

Surrey's Low-Carbon District Energy Strategy

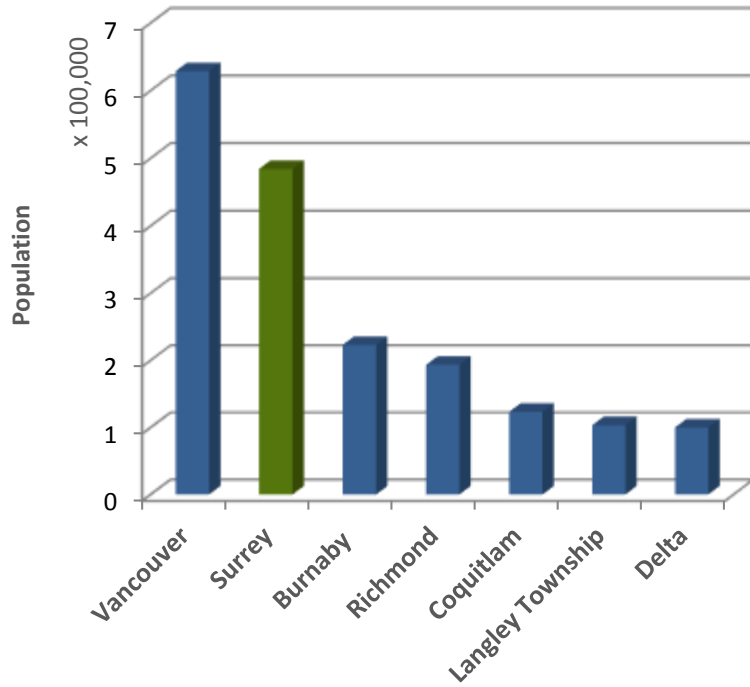
IDEA Annual Conference

June 13, 2018

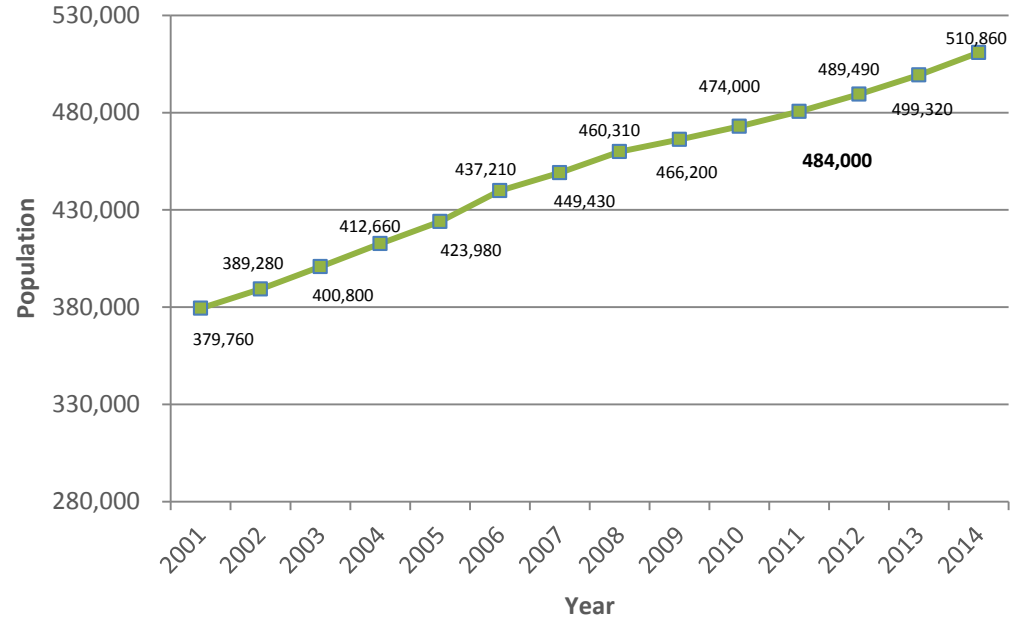


Regional Context





Metro Vancouver Population



City of Surrey Population Growth

Surrey is the third fastest growing city in Canada.

