

# Decarbonization Town Hall

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Panelists:



Lela Corson



Frank Hodge



Jan Whittington



Dave Woodson

Facilitator:



Lisa Dulude

October 25, 2023  
4:30 p.m.





# TRICIA SERIO

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Provost and Executive Vice President for Academic Affairs





# LOUISA MACKENZIE

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Faculty Senate Vice-Chair



# Decarbonization Town Hall

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# JAN WHITTINGTON

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Faculty Council on Campus Planning and Stewardship Co-chair



# Greenhouse Gas Emissions '101'

SCOPE  
**2** ELECTRICITY  
GENERATION  
EMISSIONS



SCOPE  
**1** DIRECT  
EMISSIONS



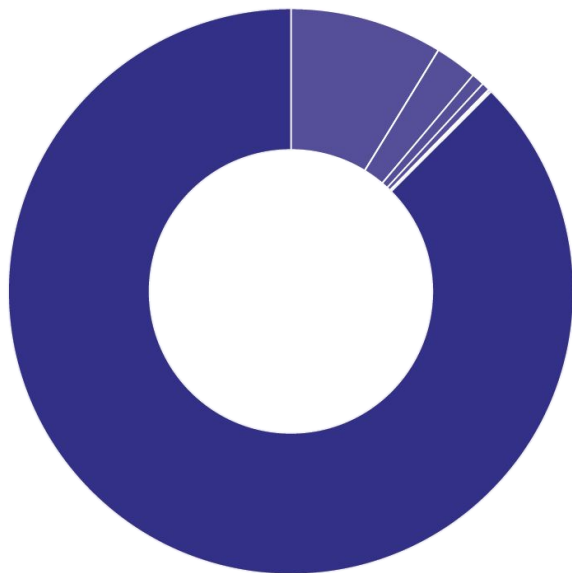
SCOPE  
**3** INDIRECT  
EMISSIONS



# UW SCOPE 1 EMISSIONS

UW SEATTLE  
BUILDINGS

**88%**



**12%**

FUGITIVE EMISSIONS 9%

FLEET 2%

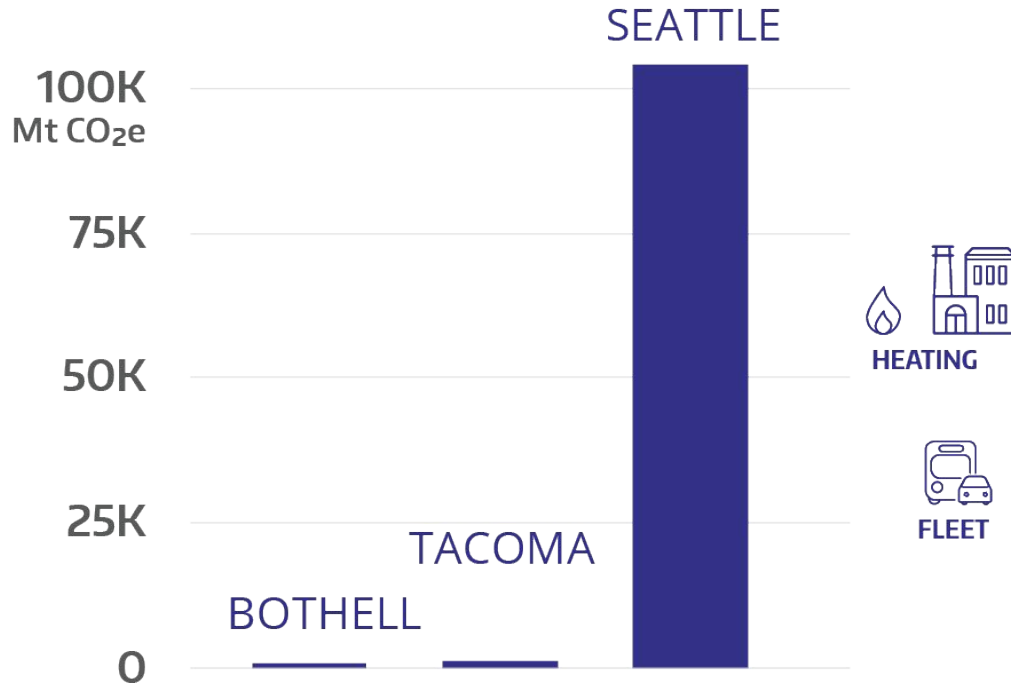
UW TACOMA BUILDINGS .8%

UW BOTHELL BUILDINGS .4%

OUTLYING FACILITIES.1%



# UW SCOPE 1 EMISSIONS: campus split

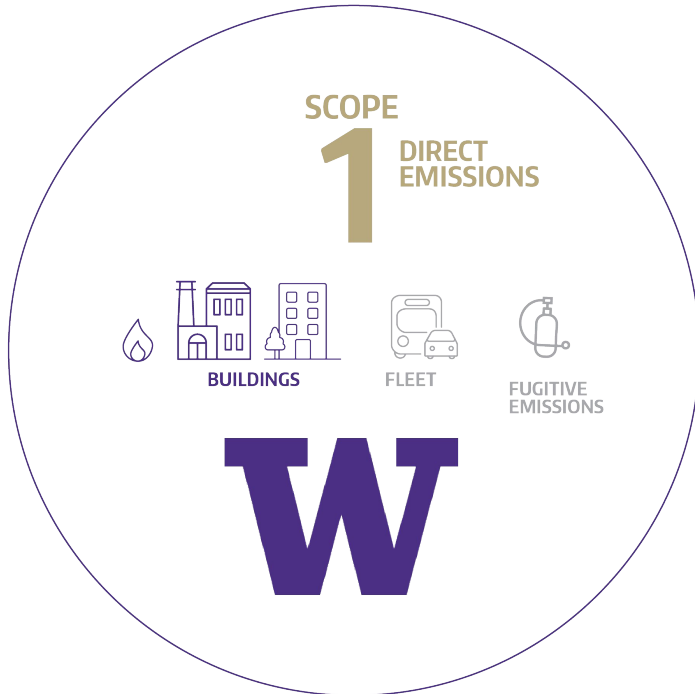


From 2023 Greenhouse Gas Inventory





# STATE MANDATES: SCOPE 1 Emissions



## Climate Leadership Act

- 2030 target: 45% reduction
- 2040 target: 70% reduction
- 2050 target: 95% reduction

## Climate Commitment Act

- Cap, and invest
- >25,000Mt CO<sub>2</sub>e must pay to emit
- State-wide GHG reduction targets for 2030, 2040 and 2050

