

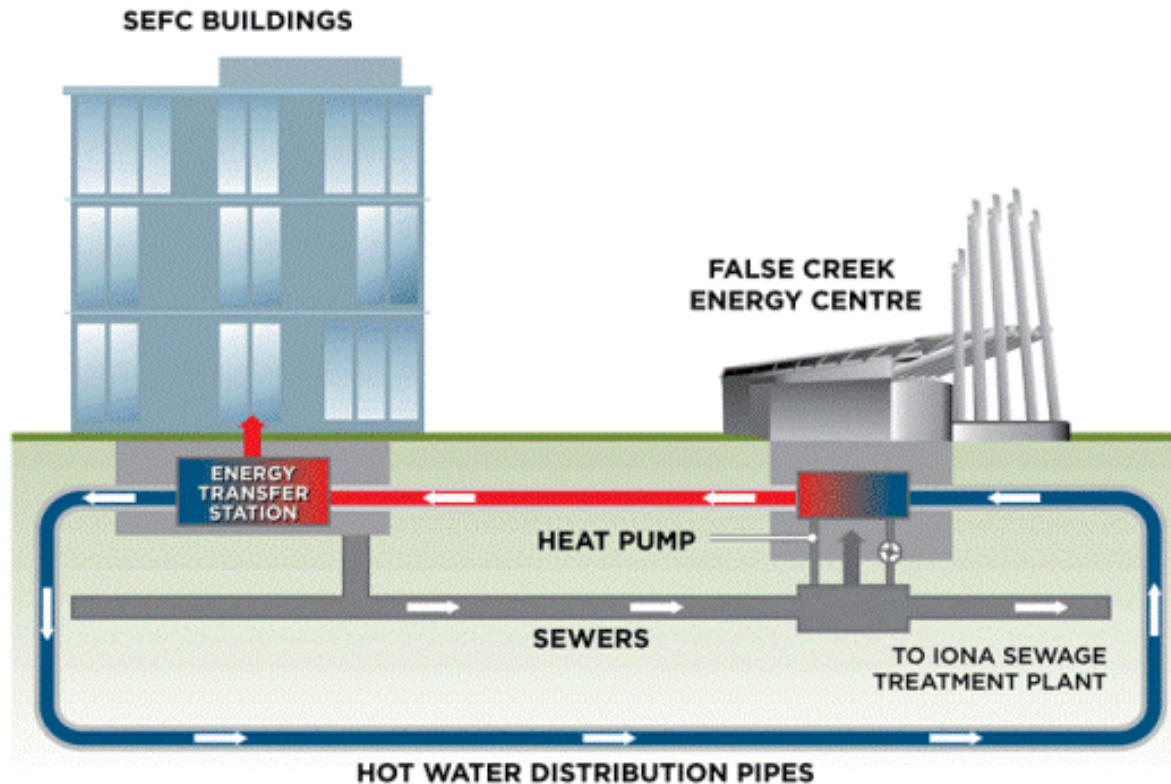
Neighbourhood Energy Strategy: Downtown Update

Vancouver City Council
April 14, 2015 RTS 10903



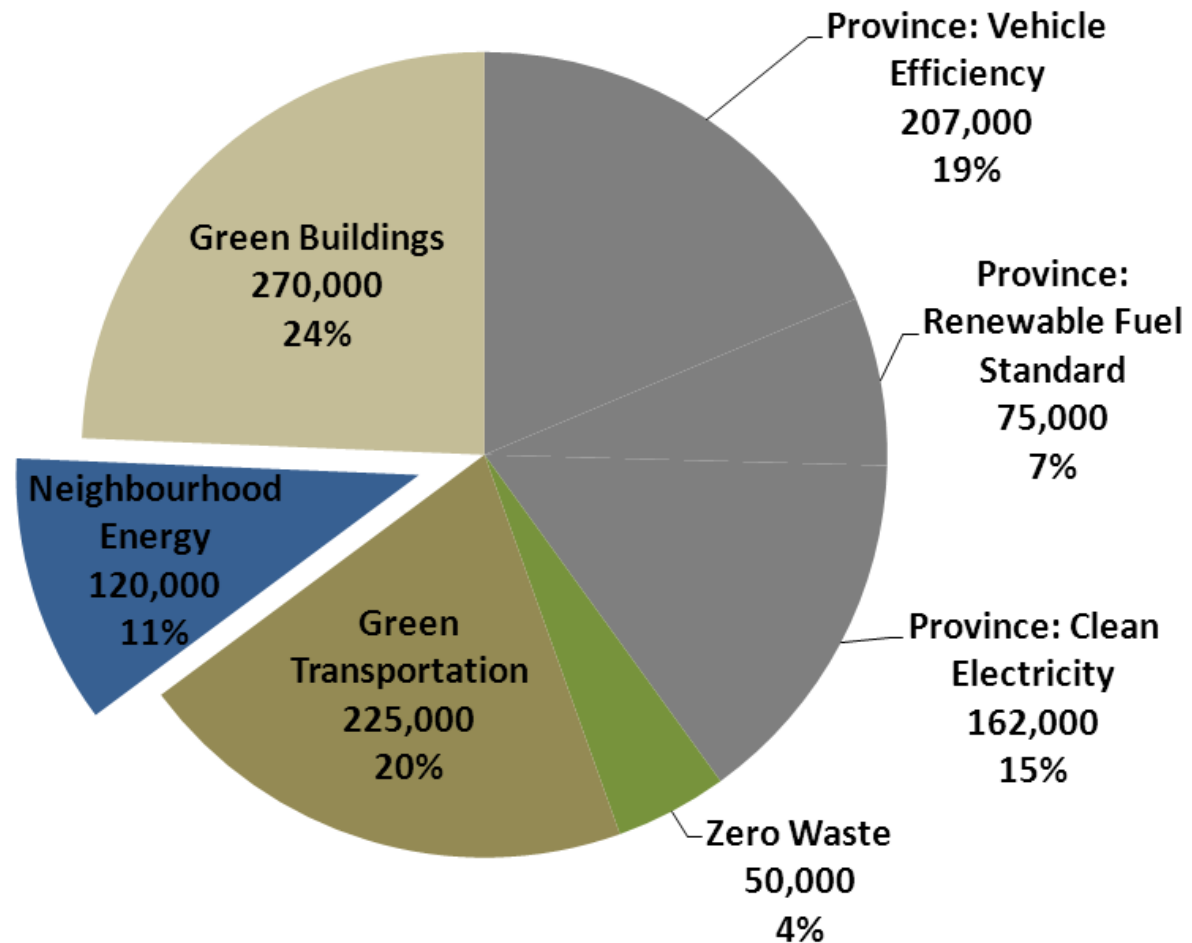
What is Neighbourhood Energy?

