Neighbourhood Energy Systems ("NES") supply centralized heating, hot water (and sometimes cooling) for multiple buildings.
Reaching our 2020 GHG Goal

GCAP goal: 33% carbon reduction by 2020
(reduce 1,110,000 tons CO₂ / year)
Case study: Swedish transition to renewables
NES = Economies of Scale

Cost of GHG Reductions vs. System Size

Capital Cost per Annual Tonne of CO₂ Avoided

Building-Scale Low Carbon Systems
SEFC, NEFC and River District
Conversion of Downtown Steam System
Conversion of C&W Hospital Steam System
Southeast False Creek NEU (est. 2010)

- Achieving 60% CO₂ emission reduction target, with sewage heat recovery
- Has grown 260% since 2010, with 4.2 million ft² of buildings now connected
- Competitive customer rates and business case on track
Other Regional Initiatives

**UBC:**
- New energy centre uses waste wood fuel
- Steam system modernized
- New NES to recover waste heat from particle accelerator

**SFU:**
- UniverCity system operational

**New Westminster:**
- NES planning underway

**Richmond:**
- West Cambie system operational

**North Vancouver:**
- Lonsdale Energy Corp

**Surrey:**
- City Centre system implementation in progress
Strategy:

- Target NES to areas with high density
- Building-scale low carbon systems in other areas
Strategic Approach to Low Carbon Energy
Approved by City Council October 2012

Key Principles:

- Utilize a flexible combination of enabling tools
- Minimize City financing requirements and risk
Strategy #1 - Convert Existing Steam Systems

Target = 95,000 tonnes/year CO2 reduction by 2020

Downtown steam system (210 buildings)

C&W and VGH Hospital steam systems
Strategy #2 - Establish New Systems

Target = 25,000 tonnes/year CO2 reduction by 2020
GHG Reductions Forecast

- Convert Creative Energy Downtown Steam System
- Convert Children and Womens and VGH Hospital Steam Systems
- NEFC and S. Downtown
- New Cambie Systems
- River District
- Sustainable Large Sites
- SEFC NEU

Carbon Reduction [tonnes CO2/year]

- GCAP Target
Enabling City Policy Tools

• *Utility Regulatory and Contractual tools*: used to control utility access to CoV streets and infrastructure.

• *Cost Competitiveness Measures*: may include adjustments to property tax policy for utilities, access to grants, capital funding etc.

• *Connection policy tools*: examples include zoning policy, and service area bylaws

*All subject to Council Approval*
• *Energy Centre Guidelines*: development policy for new low carbon facilities. Criteria:

1. GHG performance
2. Air quality
3. Neighbourhood fit
4. Sustainability of fuel sources
5. Community engagement

• Approved by Council October 2012, following extensive stakeholder consultation
Utility Providers Needed

• To further implementation of neighbourhood energy initiatives, utility providers needed

• Competitive Request for Expressions of Interest was issued December 2012. Six proposals were received from local and international vendors

• Following a comprehensive and rigorous evaluation process, the City selected Creative Energy as the Lead Proponent for Downtown Neighbourhood Energy
Strategic Approach - Downtown

Creative Energy Downtown Steam System:
- 210 buildings already connected
- Natural gas fired

Steam Plant (720 Beatty St)
Strategy #1 - Downtown Conversion

Future Energy Centre:
- Opportunity to eliminate 70,000 tonnes CO$_2$/year
- Low carbon fuel: clean, locally-sourced wood waste
- Proven technology
Strategy #2 – Establish New Networks

Expansion Areas:
- Hot water extensions of steam system and stand-alone boilers
- Low carbon energy from converted steam system or distributed energy centres

Map showing expansion areas:
- West End
- DTES
- South Downtown
- NEFC & Chinatown
Downtown Steam System Conversion

• Feasibility analysis required for conversion of steam system:
  – Technology and fuel supply studies
  – Business case analysis
  – Energy centre site identification
**Potential Energy Centre Site**

- **425 & 435-455 Industrial Ave:**
  - City-owned industrial site close to Downtown with rail access
  - Energy Centre could be integrated with existing recycling facilities
  - City holding site
Northeast False Creek & Chinatown

• COV and Creative Energy entered into an agreement on May 26, 2014 to establish NEFC and Chinatown system. Key terms:

  – Creative Energy to:
    • Develop, own and operate neighbourhood energy system, with BC Utilities Commission oversight of customer rates
    • Implement low-carbon energy supply prior to 2020

  – COV to:
    • Secure connection of new developments through ODP, existing rezoning conditions and proposed service area bylaw (subject to Council approval Apr. 28, 2015)
South Downtown

• NES confirmed viable for South Downtown, with similar approach as NEFC/Chinatown

• Staff will report back to Council on recommended next steps for this area

Granville Loops area - significant development anticipated
## Near-term Actions - Downtown

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>TIMING</th>
<th>ACTIVITY</th>
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</thead>
<tbody>
<tr>
<td>Downtown Steam System</td>
<td>Q4, 2015</td>
<td>- Complete feasibility study for conversion of Downtown steam system</td>
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<tr>
<td></td>
<td>Q1, 2016</td>
<td>- Pending outcome of feasibility study, negotiate contracts to secure conversion</td>
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<tr>
<td>Northeast False Creek</td>
<td>Q2, 2015</td>
<td>- Creative Energy to submit application to BCUC to establish system</td>
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<td>- Staff to present connection bylaw to Council</td>
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<tr>
<td>South Downtown</td>
<td>Q2, 2015</td>
<td>- Creative Energy and City to negotiate Franchise Agreement to establish NES</td>
</tr>
<tr>
<td>West End and DTES</td>
<td>Q2, 2016</td>
<td>- Compete feasibility studies and planning for new systems</td>
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QUESTIONS