Growth in City Centre



City Centre 2009



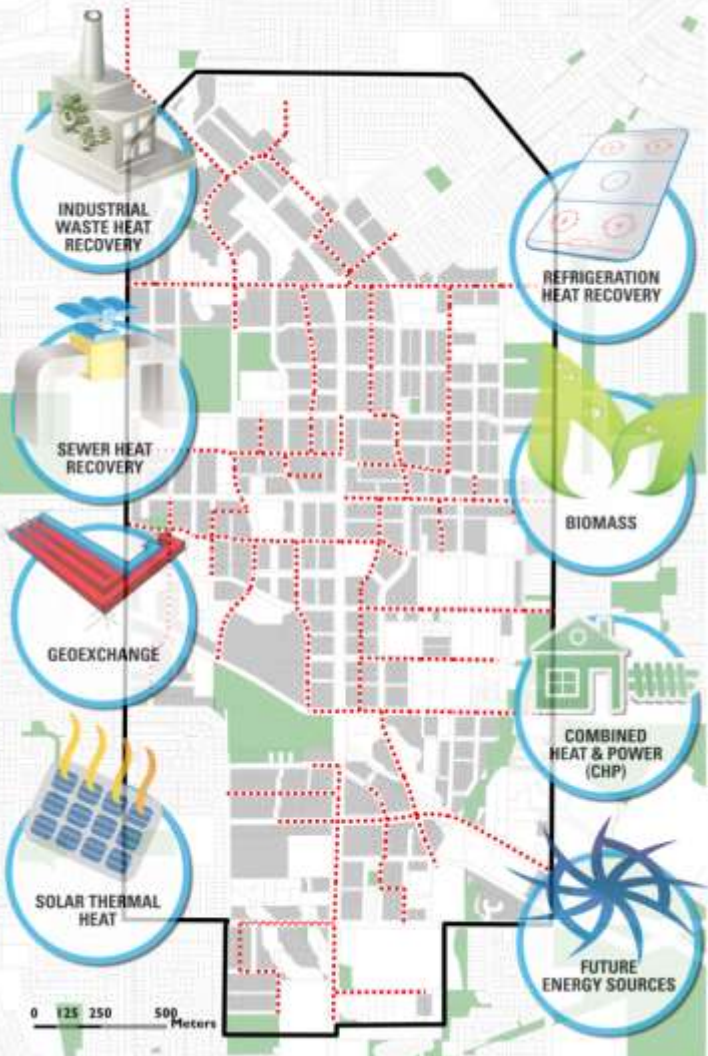
Proposed Future Development

- Hot-water district energy in City Centre
- 100% Municipally-owned
- Operational unit of Engineering Dpt.
- Mandated connection for all new high-density buildings



DE Stats	2018	2035
Residential Customers	1,500,000 ft ²	11,500,000 ft ²
Commercial Customers	1,200,000 ft ²	6,000,000 ft ²
Peak Demand	12 MW	67 MW
Energy Sales	20,000 MWh	133,000 MWh





1. Improve energy efficiency;
2. Reduce greenhouse gas emissions;
3. Increase resilience; and
4. Provide competitive and stable pricing.