# STATE MANDATES: SCOPE 2 Emissions

SCOPE

2

ELECTRICITY  
GENERATION  
EMISSIONS



FOSSIL FUEL  
GENERATION

## Clean Energy Transformation Act

- Applies to electric utilities serving retail customers in Washington
- Milestones to reach 100% clean electricity by 2045

## Clean Buildings Performance Standard

- Energy efficiency performance standards for commercial buildings

# STATE MANDATES: SCOPE 3 Emissions

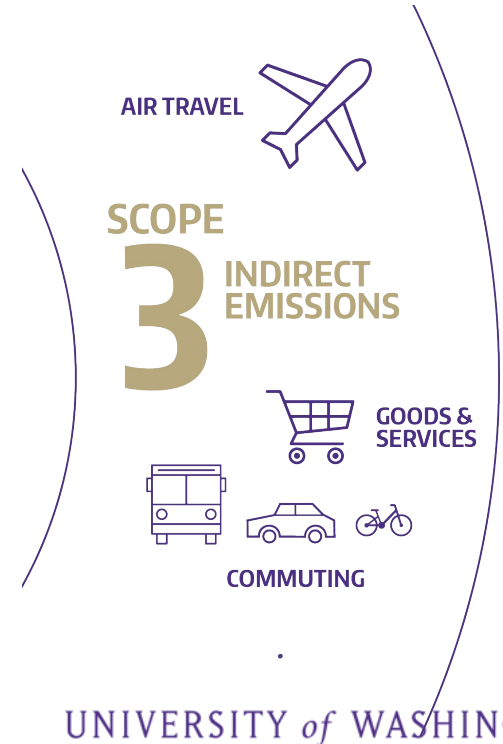
## Commute Trip Reduction Law

- Applies to large employers in Washington
- Reduce single-occupancy commute trips
- Promote transit and other alternatives

## Executive Order 20-01

Requires Washington State agencies to address emissions and environmental performance. State agencies must consider and lower emissions associated with building materials

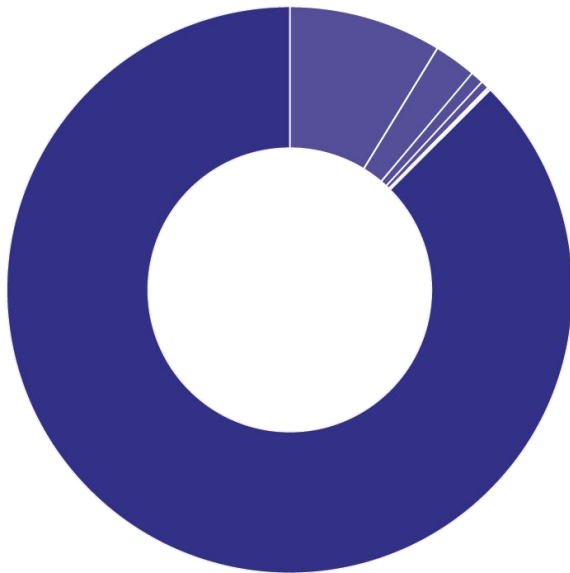
*\*Stay tuned for more information on UW Scope 3 initiatives at the end of the event.*



# UW SCOPE 1 EMISSIONS

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The image shows the exterior of Founders Hall, a modern building with large glass windows and a brick facade. In the foreground, there is a circular fountain with a large, abstract, dark-colored sculpture that resembles a stylized eye or a drop of water. Two people in dark uniforms with white epaulettes and caps are standing near the fountain. One person is sitting on a wooden ledge, and the other is standing next to them. The scene is brightly lit, suggesting daytime.

