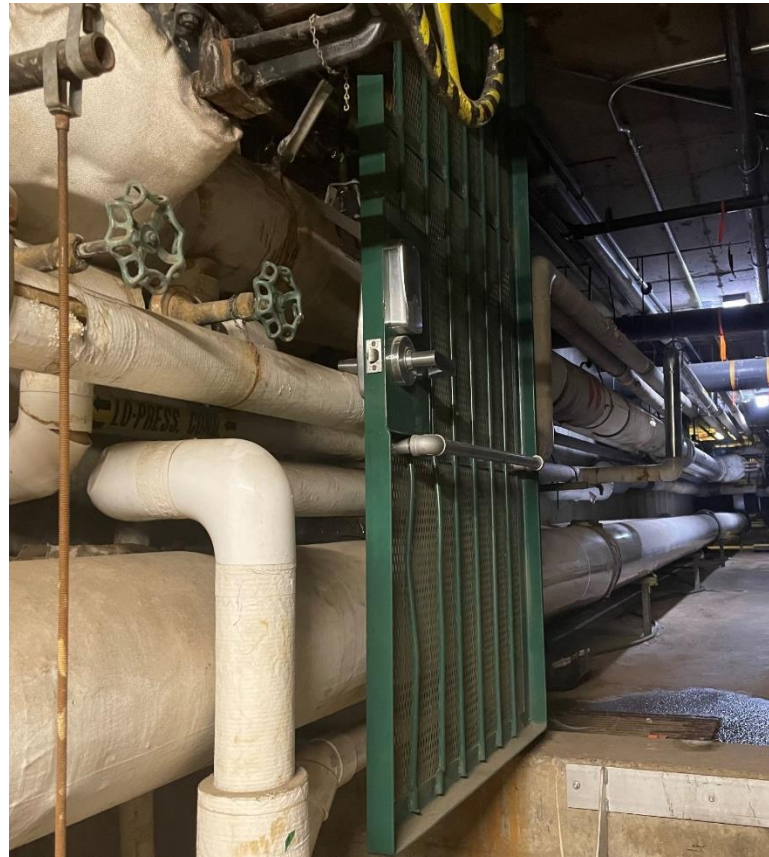
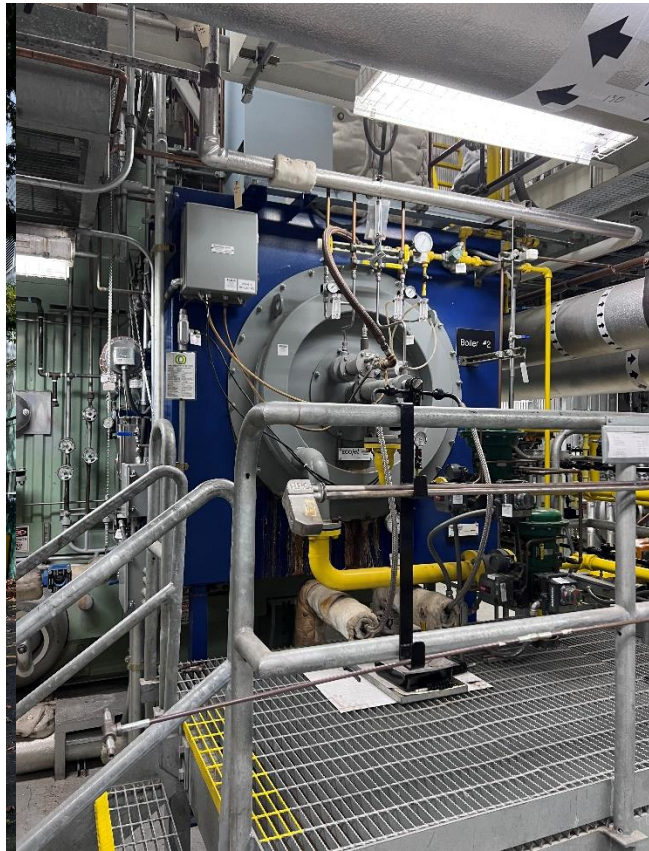
Central
Boilers