Phase 1

Temporary Energy Centres



Phase 2

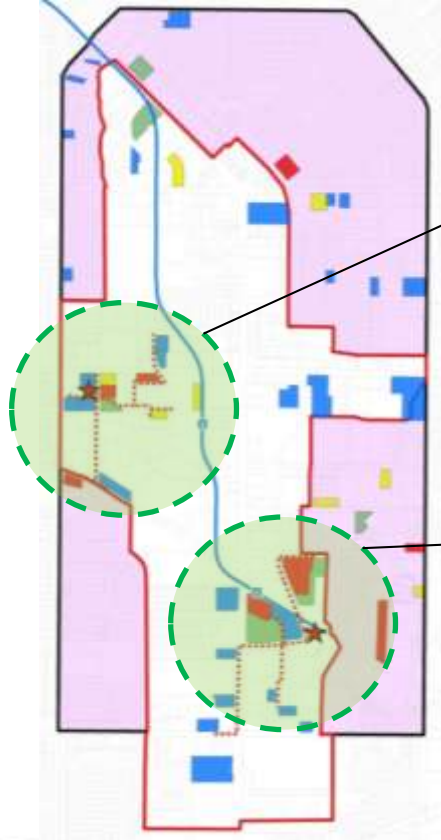
Permanent Energy Centre

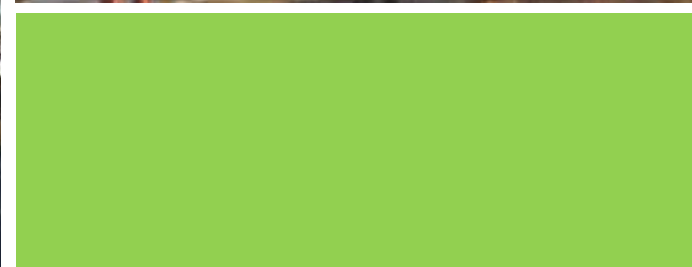
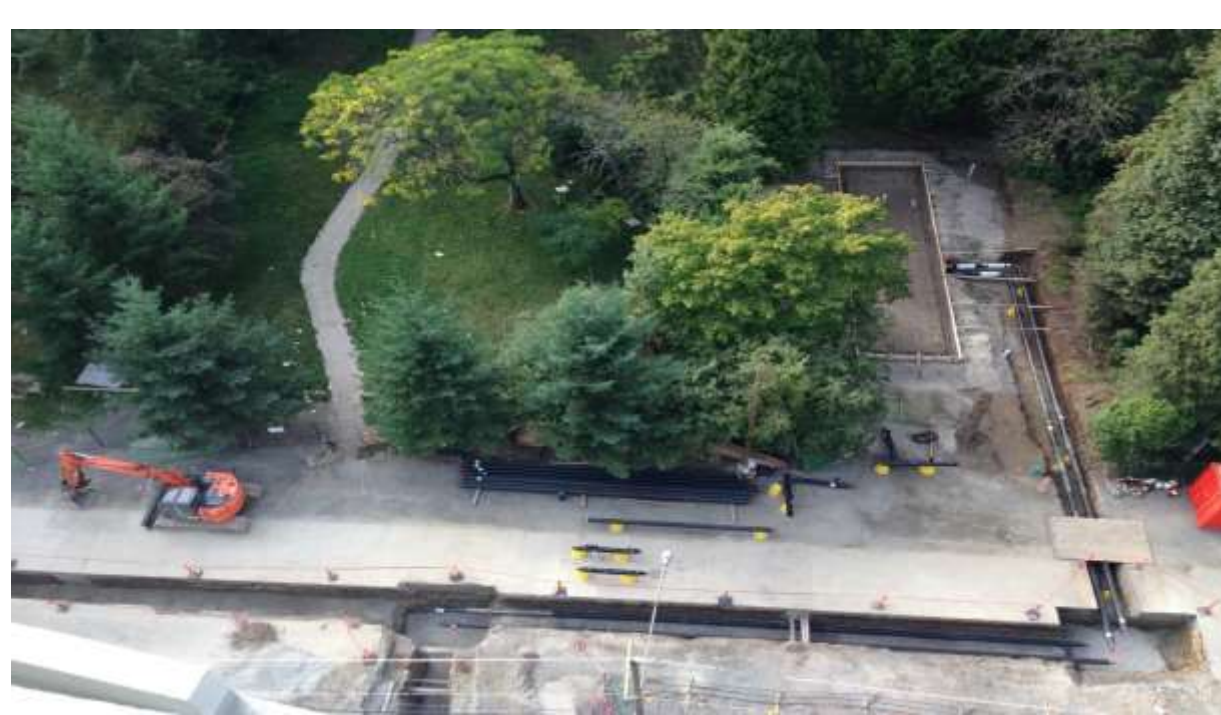


