



Quality Urban Energy
Systems of Tomorrow

QUEST

Smart Energy Communities

October 22, 2013



Smart Energy Communities

...who needs 'em?



QUEST – Quality Urban Energy Systems of Tomorrow

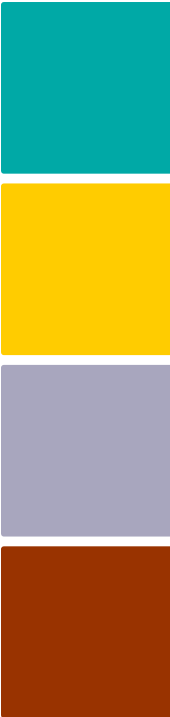
- National non-profit founded in 2007 by all levels of government, industry, academia and ENGOs.
- Mobilize governments, utilities, real-estate sector, energy industry, regulators and professional services to create and implement **Integrated Community Energy Solutions (ICES)**.
- ICES are about creating **smart energy communities** by linking energy across land-use, buildings, transportation, water, waste and related infrastructure.

Smart Energy Communities

...what are they?

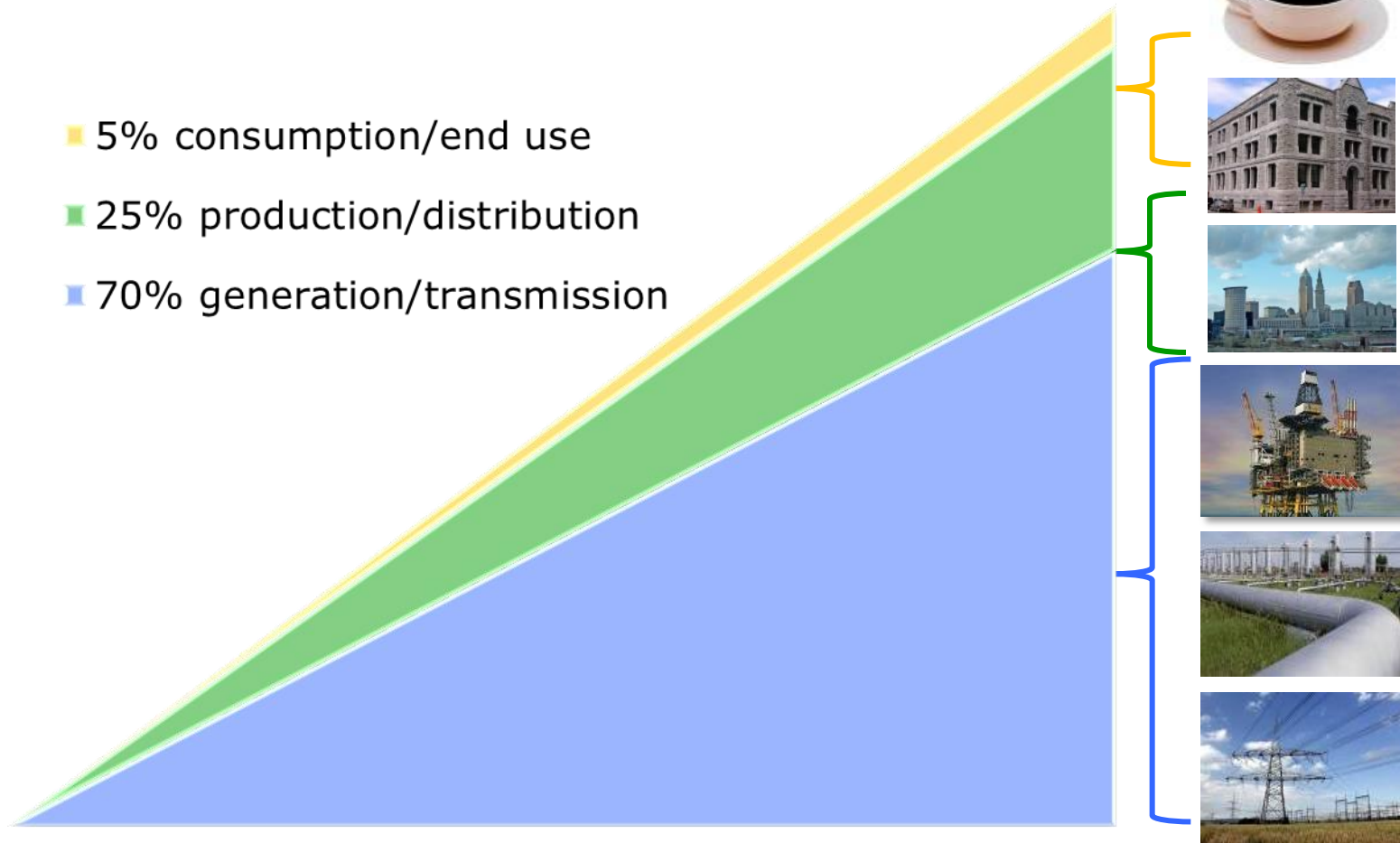


Guelph, ON



Smart Energy Communities