Neighbourhood Energy Systems (“NES”) supply centralized heating, hot water (and sometimes cooling) for multiple buildings.

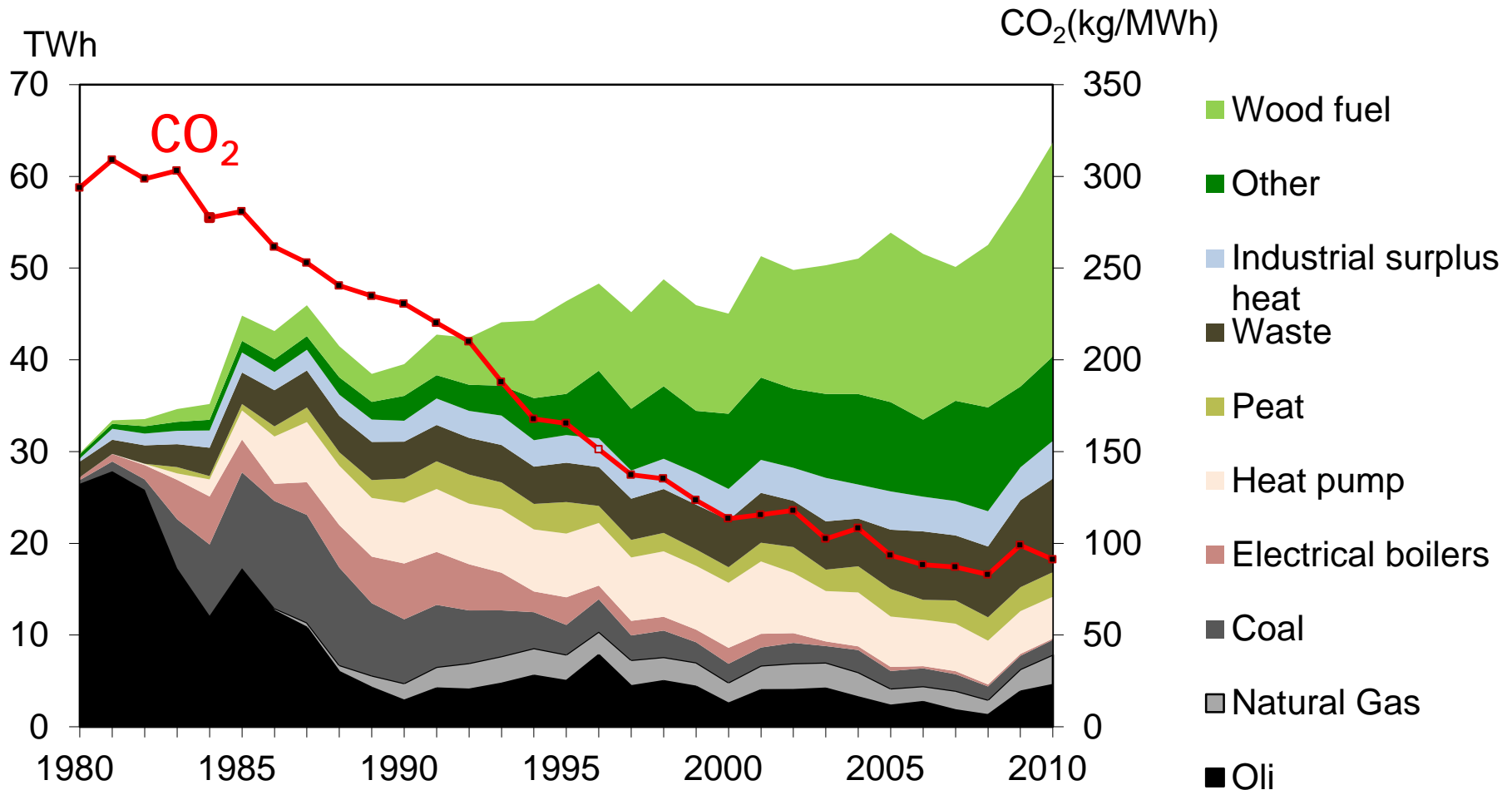


Reaching our 2020 GHG Goal

GCAP goal: 33% carbon reduction by 2020
(reduce 1,110,000 tons CO₂ / year)