Steam
Tunnels



Building
Heat Systems



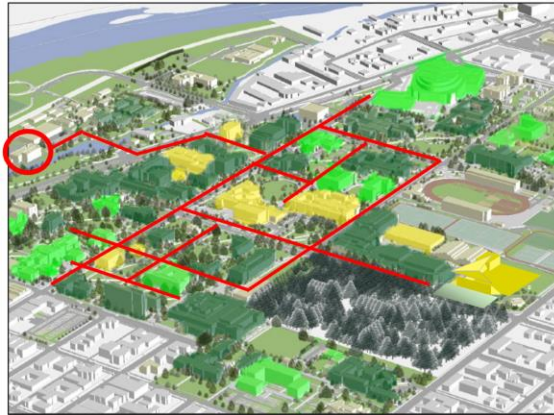
University of Oregon Thermal Systems Transition Study



TASK FORCE WORKSHOP
February 3, 2023

AEI Options

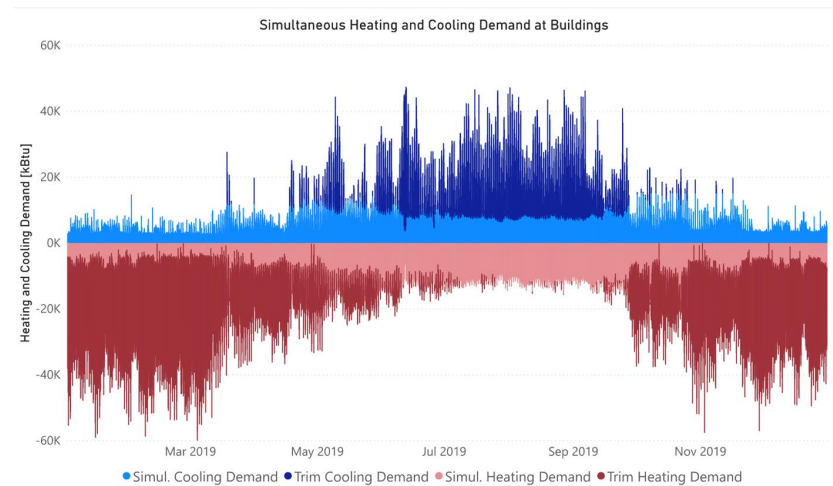
(1): SYSTEMS AS USUAL



(3): HEAT RECOVERY CHILLER