...address the energy loss challenge



Source: City of Guelph, Dysfunctional Energy Hierarchy

Smart Energy Communities

...focus on integrating



Mixed Land Use & Livable Community Form



Transportation Choices



Energy Efficient Building & Housing Options



Energy Efficient Infrastructure



Integration with Industry



Smart Energy Networks



Efficient & Renewable Energy Supply

Smart Energy Communities

...focus on integrating

Land-use & mobility



Mixed Land Use & Livable Community Form

Traditional energy networks



Transportation Choices

Local energy opportunities



Energy Efficient Building & Housing Options



Energy Efficient Infrastructure



Integration with Industry



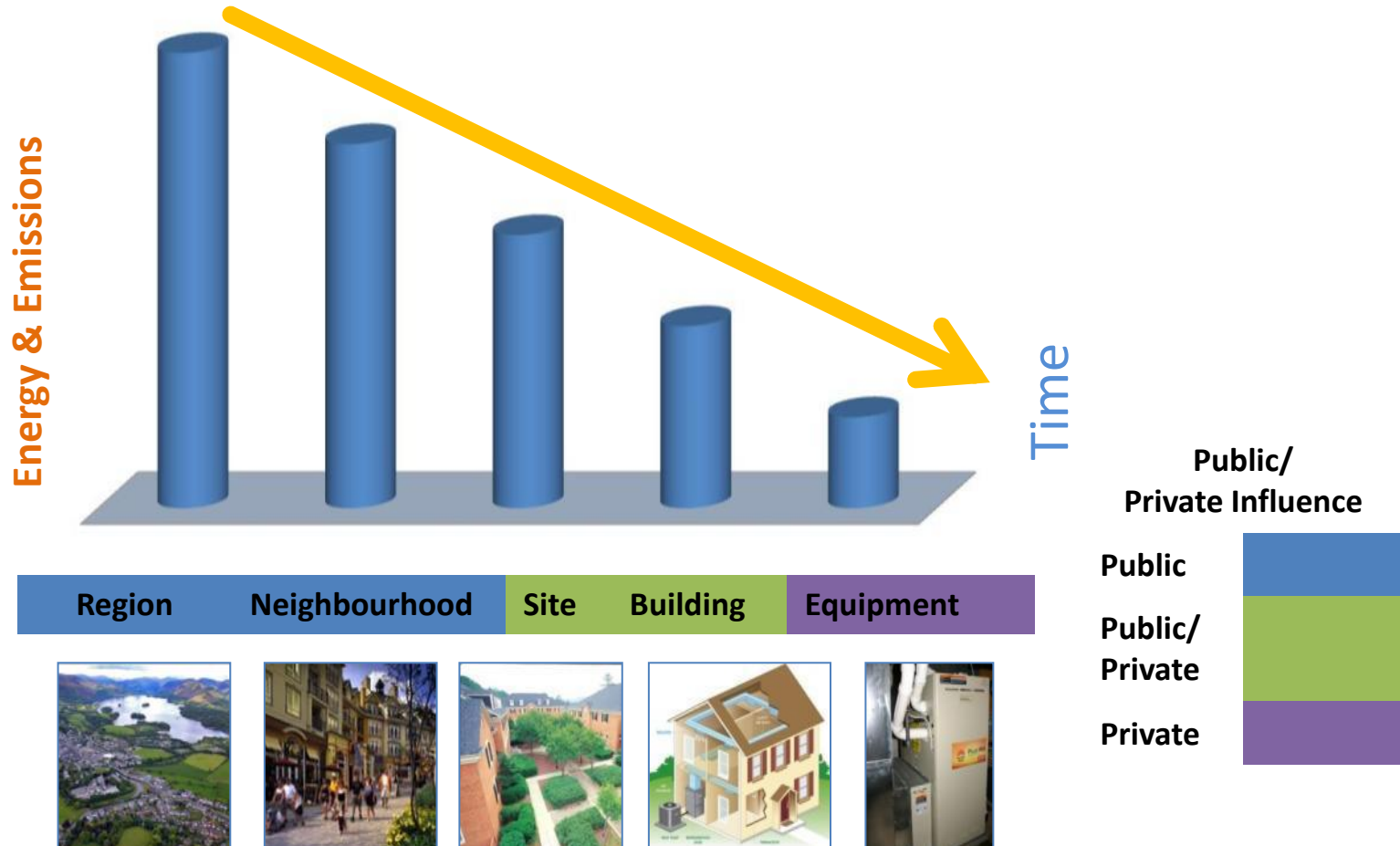
Smart Energy Networks



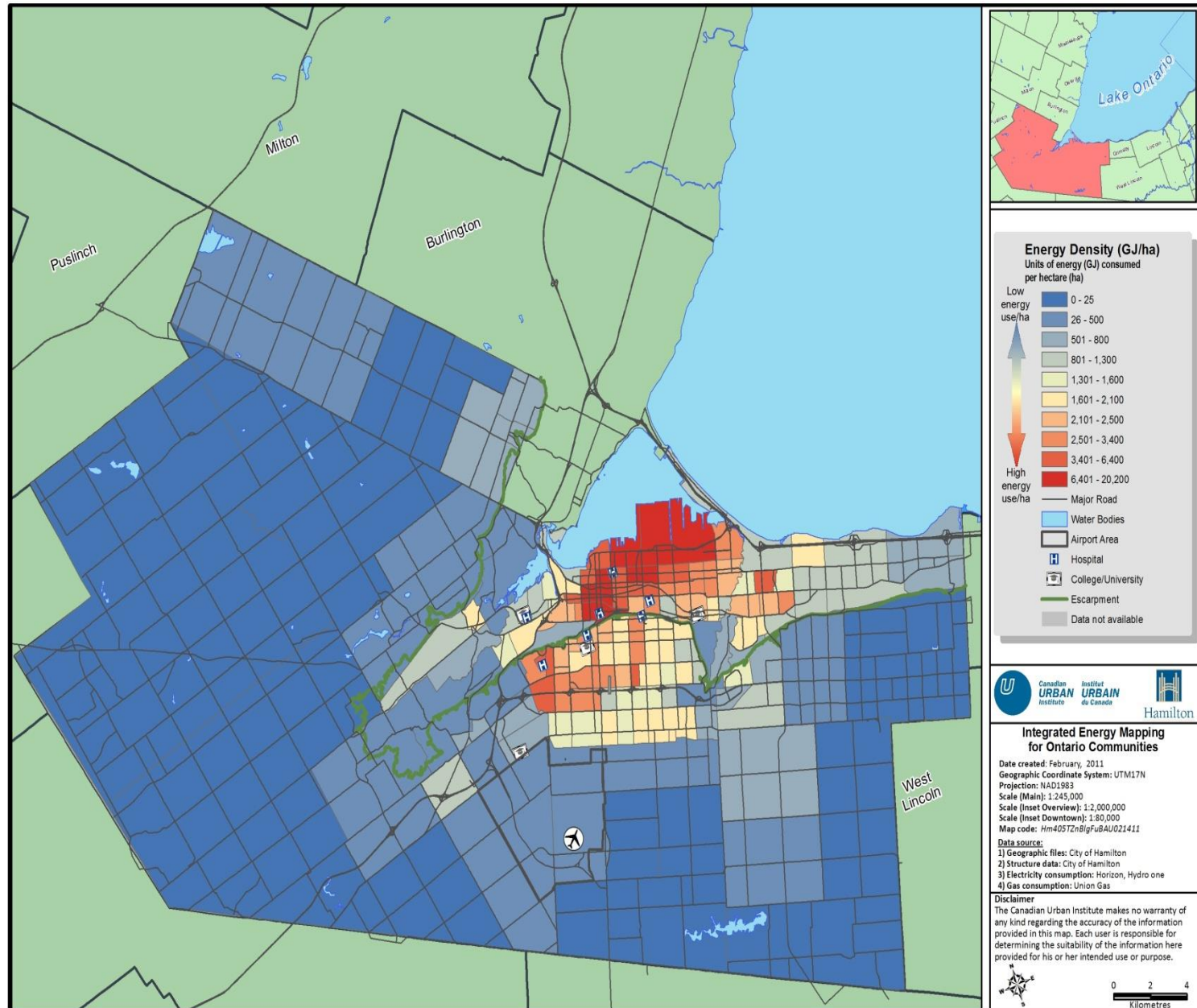