FOUNDERS HALL

# Decarbonization Town Hall

Frank Hodge  
Foster School of Business

The background of the image is a night sky filled with stars, with the Milky Way galaxy visible as a bright, hazy band of light stretching across the upper half. Below the sky, a dark, rugged mountain range is visible, with snow or ice covering the peaks and ridges. The overall color palette is dark, with deep blues, purples, and blacks, accented by the white of the stars and snow.

**Together...**

**We Foster Leaders**

**We Foster Insights**

**We Foster Progress**

**...To Better Humanity**

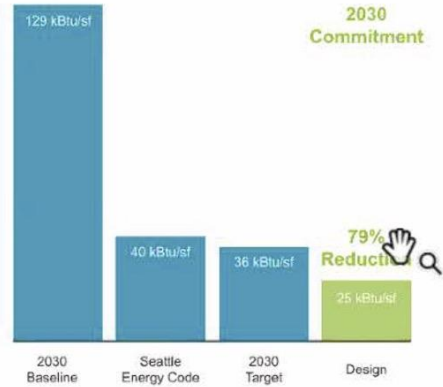




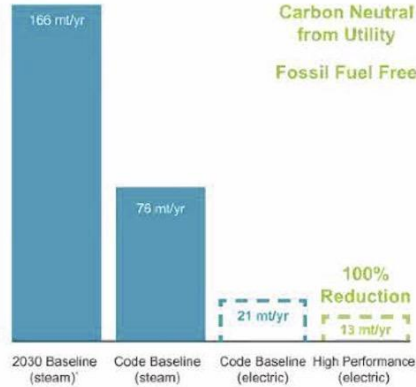


# Sustainability

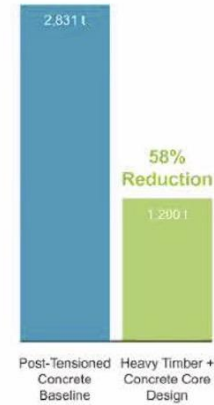
## Energy Use Intensity



## Operational Carbon (CO<sub>2</sub>e)



## Embodied Carbon



## Water Use



## Sustainability Goals

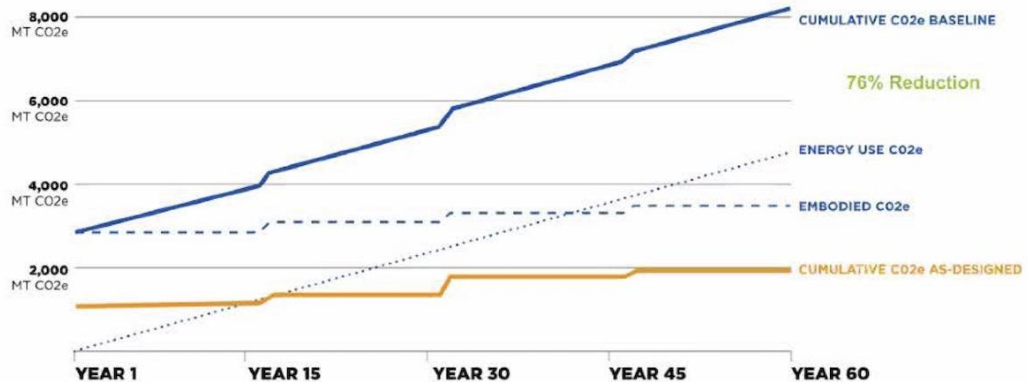
### 2030 Challenge

#### UW Green Building Standards

- 50% water use reduction below code
- 15% energy use reduction below code
- LEED NC v4.1 Gold



## Cumulative Carbon (60 years, CO<sub>2</sub>e)





## **Aureus Earth and the University of Washington Execute Ground-Breaking Carbon Offset Transaction for a Mass Timber Building**

*Project to store 1,000 tons of CO2 for decades in the University of Washington's Founders Hall, keeping carbon out of the atmosphere for the lifetime of the building*

BOULDER, Colo. ([PRWEB](#)) September 22, 2022 -- [Aureus Earth](#), the leading provider of carbon offsetting incentive programs for the construction industry, today announced its first transaction that values the long-term biogenic carbon storage in a mass timber building. The transaction was accomplished in partnership with the University of Washington (UW) Foster School of Business, using the newly completed Founders Hall mass timber building as a proof of concept.