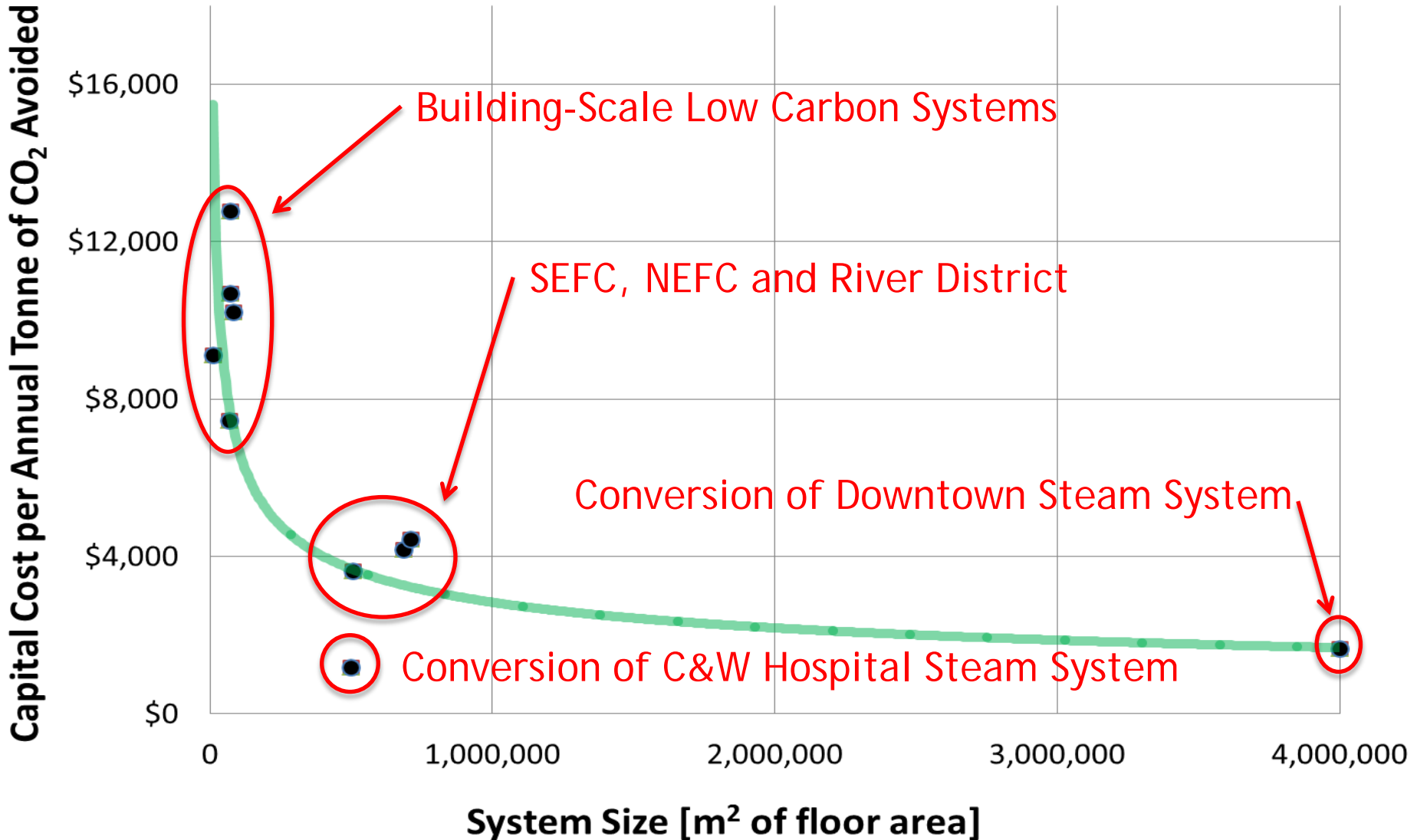


Case study: Swedish transition to renewables

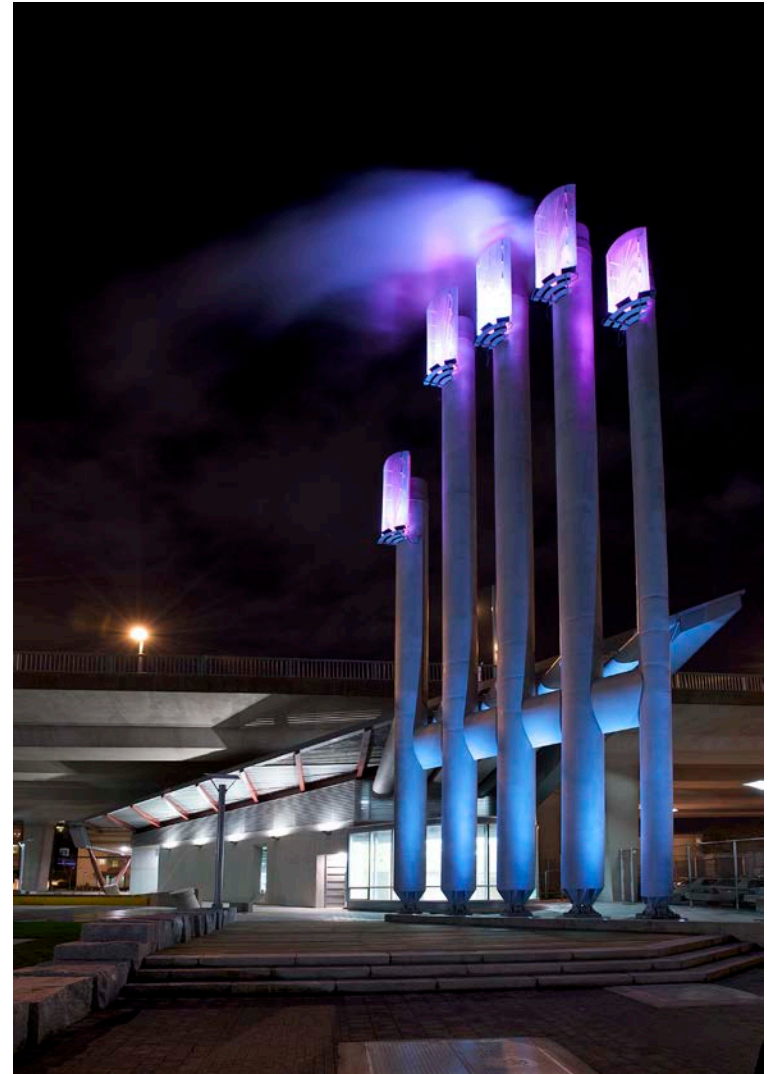


NES = Economies of Scale

Cost of GHG Reductions vs. System Size



- 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

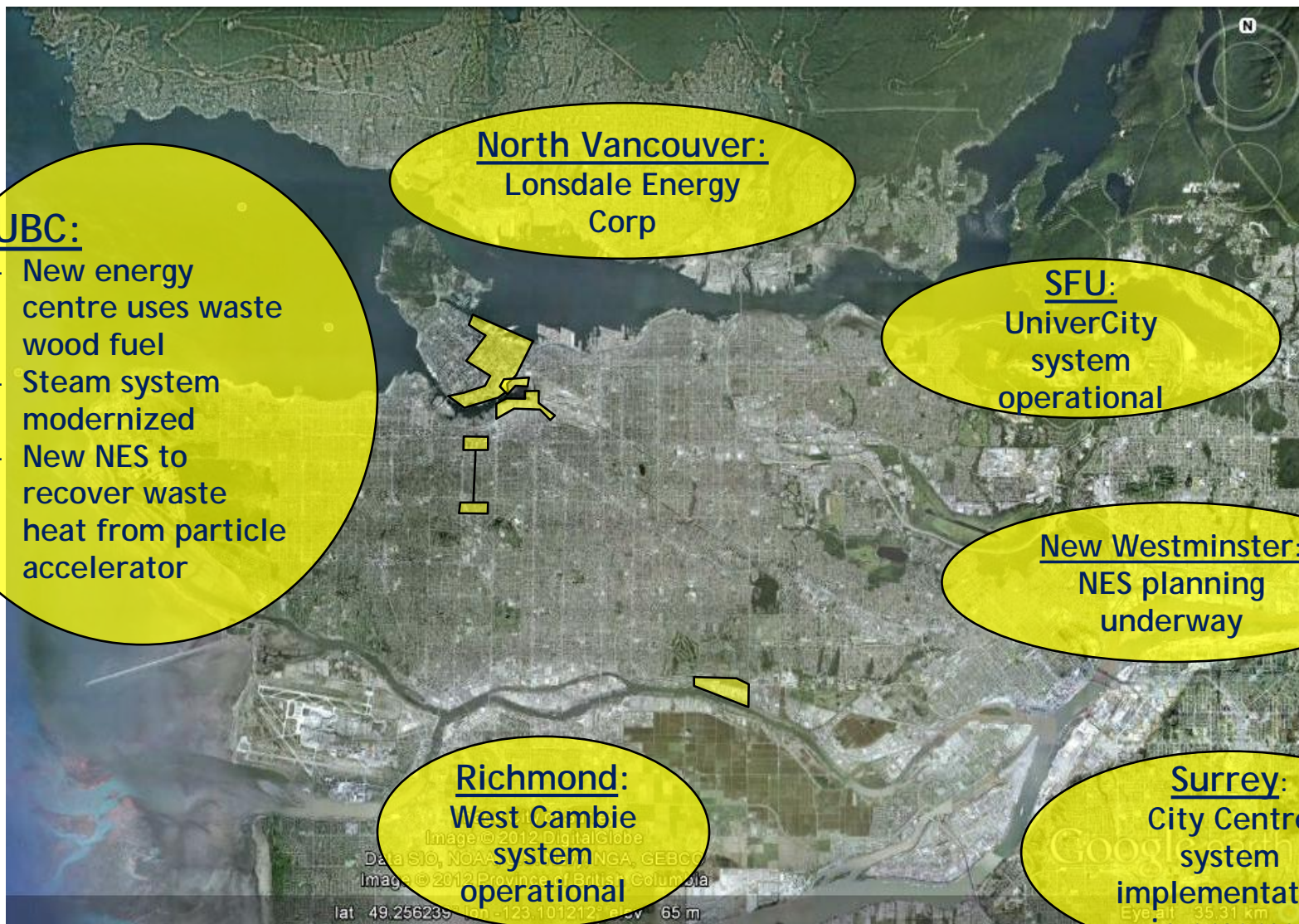
North Vancouver:
Lonsdale Energy Corp

SFU:
UniverCity system operational

New Westminister:
NES planning underway

Richmond:
West Cambie system operational

Surrey:
City Centre system implementation in progress



Strategic Approach to Low Carbon Energy

Approved by City Council October 2012

Strategy:

- Target NES to areas with high density
- Building-scale low carbon systems in other areas

