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Community Energy Planning: Broadening the Business Case

Beyond the direct financial gains
from improved energy efficiency and
alternate energy sources



Sustainable
Prosperity



COMMUNITY
ENERGY PLANNING
GETTING TO
IMPLEMENTATION
IN CANADA

#2015SCC

Purpose

- Benefits of CEP mostly focus on economics of direct energy savings, GHG and air pollutant reductions
- **What are other economic benefits?**
- **Strengthen the economic case for CEP by**
 - Identifying broader economic benefits that may be associated with CEPs through a review of CEP experience
 - Document through examples
- Proviso: benefits are project and context specific and are not universally relevant

Research Status

- Initial stage of research
- Initial themes and examples identified
 - Review of 12 CEPs identified by GTI researchers
 - Presentations at December 2014 QUEST conference
 - Selected literature
- Today: **we want to hear from you!!**
 - Test, refine and expand our themes
 - Source additional examples
- Questions?

Theme 1: Business Retention

- Concerns about competitiveness lead to business relocation in many cases
- Changing economics of energy inputs can influence firms' outlooks positively or negatively
- Low-carbon energy, district energy, cogeneration, and new approaches to waste management can **change the economics of production**, and influence firms' decisions to **relocate, remain or close**

Theme 1: Business Retention

- Example: **Magna/Polycon car parts plant in Guelph**
 - Guelph's **Community Energy Initiative** spurred support for DE projects
 - Guelph Hydro helping to fund project at Polycon plant
 - City vital to supporting this initiative



Theme 2: Business Attraction

- Availability of clean/stable/affordable **energy attracts business** for whom this is a need
 - Additionally, this can increase clean energy infrastructure as capital stock turns over
 - Such changes can bring **indirect clean innovation benefits** that accompany the establishment of new businesses and related infrastructure

Theme 2: Business Attraction

- Example: **Data centre location/relocation**
 - Huge source of GHGs
 - **Energy price/reliability a primary concern**, however universities/businesses consider **emissions profile** of energy (by requirement or preference)
 - Possibility/existence of carbon pricing further strengthens the case
 - Location/proximity
 - Scenario analysis by IISD (2010) of relocating university data centers to communities with low emissions energy supply
 - UBC research assessing business case for data centre relocations → recommends to build in areas with renewable energy supply

Theme 3: Market Differentiation

- Evolving **market preferences** for green goods and services
- Smart energy and emissions performance allows a development, neighbourhood, even a city to differentiate itself in the market



Theme 3: Market Differentiation

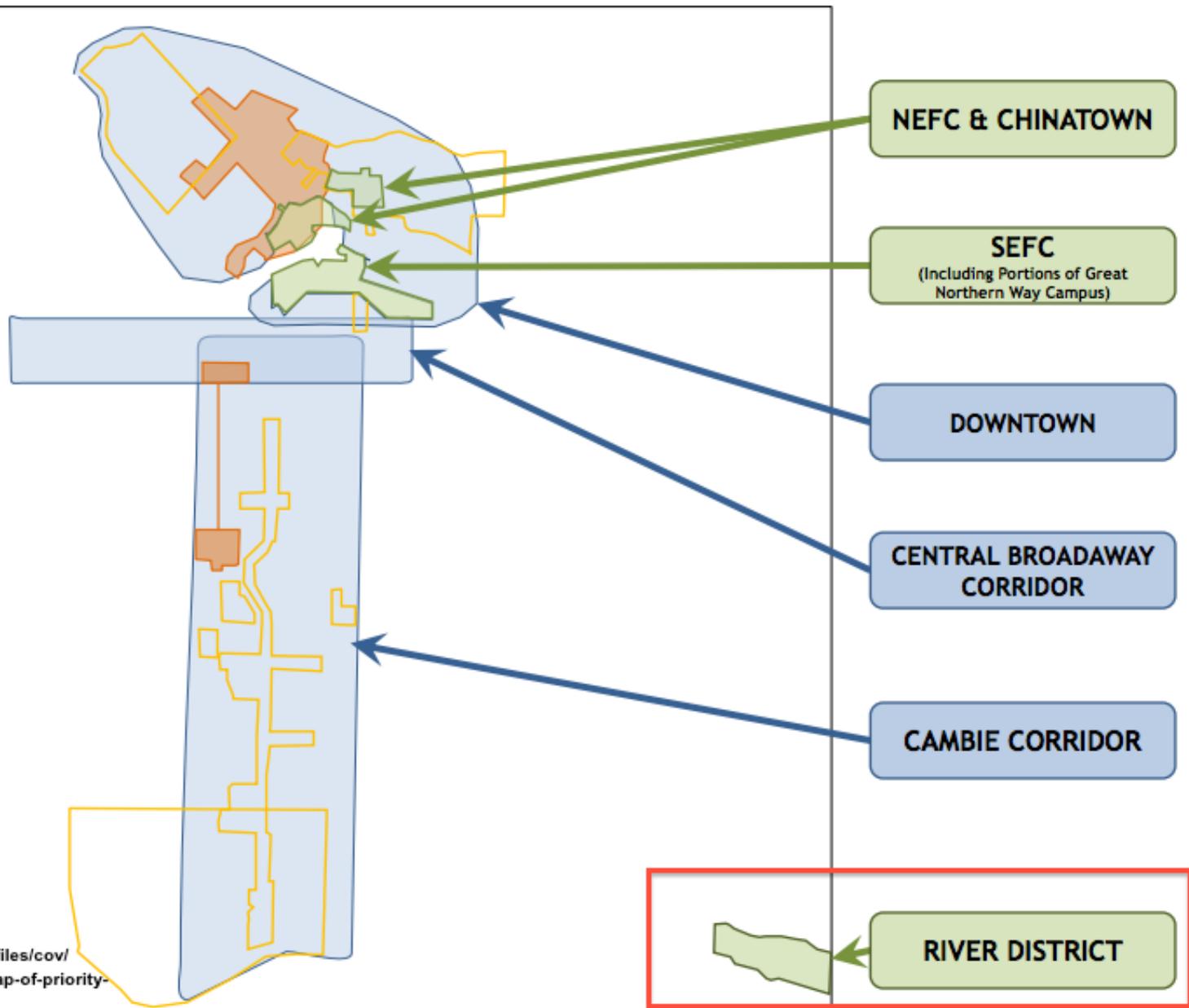
- Example: **Telus Garden Project in Vancouver**
 - New development is transforming entire city block into modern building with leading edge environmental performance and design
 - Added value to infrastructure improvements
- Firms locating development in communities with clean energy and low emissions characteristics, for CSR