# Climate-Focused Travel



UW Climate Risk Lab

# About the UW Climate Risk Lab

The UW Climate Risk Lab is a cross-campus initiative equipping organizational leaders with the data, analysis and tools they need to manage present and future risks posed by climate change.

# Solutions Facilitated by UW CRL

- An open access data platform
- Faculty- and student-led climate risk research projects that bridge the researcher-corporate divide
- Multi-stakeholder forums, networking events and case competitions
- Courses and training for students, faculty and business leaders
- Mentoring and support for data- and software-driven climate tech startups

# Partners





Event Check

Here

Climate Action & Adaptation



- Ben Packard  
EarthLab
- Charlie Donovan  
Foster School
- Dan Schwartz  
Clean Energy Institute
- Derek Fulwiler  
Population Health Initiative
- Eric Lawson  
Advancement
- Frank Hodge  
Foster School
- Jeremy Hess  
Center for Health and the Global  
Environment (CHanGE)
- Kate Simonen  
Carbon Leadership Forum
- Kelsea Shannon  
Advancement
- Lisa Thomas  
Advancement
- Maya Tolstoy  
College of the Environment
- Michelle Johnson-Jennings  
Environmentally- and Land-based Healing,  
Indigenous Wellness Research Institute
- Samantha Snively  
Advancement
- Sara Curran  
Center for Studies in Demography & Ecology
- Shuyi Chen  
College of the Environment



# DAVE WOODSON

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Executive Director of Campus Energy, Utilities, and Operations



# CHALLENGES

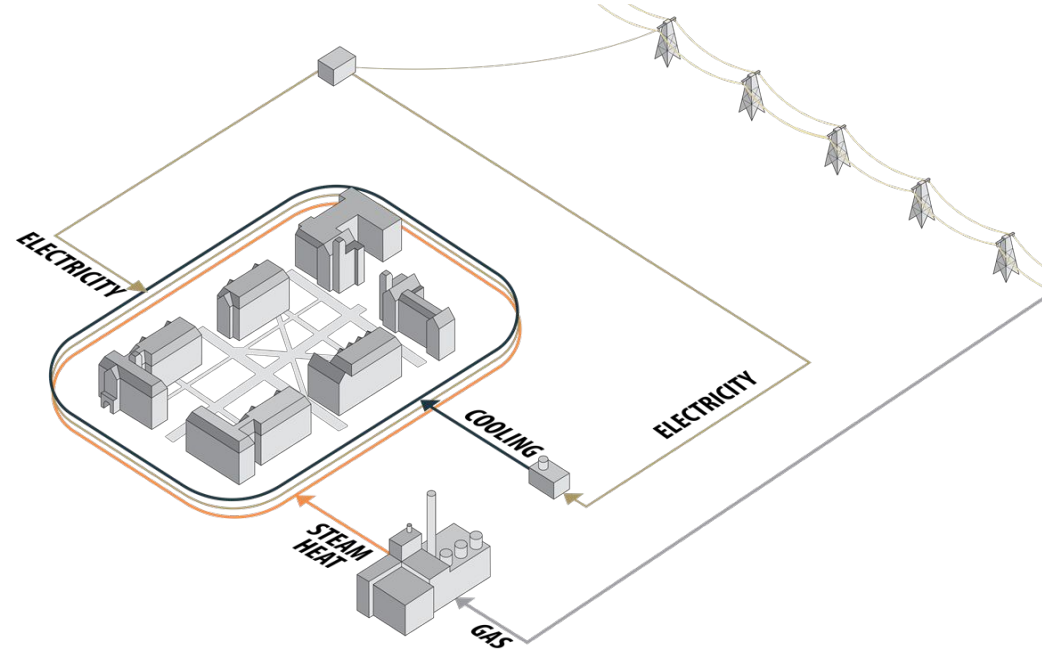
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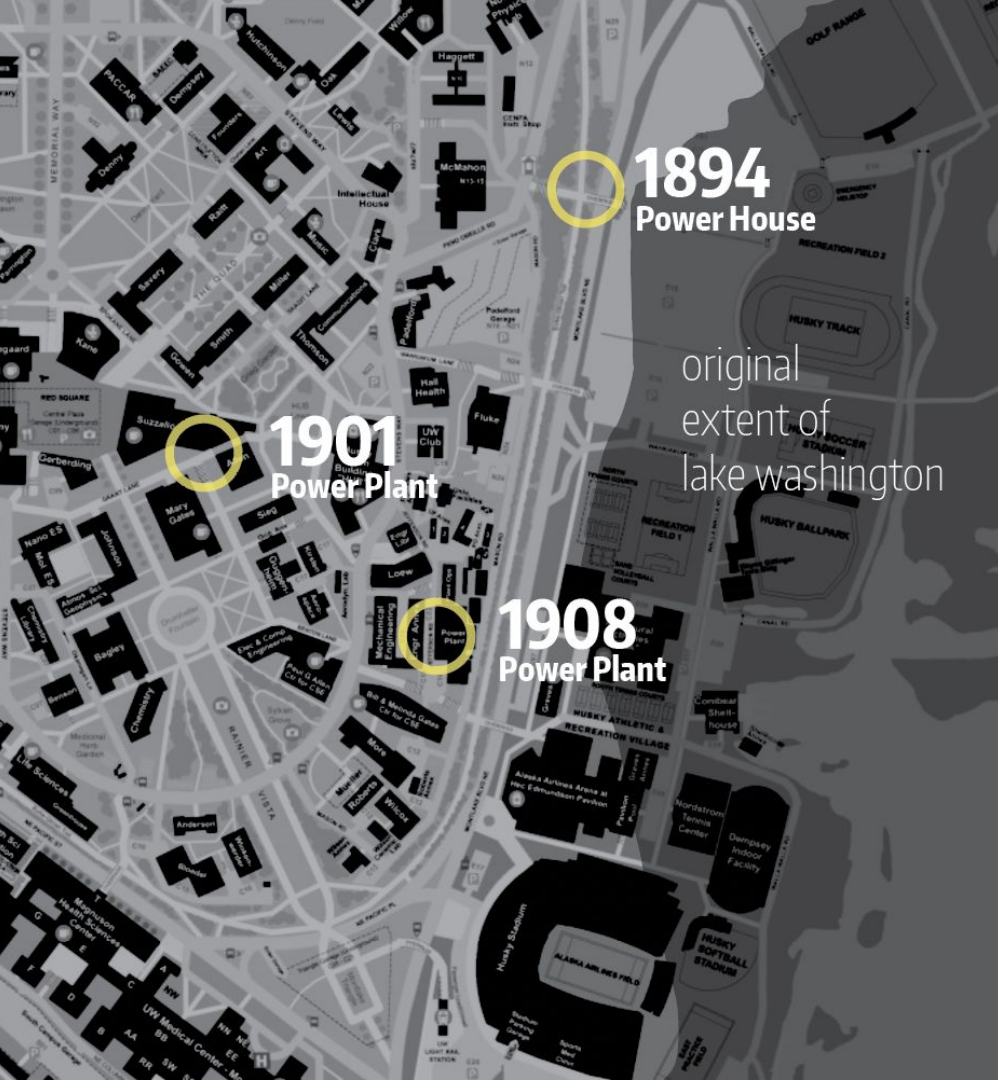
GREENHOUSE  
GAS EMISSIONS