Strategic Approach to Low Carbon Energy

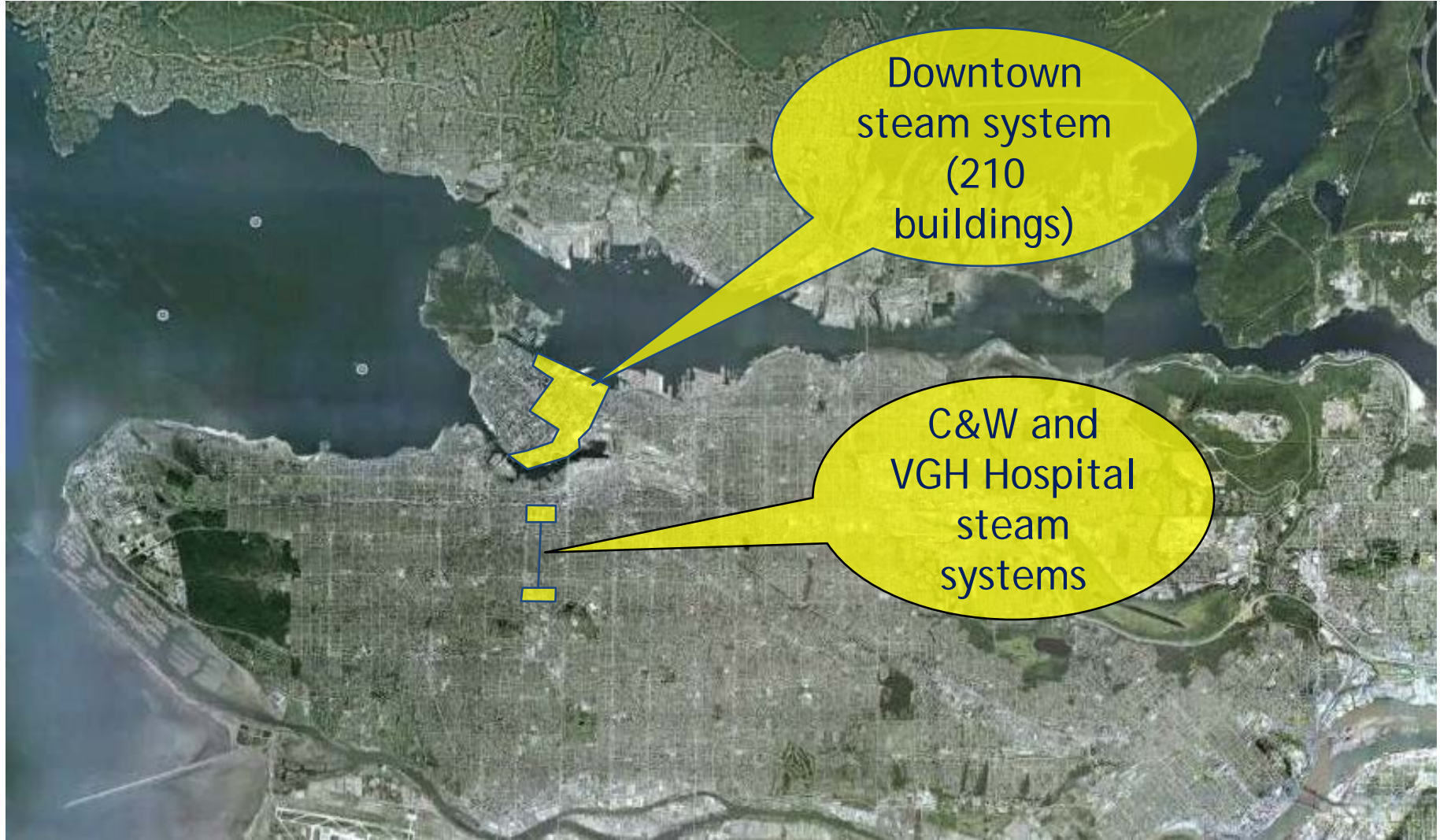
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Key Principles:

- 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

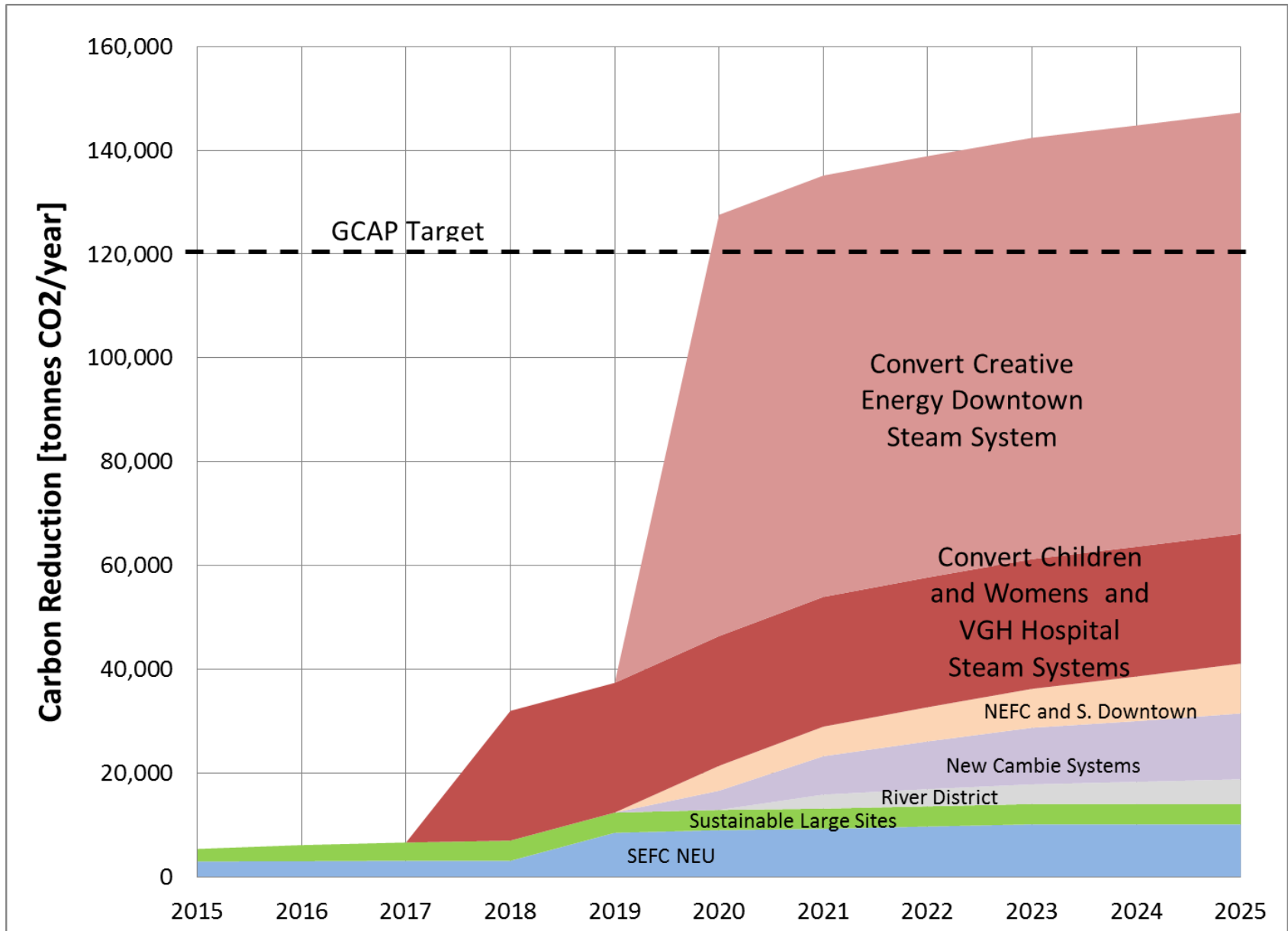


Strategy #2 - Establish New Systems

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



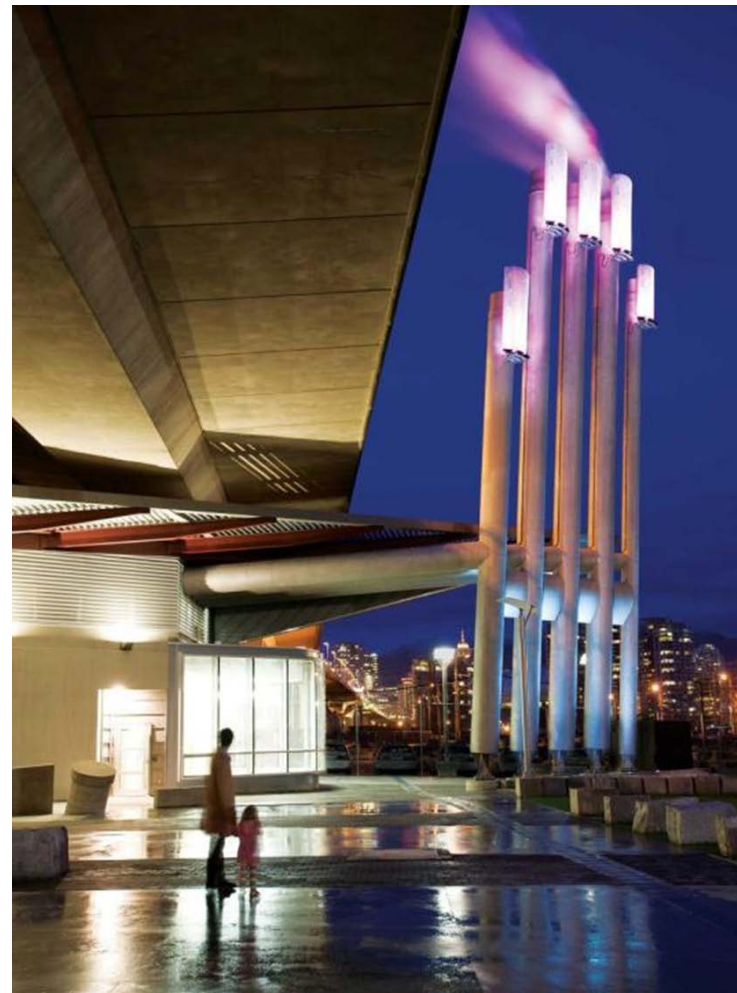
GHG Reductions Forecast



- *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



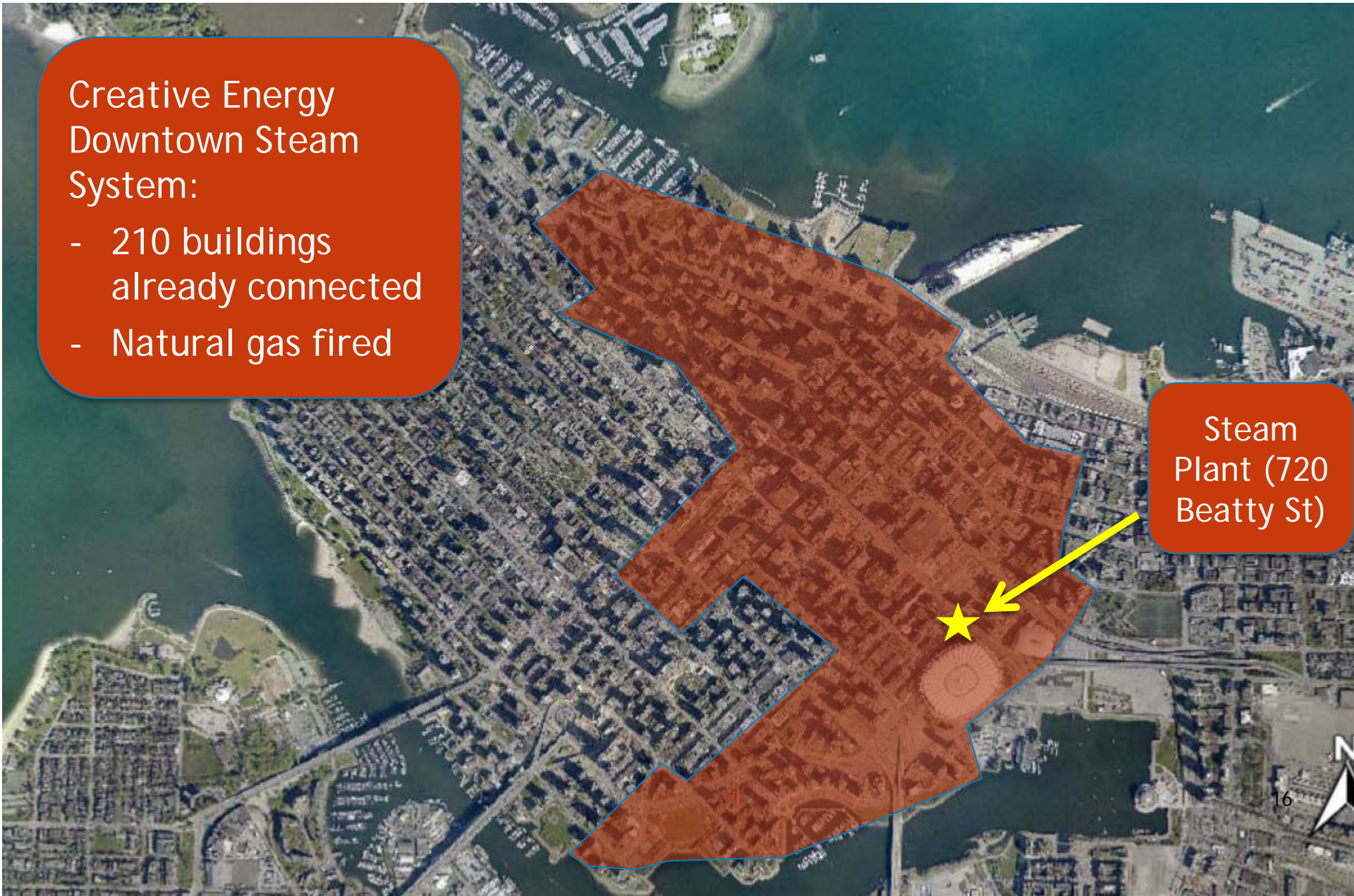