Efficient & Renewable Energy Supply

Smart Energy Communities

...connecting energy to land-use and mobility

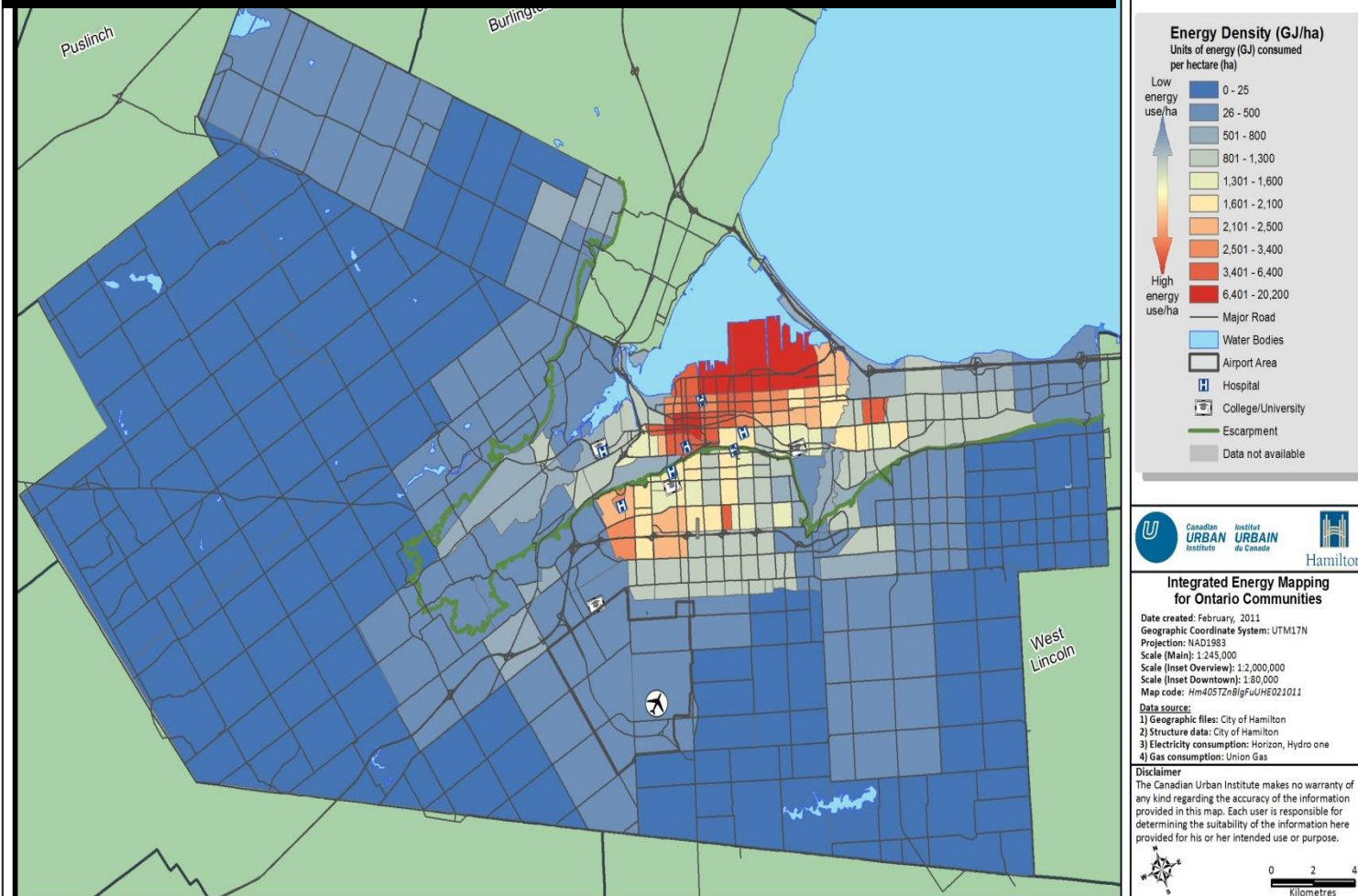


Buildings Energy Density 2031 - Business as Usual Scenario City of Hamilton



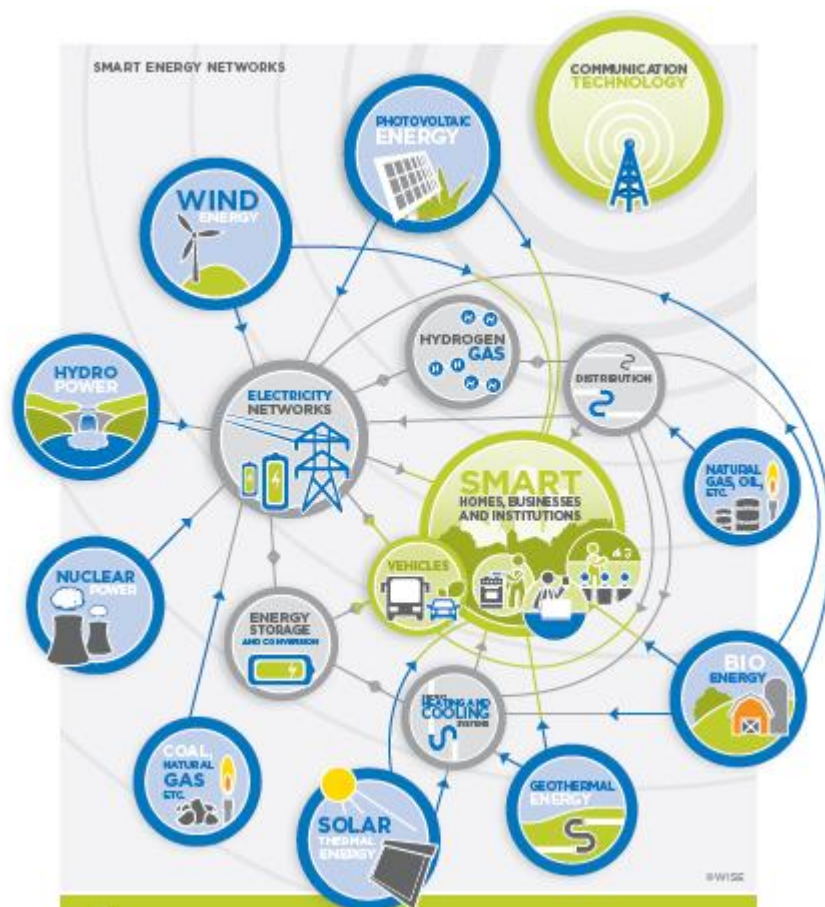
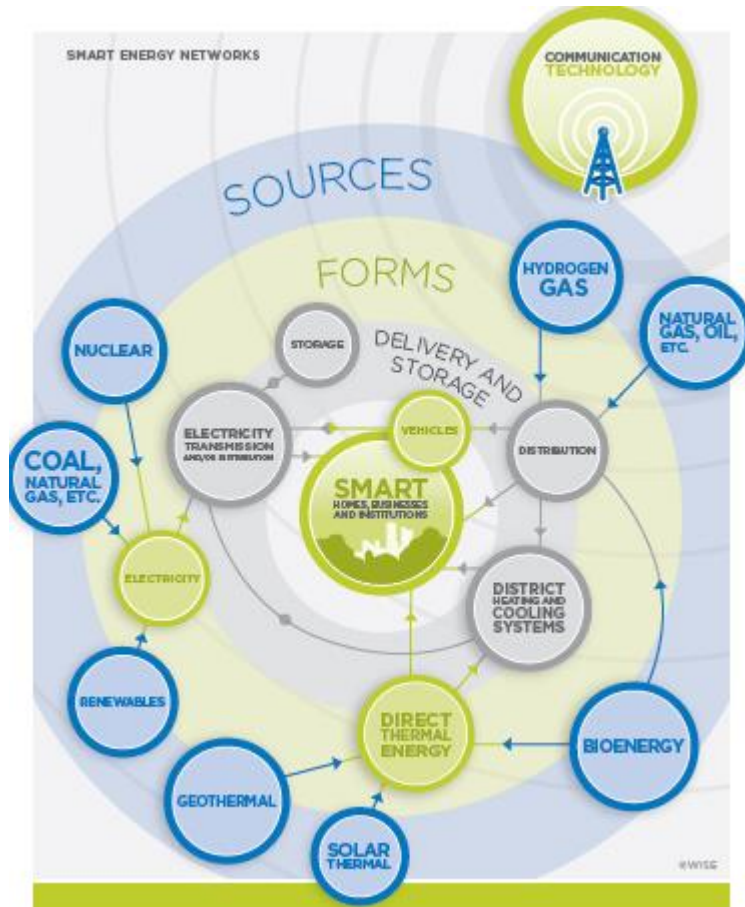
Buildings Energy Density 2031 - Ultra High Efficiency Scenario City of Hamilton