ENERGY EFFICIENCY

ELECTRICAL  
CAPACITY CONSTRAINT

AGING  
UTILITY INFRASTRUCTURE



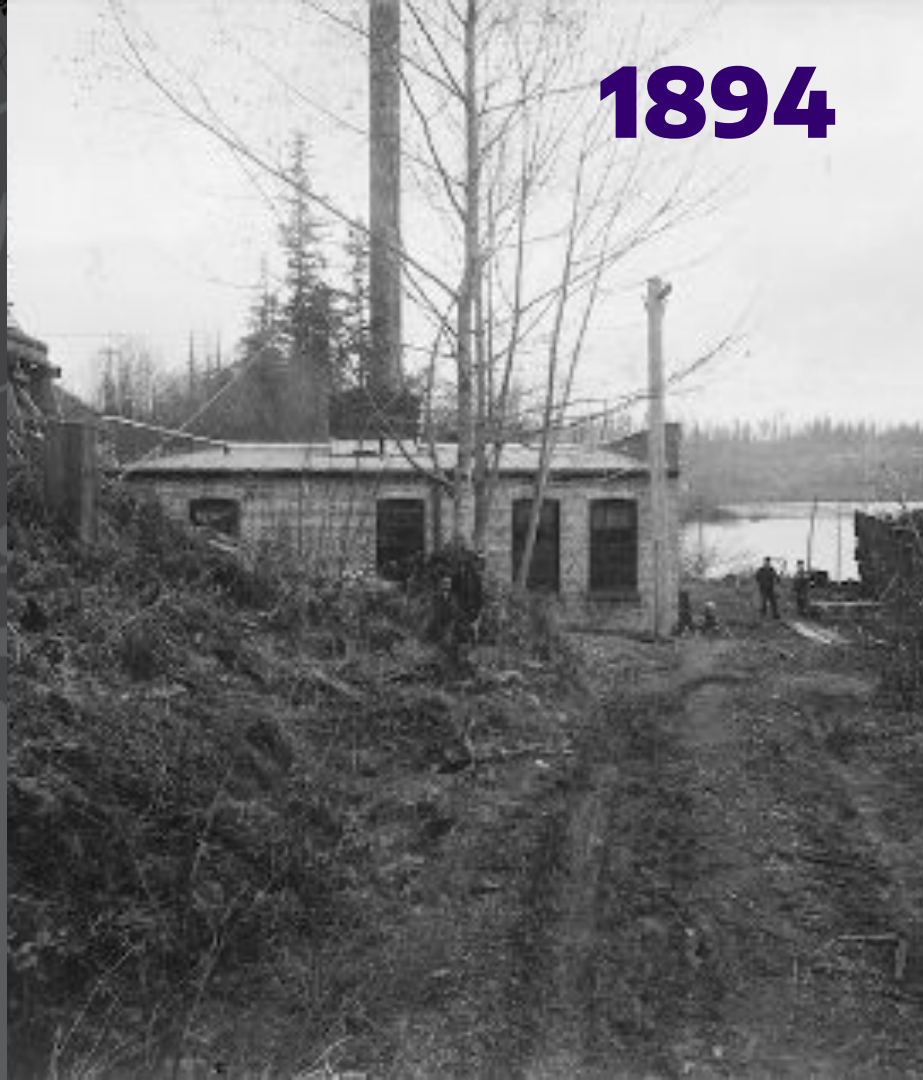


**1894**  
Power House

original  
extent of  
lake washington

**1901**  
Power Plant

**1908**  
Power Plant



**1894**

**1957**

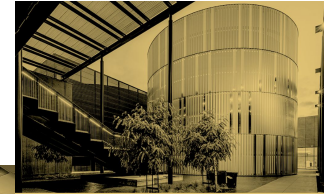
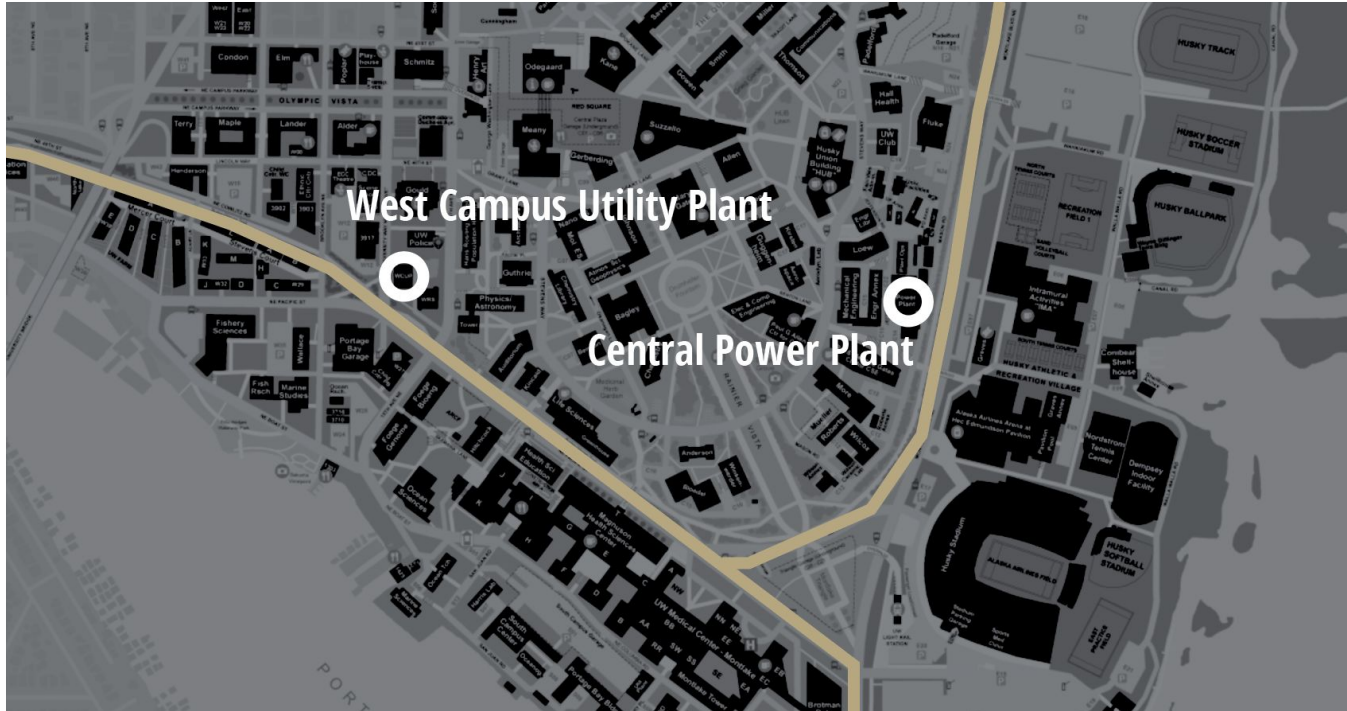


