District Energy & The Waterfront

Gather the community to continue a discussion on sustainable growth of the neighborhood.

Create the infrastructure, design, and land-use overlay to realize a waterfront neighborhood that is the new front door to the City of Seattle.
Role of the Seattle 2030 District

Change the way buildings in the District are designed, constructed, maintained and operated.
The District Boundary

- Uptown
- South Lake Union
- Capitol Hill
- Denny Triangle
- Belltown
- Downtown
- First Hill
- Pioneer Square
- International District
- Sodo
What is Shared Energy?

Credits: IDEA, Enwave Seattle, EcoDistrict LLC
Benefits of Shared Energy

Credits: IBE, PSCAA, NOAA
Westin Building Exchange (WBX) (Clise/Digital Realty)
- 34 stories; 400,000 RSF
- 70% for data center - Internet gateway of the PNW
- 16.5 MW Power
  - Current utilization ~11 MW
- 5,400 Tons of Cooling

Eco District (Clise/McKinstry)
- 5MW Heat Transfer to Amazon campus
• **Benefits**
  
  – Access to 330,000 gallons of emergency water
  
  – Power cost savings
    
    • Cooling tower fans and pumps ramp down when incoming water is cooler.

  – Water cost savings
    
    • Less heat = less evaporation and overall less water use.

  – Projected savings of 4 million kwh / year
Extending the Definition of the Waterfront

The Waterfront is more than the water’s edge. It is a district that occupies the hillside linking downtown down to the water. The neighborhood is home to the east-west connectors that are the counterpoint to the north-south corridor of Alaskan Way.
District Energy & The Waterfront

Nine corridors connect the Waterfront back to the City’s West Edge. Three catalyst sites illustrate the challenges of grade change across the neighborhood: a two-block pedestrian hillclimb at Pike, a through street at University prioritizing people over cars at the bottom of the Harbor Steps, and a multimodal transportation hub at Columbia.

Existing district energy system within boundary
Enwave Seattle Evolves with the City
Lowering Carbon and Increasing Efficiency

How do we get our heat:

• Pre 2009 – 100% natural gas
• Today – 50% biomass, 50% natural gas
• Tomorrow, – 50% biomass, 40% CHP, 10% natural gas
Exploring New Hot Water Networks

Potential New Areas for District Systems

1. **Capitol Hill Light Rail Station Transit Oriented Development**: Four apartments buildings with 418 units to be simultaneously built over a light rail station.

2. **Denny Way District**: Almost a dozen office and residential buildings are seeking permits in very close proximity to a large data center. We are attempting to reuse the waste heat from the data center for these projects.

3. **Alaskan Way District**: A group of new buildings are planned near our main plant. A local architectural firm (DLR) is proposing linking them to our system in a heat load sharing design. This would model our effort with the under construction Mack Urban Project, the Cyrene Apartments.
STEAM FOR CYRENE

- Logistics
- Energy Code Compliance
- Benefits
LOGISTICS: Equipment

- Using steam heat for HVAC and domestic HW
- Heating
  - Steam Supply (~260°)
  - Condensate Return (~180°)
- Cooling
  - Condenser Water Supply (~54°)
  - Condenser Water Return (~70°)
- Heat Exchangers and Hydronic Heat Pumps on Cyrene property
ENERGY CODE (2012)

• 50% credit from City toward energy saved
• Larger windows
• Less insulation
• No renewable energy required (due to performance of heat recovery system)
BENEFITS

• Higher upfront costs, but long-term operational savings
• No cooling tower on roof
• More efficient
• More consistent heat
• Quieter
• Low Maintenance
• Better air quality
Space and Stills Heated by Steam
Minimal Water Consumption
Next Steps in DE & Waterfront Project

- Secure funding for comprehensive DE & Waterfront study
- Use completed study to continue to gather support for the DE & Waterfront concept
- Work with City officials to streamline the review and consideration of DE projects and to explore potential incentives for DE projects
- Hold art installation, night market, and Seattle Design Festival Closing Party the weekend of September 23rd at Pike St. Hillclimb, one of the Waterfront Neighborhood catalyst sites
- Work with Waterfront developers/owners to consider DE for their properties
Q&A
Thank you to our Funders

Bullitt Foundation
Boeing
Kresge Foundation
King County
Department of Energy
United States of America
Seattle 2030 District
Annual Sponsors
Legacy Sponsors

2030 Visionary
SIEMENS
District Leader