Figure 2 - Cleaver Brooks 18 CEJS Electrode Boiler



(2): ELECTRODE BOILER

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

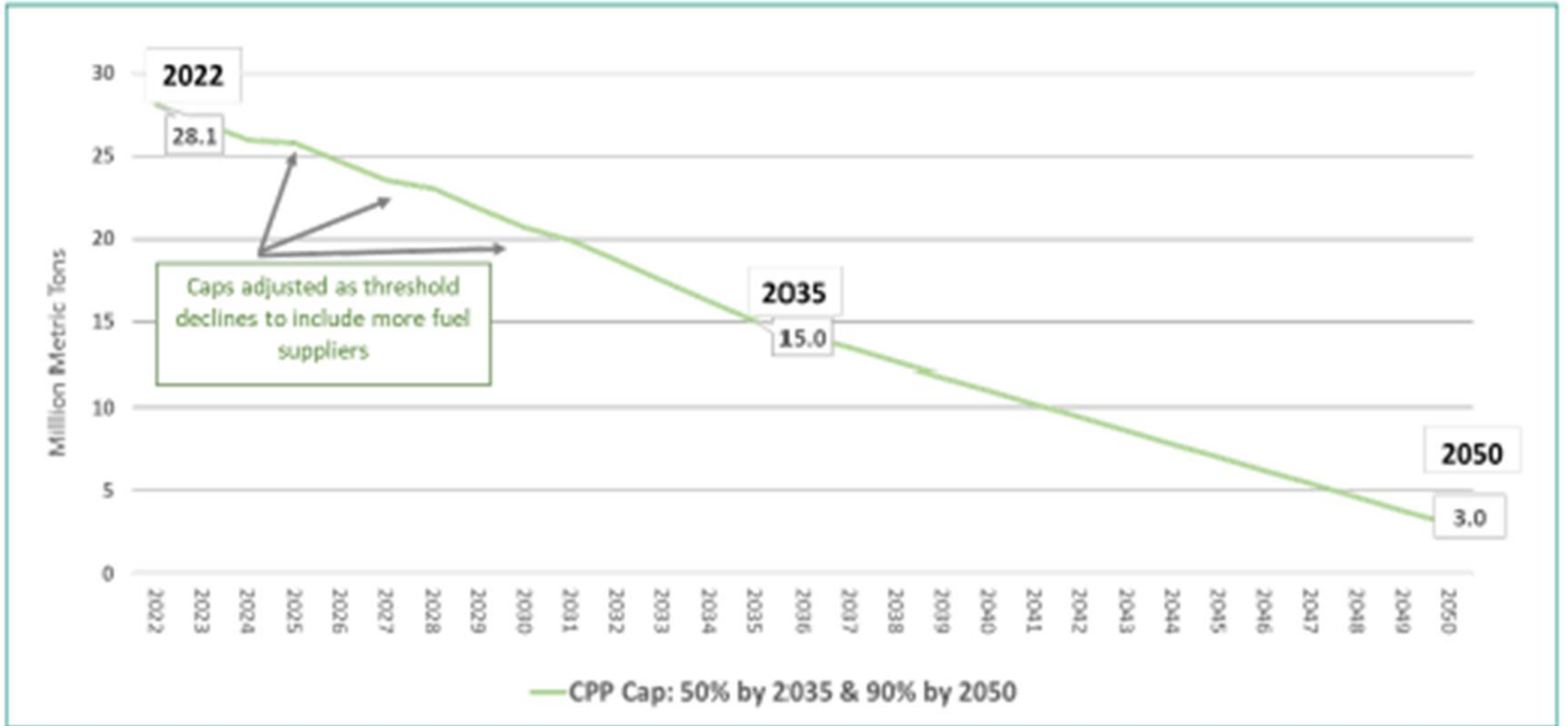
OPTION 1: SYSTEMS AS USUAL



UNIVERSITY OF
OREGON

Office of
Sustainability

Oregon's Climate Protection Program (CPP)