- To further implementation of neighbourhood energy initiatives, utility providers needed
- Competitive Request for Expressions of Interest was issued December 2012. Six proposals were received from local and international vendors
- Following a comprehensive and rigorous evaluation process, the City 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

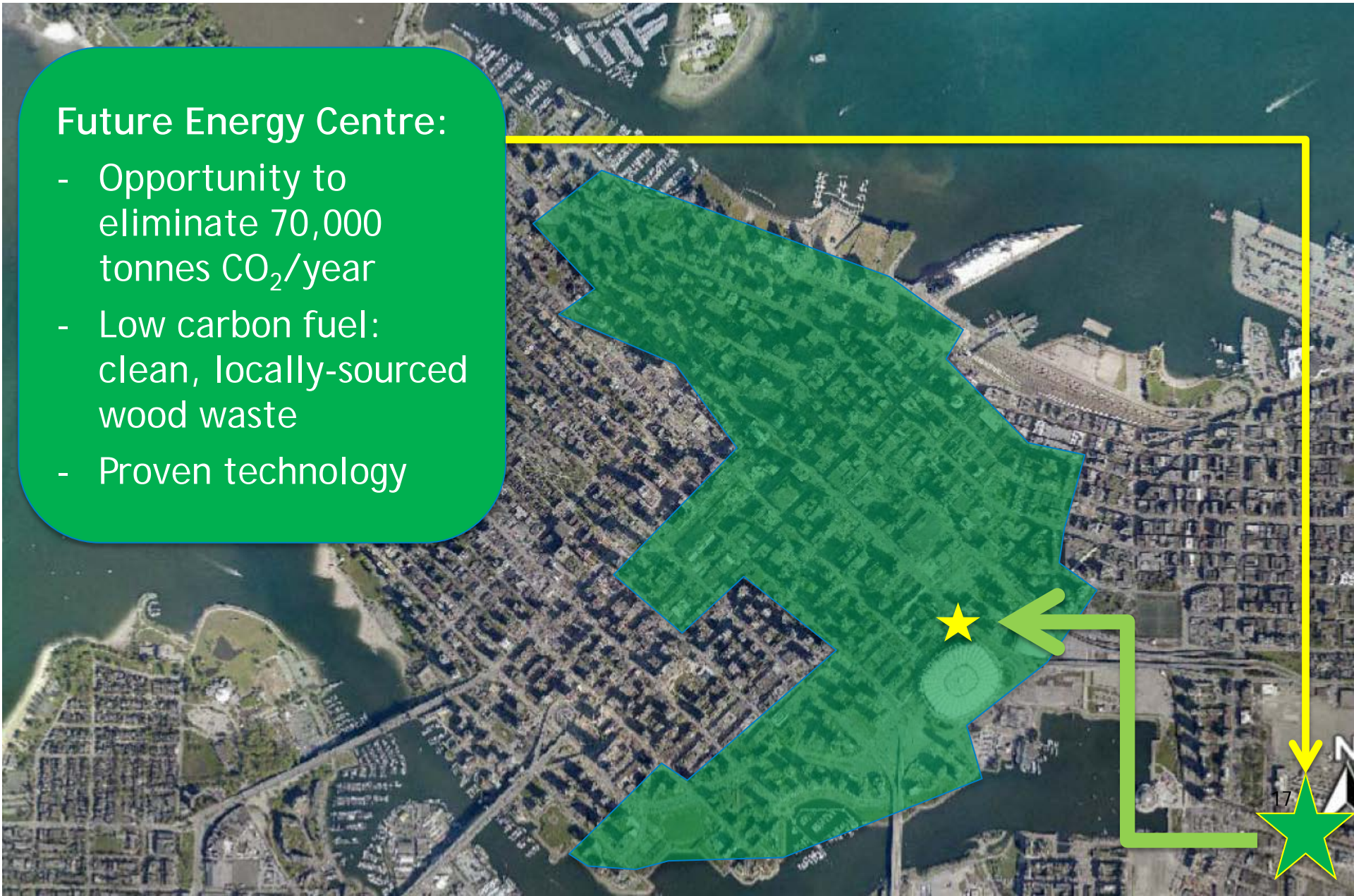
Steam
Plant (720
Beatty St)