# ENERGY TRANSFORMATION STRATEGY

	1 ENERGY EFFICIENCY <i>Expand metering, upgrade controls, data analytics and green revolving fund.</i>	2 CONVERT TO HOT WATER <i>Convert from steam to hot water heating.</i>	3 CENTRAL COOLING <i>Replace inefficient chillers, use lake water for cooling, and add thermal storage.</i>	4 ELECTRIFY HEATING <i>Use heat pumps to extract heat from cooling towers, sewer and lake water.</i>	5 FINAL PUSH (FULL DECARBONIZATION) <i>Continuously evaluate emerging technologies for full decarbonization.</i>
ENERGY SYSTEM ISSUES					
Greenhouse Gas Emissions	15% reduction in GHGs	20% reduction in GHGs	no additional reduction	45% reduction in GHGs	20% reduction in GHGs
Energy Consumption	30% energy reduction	20% energy reduction	10% energy reduction	15% energy reduction	?
Electrical Capacity Constraint	2% more capacity	2% less capacity	25% more capacity	30% less capacity	?
Aging Utilities Infrastructure	✓	✓	✓	✓	?

PHASE 5 will remove the remaining carbon from our energy system

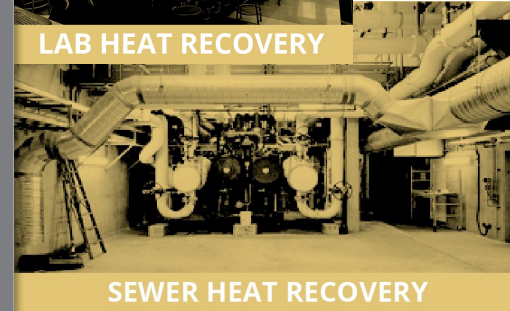
# ENERGY RENEWAL STRATEGY



THERMAL STORAGE



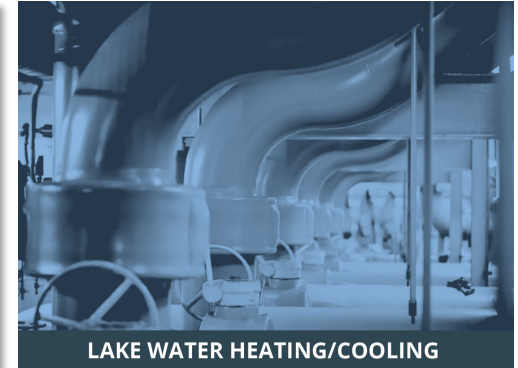
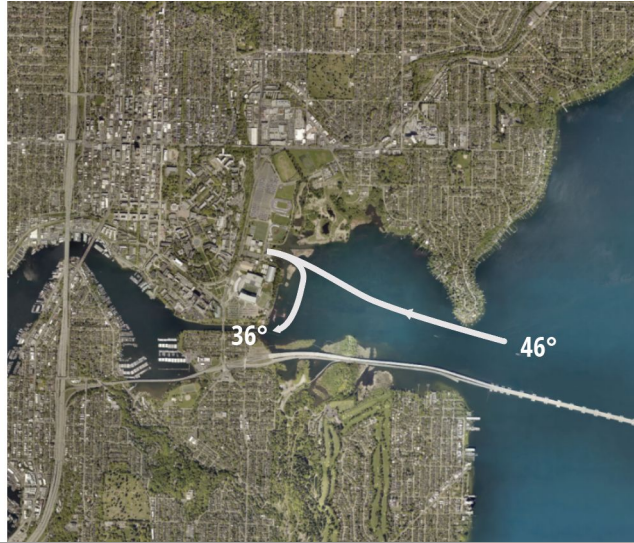
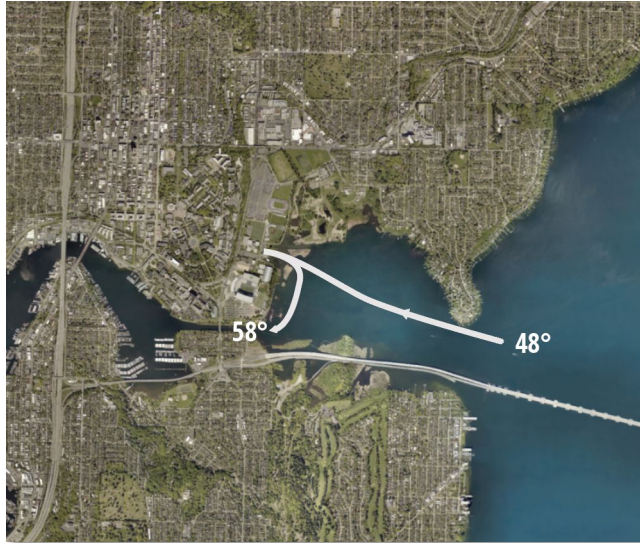
LAB HEAT RECOVERY