OPTION 2: ELECTRODE BOILER



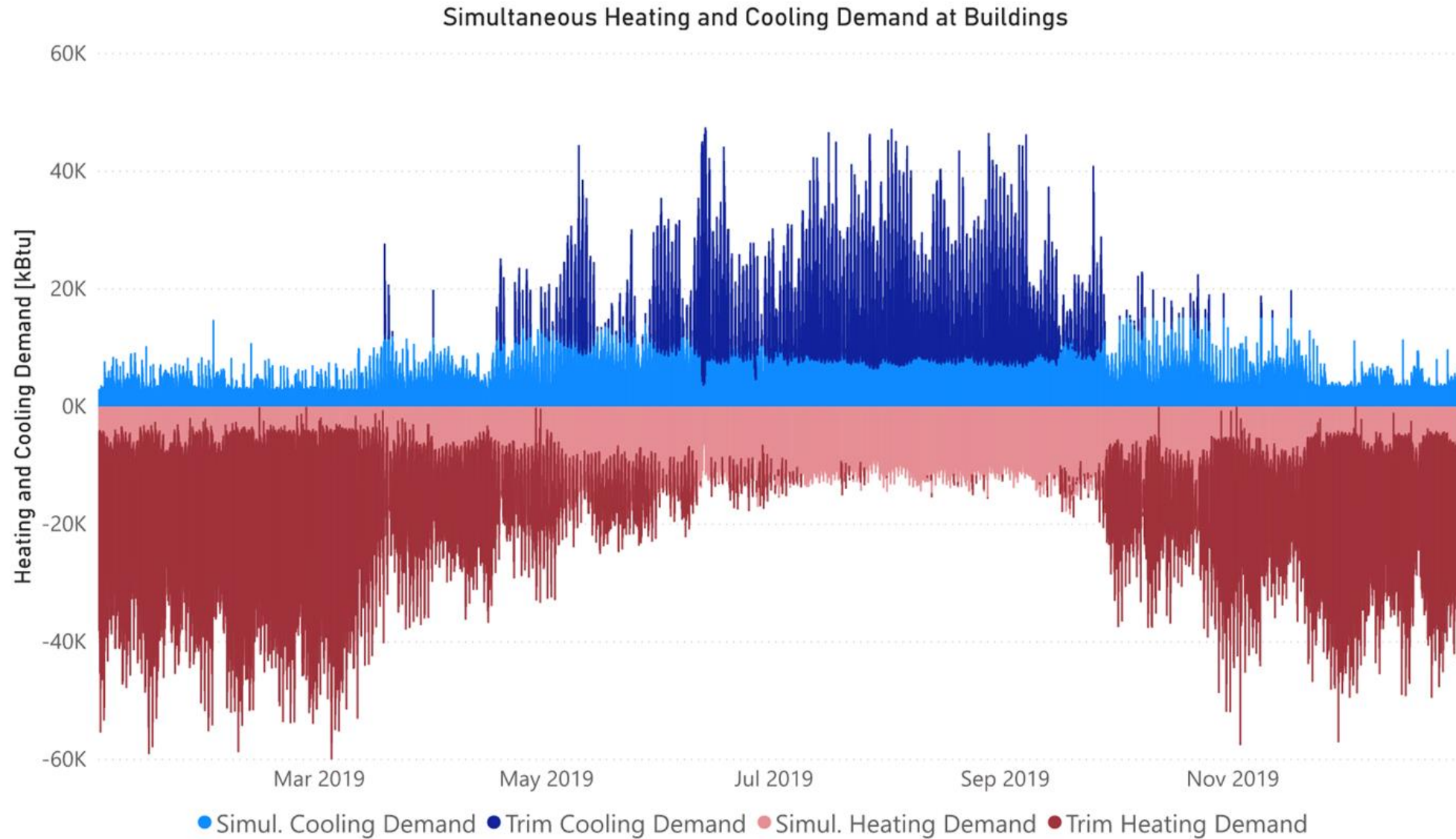
Figure 2 - Cleaver Brooks 18 CEJS Electrode Boiler