The map shows an overall reduction in the energy consumption in terms of gas and electricity demand for the City of Hamilton by 26% based on building energy efficiency improvements when applying the B-UHE Case.



Smart Energy Communities

...integrating traditional energy networks



Smart Energy Communities

...renewable natural gas



Hamilton, ON

Smart Energy Communities

...harnessing local opportunities

The Plan

Home to approx.
30,000
Edmontonians

Living, working
learning and playing

Sustainable
community

100% renewable
energy

Carbon neutral

Significantly
reduced ecological
footprint

Range of
sustainable lifestyle
choices

World leading

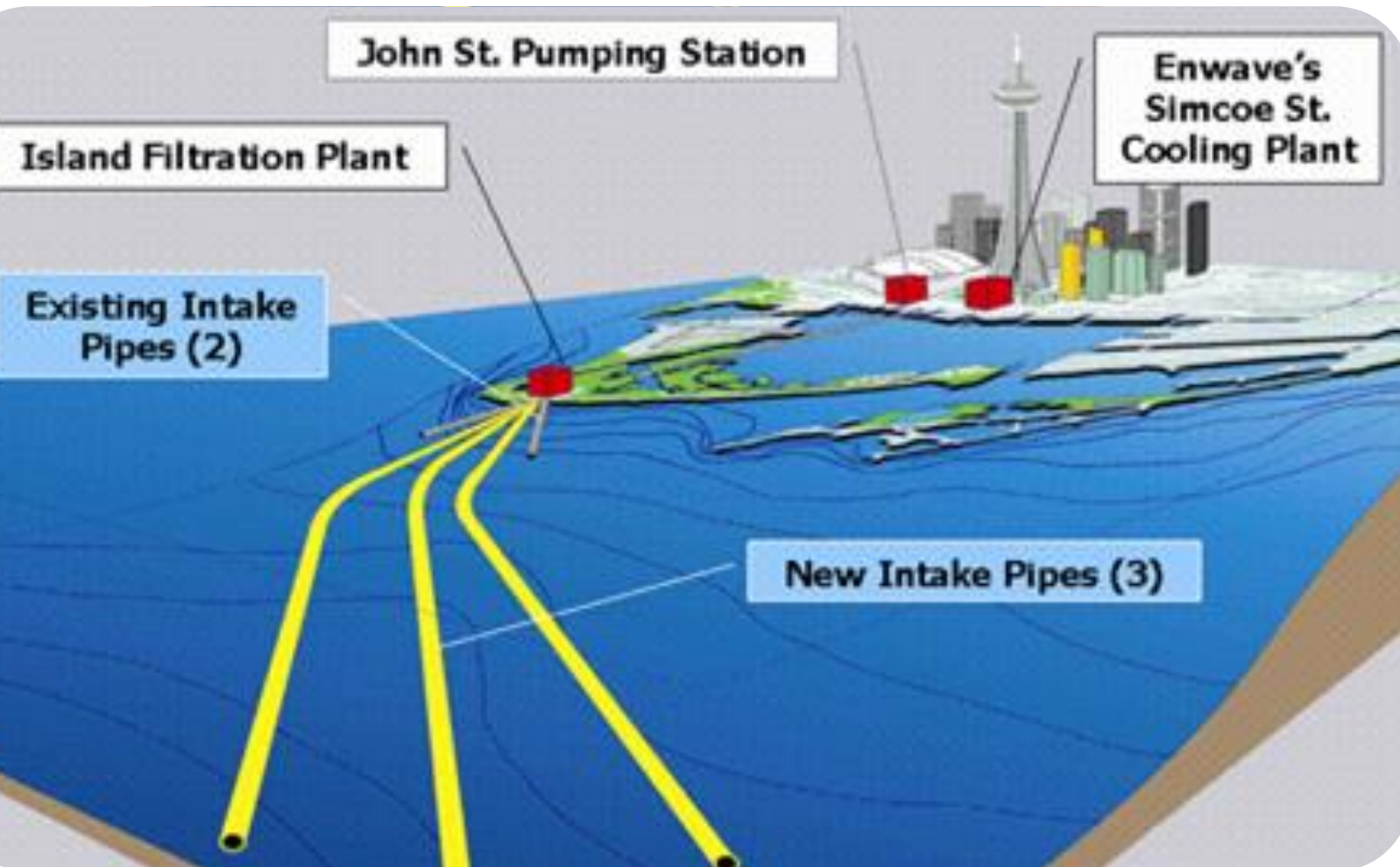


22/10/2013