Phase 3

Low-Carbon Energy

Phase 1: Temporary Energy Centres





Phase 2: West Village Park & District Energy Centre



Phase 2: Permanent Energy Centre



Phase 3: Integrating Low-Carbon Energy

GHX/RNG



Biomass

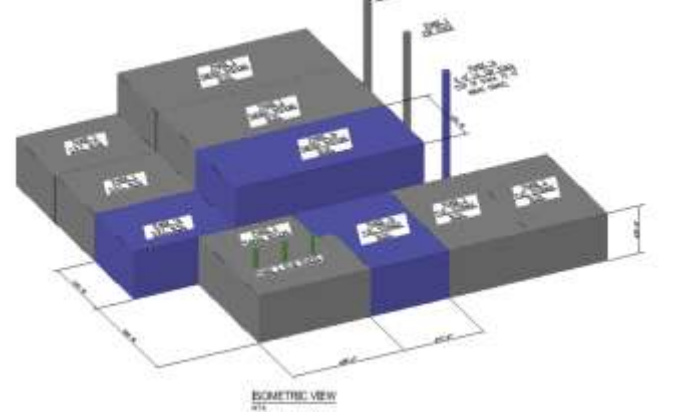


Sewer Heat



Phase 3 - Biomass

	Phase 1	Phase 2
Output Capacity	9.8 MW	19.6 MW
Low-Carbon Energy	48,950 MWh	97,900 MWh
Biomass Input	13,000 BDT/yr	26,000 BDT/yr