UNIVERSITY OF
OREGON

Office of
Sustainability

OPTION 3: HEAT RECOVERY CHILLER WITH BUILDING SOURCE



UNIVERSITY OF
OREGON

Office of
Sustainability

OPTION 4: HEAT RECOVERY CHILLER WITH ALTERNATE SOURCE

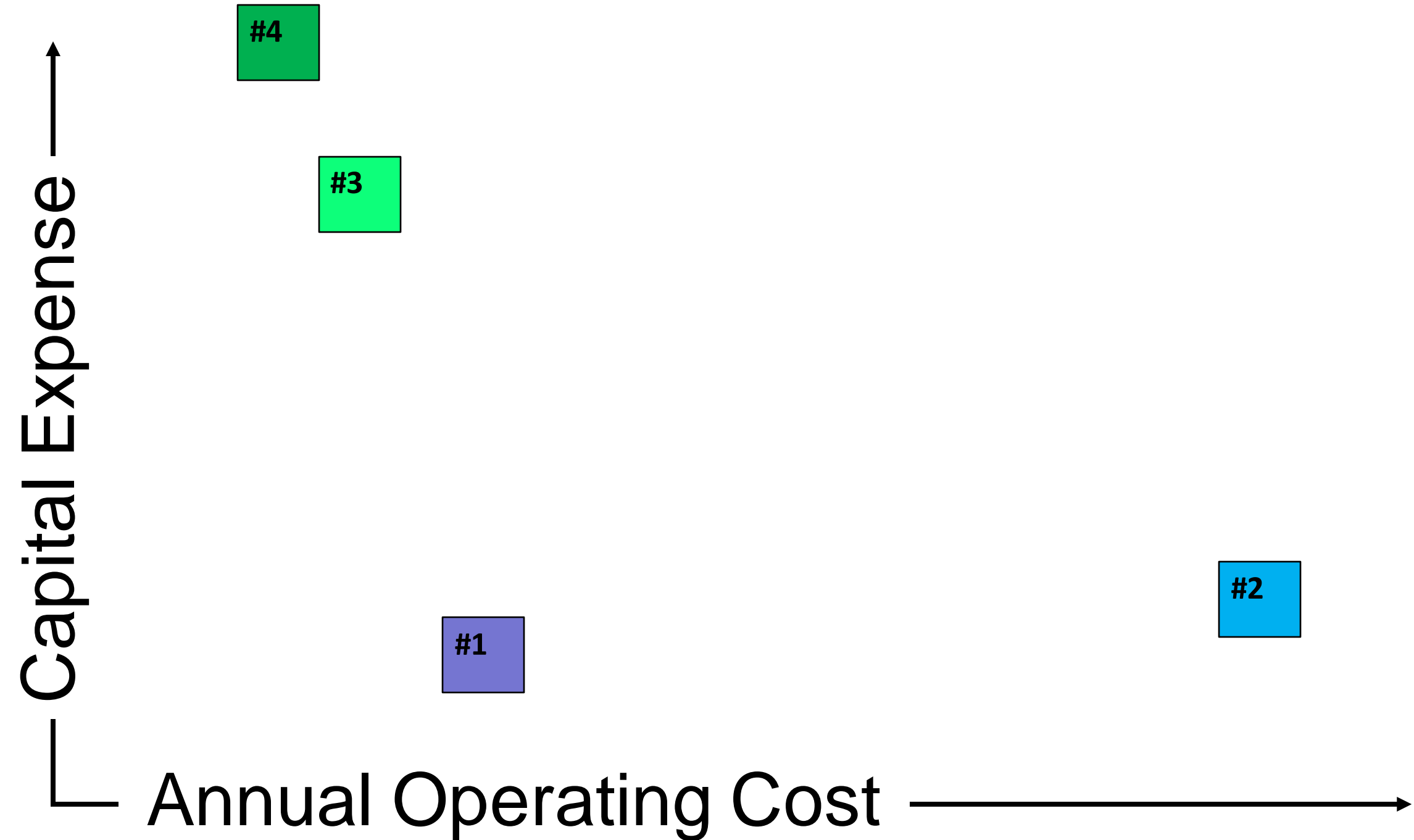


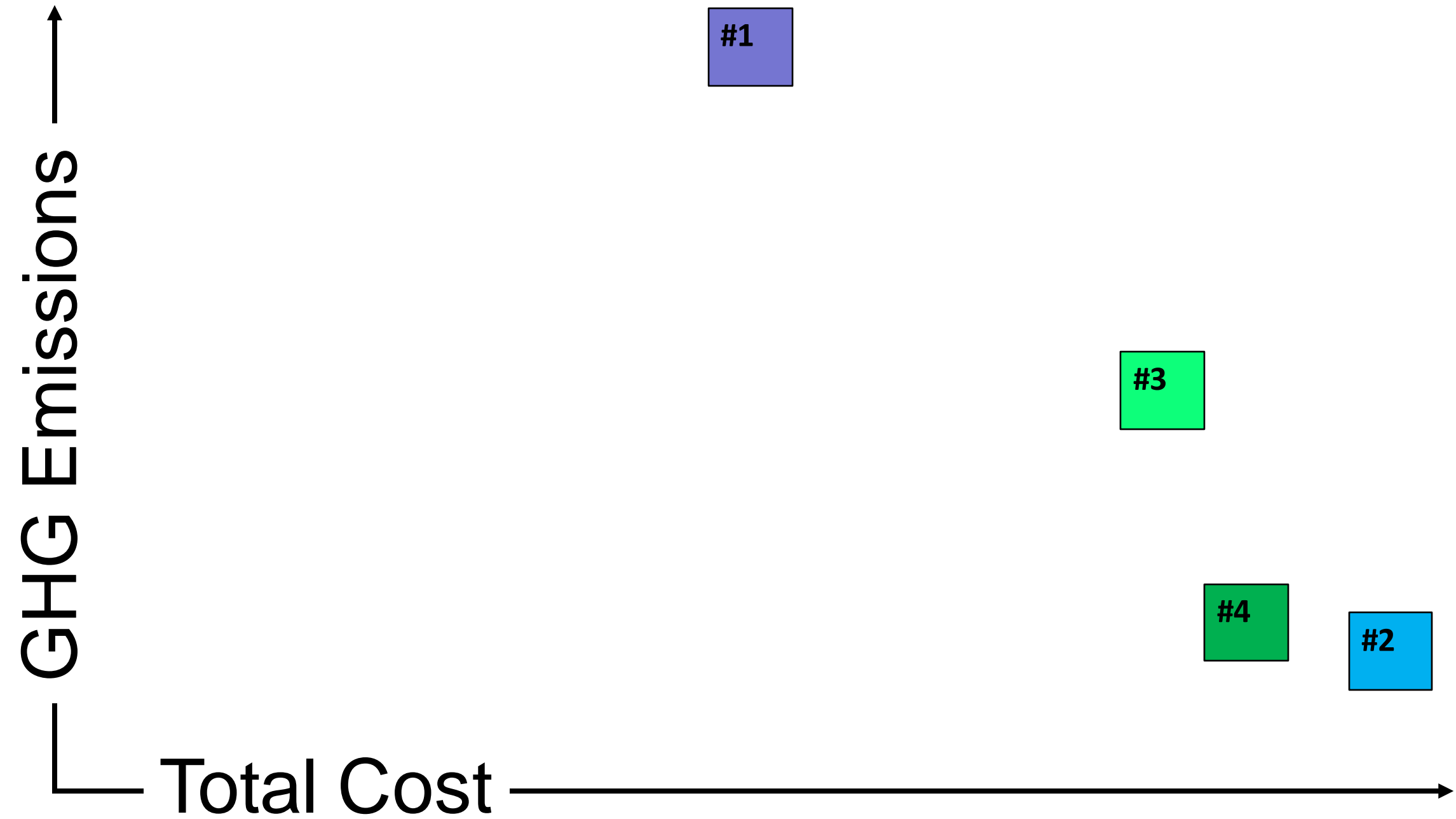
OPTION 4b: Hot Water Conversion with Alternate Sources (1 of 2)