QUEST - Quality Urban Energy Systems of
Tomorrow (www.questcanada.org)

Smart Energy Communities

...a heating and cooling example



Smart Energy Communities

...a local generation example



Bella Coola, BC

Smart Energy Communities

...integration offers significant returns



Improved conservation

Better reliability & resiliency

Cuts in energy costs

Reduced GHG emissions



Mixed Land Use & Livable Community Form



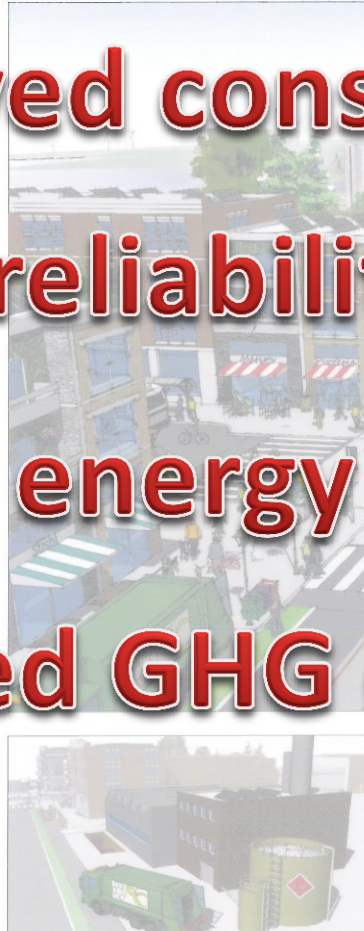
Transportation Network



Energy Efficient Infrastructure



Energy Efficient Infrastructure



Integration with Industry



Smart Energy Networks



Efficient & Renewable Energy Supply



Quality Urban Energy
Systems of Tomorrow

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