Strategy #1 - Downtown Conversion

Future Energy Centre:

- Opportunity to eliminate 70,000 tonnes CO₂/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



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

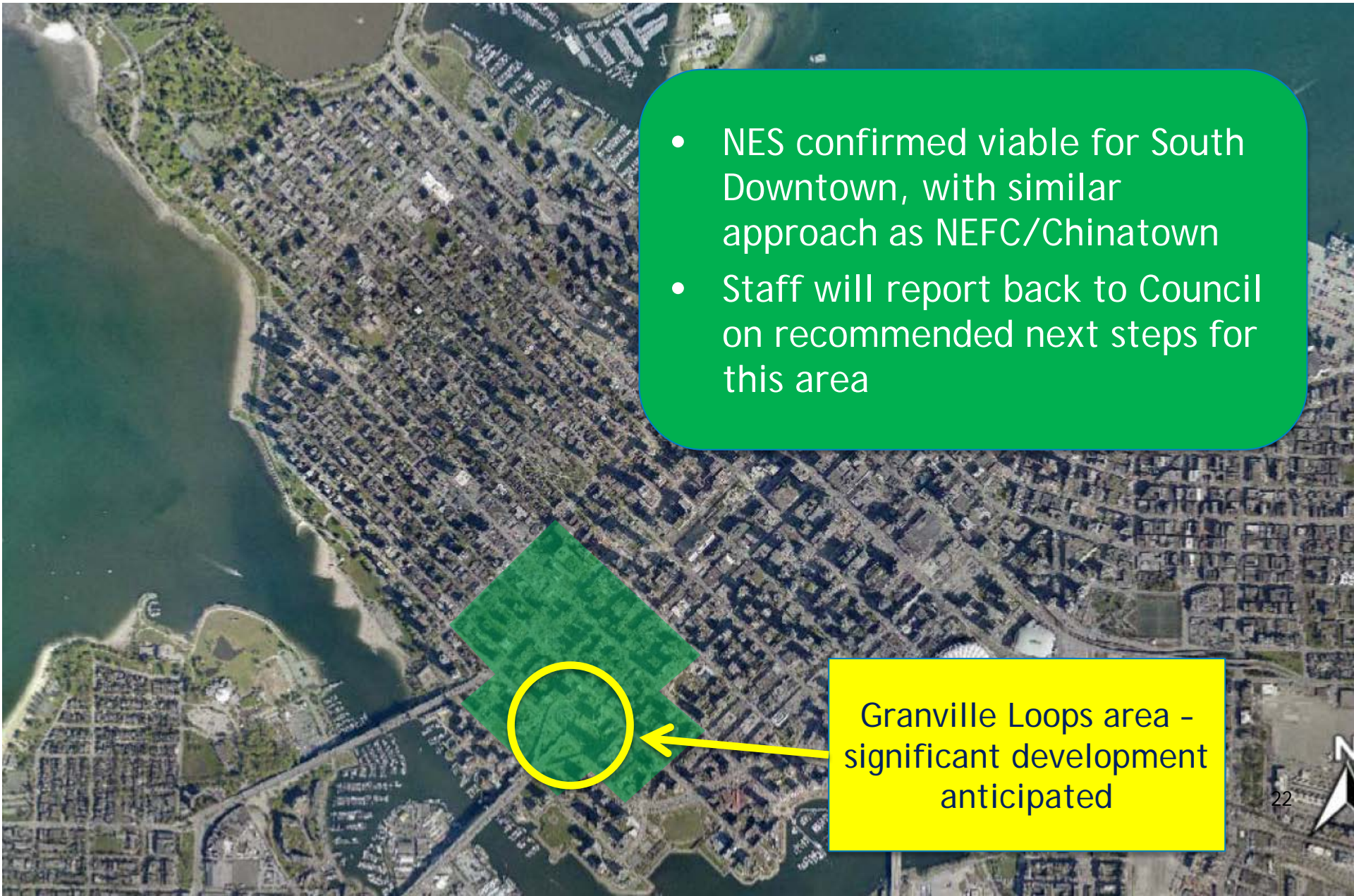


425 & 435-455 Industrial Ave:

- City-owned industrial site close to Downtown with rail access
- Energy Centre could be integrated with existing recycling facilities
- City holding site

- 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*)

- 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

PROJECT	TIMING	ACTIVITY
Downtown Steam System	Q4, 2015	- Complete feasibility study for conversion of Downtown steam system
	Q1, 2016	- Pending outcome of feasibility study, negotiate contracts to secure conversion
Northeast False Creek	Q2, 2015	<ul style="list-style-type: none"> - Creative Energy to submit application to BCUC to establish system - Staff to present connection bylaw to Council
South Downtown	Q2, 2015	- Creative Energy and City to negotiate Franchise Agreement to establish NES
West End and DTES	Q2 2016	- Complete feasibility studies and planning for new systems

QUESTIONS