UNIVERSITY OF
OREGON

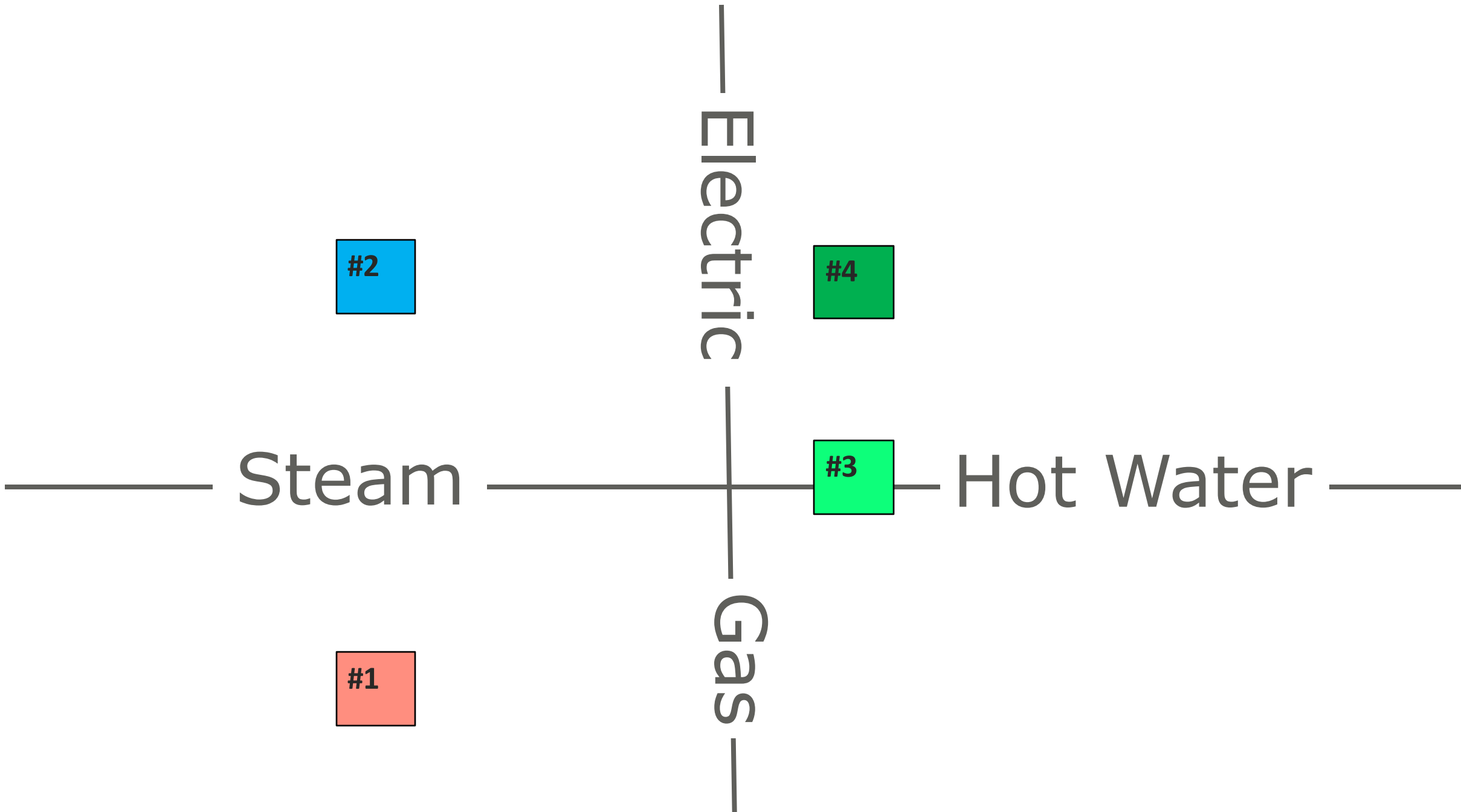
Office of
Sustainability





Logstor Piping System





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 - Task Force review existing infrastructure, regulatory and market issues

Spring 2023 - Community outreach and hosts campus forums

Summer 2023 - Task Force reviews campus feedback

Fall 2023 - Receive Concept Design for water-based distribution system
- Task Force drafts initial report to President

Winter 2024 - President receives report, makes recommendation to Board

Spring 2024 - Launch CAP 3



UNIVERSITY OF
OREGON

Office of
Sustainability

Questions & Feedback

