City of Portland
Office of Sustainable Development

Exploring district energy

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Objectives

- ✓ Sustainability goals in North Pearl District Plan
- ✓ Substantial reductions in greenhouse gas emissions
- ✓ Contribute to local energy efficiency and security by shifting from “high value” gas and electric heat to low grade, alternative heat sources
- ✓ Return on investment based on debt costs, risk and community benefits
- ✓ Cost of service comparable to customer alternatives
- ✓ Provide long-term energy price competitiveness and stability to residents and businesses

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Process for feasibility analysis

Technical & economic analysis - 3-4 month process

- Capacity-building, stakeholder & public engagement
- Inter-Bureau City staff team
- Stakeholder advisory group - property owners, developers, neighborhood representatives, sustainable development advocates

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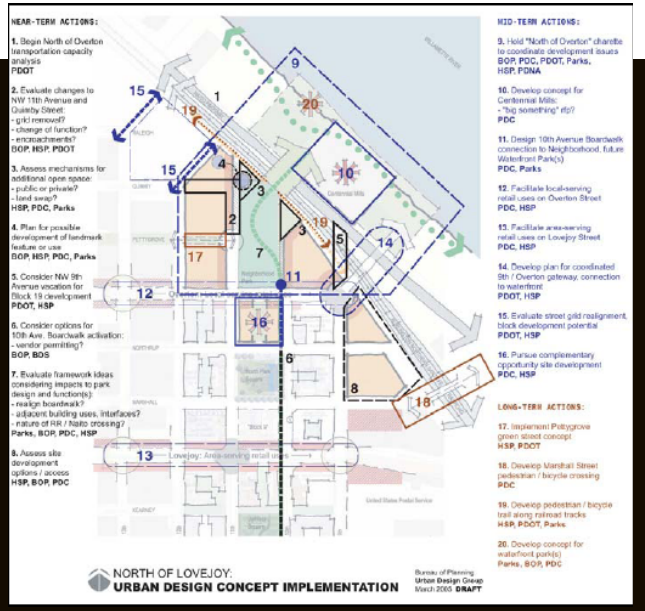
Status quo energy system

- Each development responsible for its own heating and/or cooling systems
- Systems installed by developers; owned and operated by the ultimate building owners
- Developers (and purchasers) typically are very sensitive to first costs, which is a barrier to more efficient and/or alternative technologies with higher capital, even where these have lower lifecycle costs (combined capital and operating costs)



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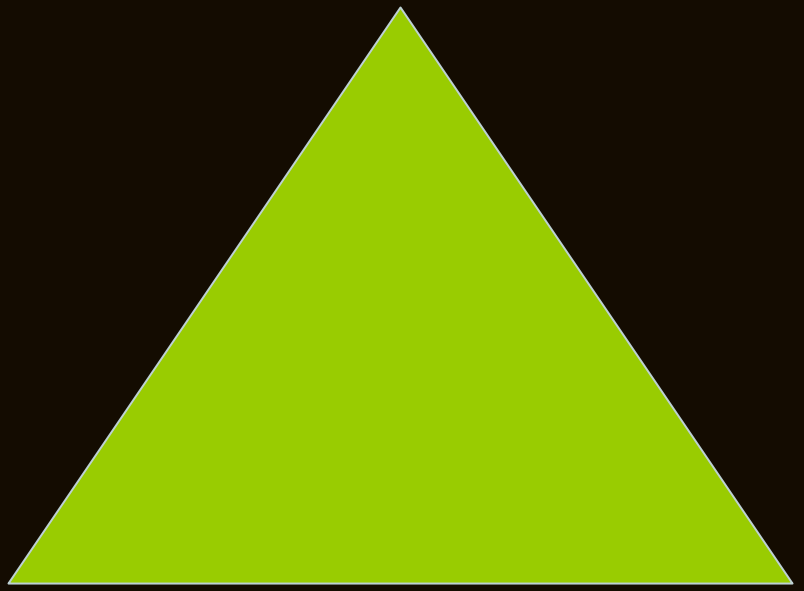
Consideration of district heating/cooling

- Provide heating, domestic hot water (DHW) and potentially cooling as a utility service with costs recovered through a rate to building owners
- Building owners would allocate heating and/or cooling costs among occupants
- Heat supplied to buildings through low-temperature hot water distribution system (two-pipe system); cooling through similar cold water system
- A utility would own distribution system and energy transfer stations within each building
- Utility could own heat plant(s) or could contract for heat from a third party
- Building designs would need to be compatible with system

Benefits

Economic - better long-term investment decision on energy systems, return on investment



Environmental - more efficient energy systems, fewer emissions, platform for better technologies

Social - better, healthier buildings, enhanced awareness, connection to global warming, leadership

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Key questions

- Initial service area
- Development timing
- Distribution system
- Energy technologies
- Ownership approach
- Expansion potential