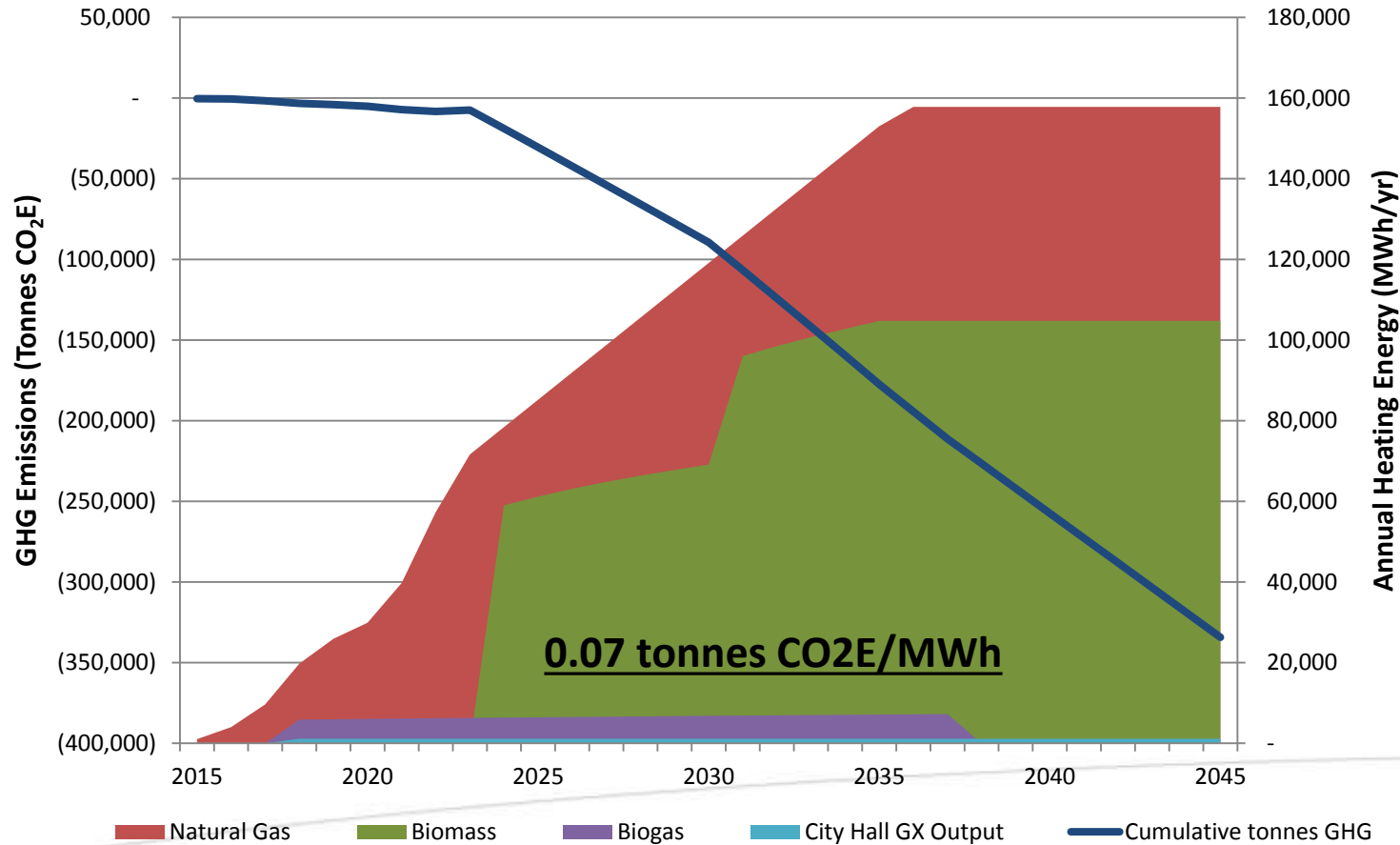


Phase 3 – Waste Heat Recovery

	Phase 1	Phase 2
Output Capacity	9 MW	15 MW
Low-Carbon Energy	46,199 MWh	76,789 MWh
Sewage Diverted	250 l/s	416 l/s

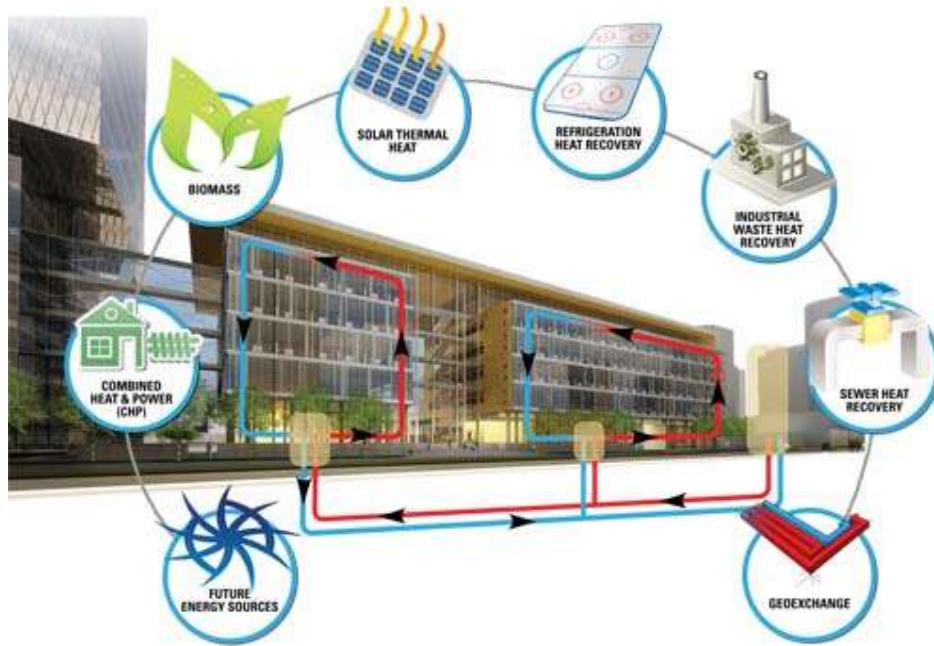


Low-Carbon Outcomes



Ownership Model

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- *Surrey City Energy*
- Municipal Ownership:
 - Low cost of capital
 - Departmental synergies
 - Access to grants
 - Experienced utility operator
- Does not preclude future partnership opportunities

Rate Review Panel

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Provide objective, expert advice to the City to ensure that the rates and rate structure are consistent with the following principles:

1. Cost recovery
2. Rate competitiveness
3. Return on investment
4. Shortfall recovery
5. Low-carbon/renewable energy
6. Fairness

Key Takeaways

- Surrey is using DE as a platform for the use of locally available low-carbon heating sources
- This strategy will result in significant GHG reductions while improving energy resilience and stabilizing long-term energy costs in Surrey
- Diversity and flexibility of heating sources are key to success

Thank You.



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