SEWER HEAT RECOVERY

# ENERGY TRANSFORMATION STRATEGY

**PART 3:** reduces energy costs and frees up electrical capacity









# LELA CORSON

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Institutional Climate Action Student Group

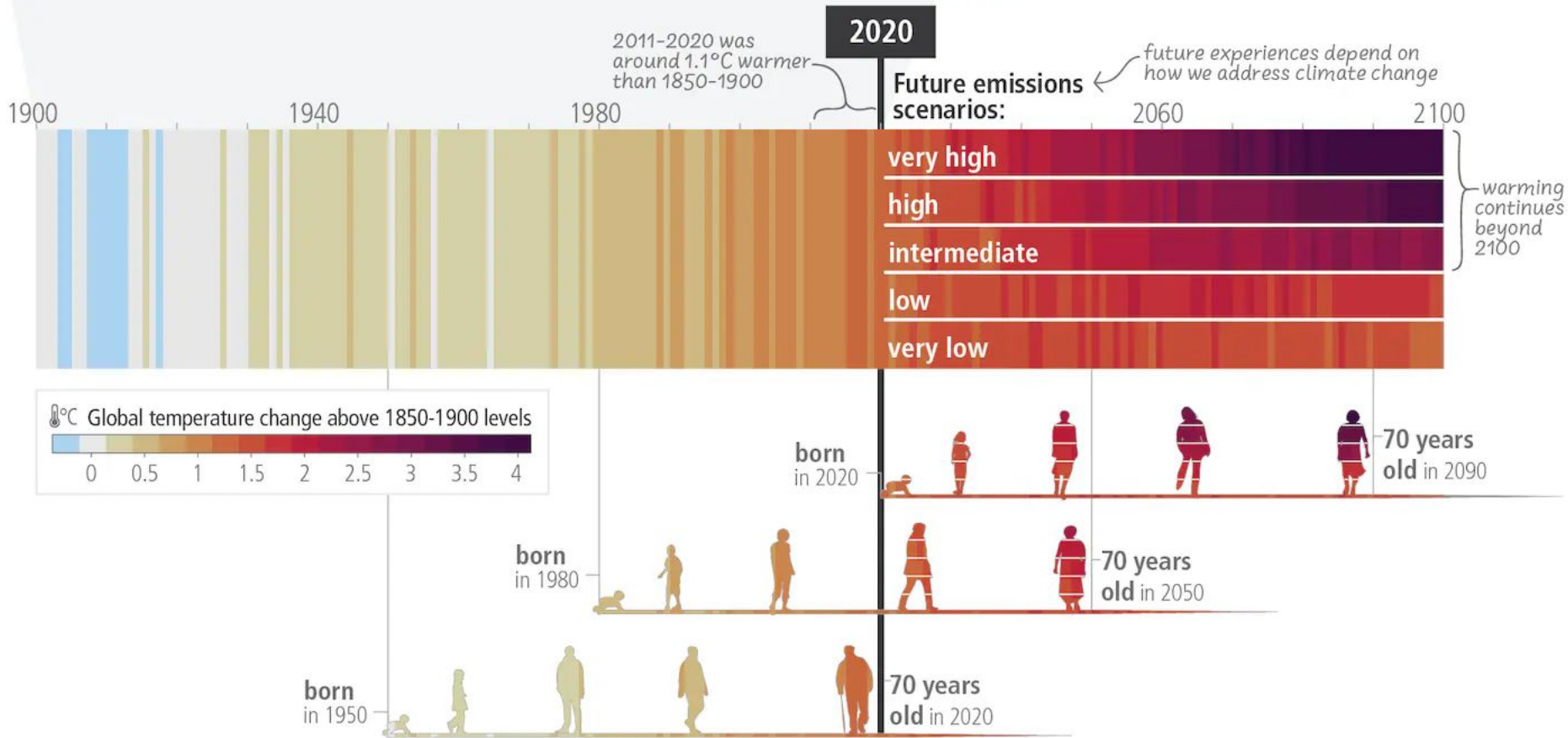


# The Youth Perspective

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- > Young people (16 – 25) across all countries:
  - 59% are **very** or **extremely worried**
  - 84% are at least **moderately worried**
- > “45% of respondents said their feelings about climate change negatively affected their daily life and functioning”
- > Emotions: sad, anxious, angry, powerless

*(Hickman et. al, 2021)*



# The Student Perspective



*Dargan Frierson*

*Grant Vu*



*Margo Polley*

# We've Done it Before!

- > Husky Stadium Remodel
  - \$261 million in < 2 years
  - **\$139 million/yr**
- > Interdisciplinary Engineering Building
  - \$102 million in 2 years
  - **\$51 million/yr**
- > Methane Gas Plant?
  - \$700 - \$900 million in 12 years
  - **\$75 million/yr**



**“Like many others of this generation, climate change is existential to them...”**

*- Quote from a president's blog*

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**Be Leaders - Act Now!**

**W**

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