Theme 4:

Neighbourhood Revitalization

- Large cost efficiency benefits from implementing innovative community energy systems in tandem with revitalizing neighbourhoods
- Revitalized **energy systems a core element** of revitalized neighbourhoods





From <http://vancouver.ca/files/cov/neighbourhood-energy-map-of-priority-zones.pdf>

Theme 5: Energy Resilience

- Increasingly important:
 - For both remote and interconnected communities
 - **Remote**: always important, but new possibilities with clean energy have heightened this
 - **Interconnected**: increasing extreme weather events call for greater local energy options
 - Resilience needs of **specialized customers** everywhere (hospitals, high tech firms)
 - Shifting electric systems: disaggregation

Theme 5: Energy Resilience



- (Cooperation and synergy between communities) **NY State microgrids**
 - Design competition for connected microgrids that can **operate autonomously** if need be to keep hospitals, police stations etc. reliable and to **facilitate distributed electricity**

Theme 6: Housing Affordability

- **District energy systems can be core element** of CEP, often accompanying high density mixed-use development
- Housing developments benefit from energy savings and cost savings



Theme 6: Housing Affordability

- Example: **ENMAX District Energy affordable housing project in Edmonton**
 - Cogeneration facility run by ENMAX
 - Seniors residence
 - Collaboration of City of Edmonton, Metis Capital Housing Corporation, YMCA, and The Holmes Group



Theme 7: Employee Productivity

- Evidence that **energy efficient retrofits** increase the physical comfort of the work environment, leading to **improved employee productivity**
 - Notable study on increasing productivity with energy-efficient design highlighting 8 case studies, including:
 - Post office lighting retrofit → 6% boost in productivity
 - Prototype store with enhanced daylight with skylights on one side → higher sales
 - Engineering and design facility → cost savings accompanied by 15% boost in productivity, 15% drop in absenteeism
- Community energy plans promote such energy-efficient retrofits

Theme 8: Employee Productivity

- Example: **Manitoba Hydro Place**
 - Sustainable design aspects including passive energy technologies at their head office, healthier work environment benefits employees and energy performance(LEED platinum in 2012)
 - Co-benefit of **improved employee productivity** (mostly anecdotal) and **lowered absenteeism** (1.25-1.5 days/year/employee)
 - CEPs can promote such buildings

Theme 8: Employee attraction/retention

- Attraction/retention benefits come to companies with positive environmental and energy practices
 - In particular young employees that wish to be associated with clean companies
 - But it's difficult to quantify such effects



Theme 8: Employee Attraction/retention

All Other Things
Being Equal,
I Would Take a
15% Paycut...

35%

...to work for a company
committed to CSR

45%

...for a job that makes a social
or environmental impact

58%

...to work for an organization
with values like my own



Other considerations

- Data
 - Recognizing **importance of data** for capturing economic benefits of CEP
 - Key to recognize when better/more data adds value vs when it does not.
 - Measurement:
 - **Metric** VBECS developed by the Rocky Mountain Institute
 - Often lacking from LCAs
 - Business case for retrofits
 - Guide: “How to calculate and present deep retrofit value a guide for owner-occupants”

Upcoming work/next steps

- Further case studies
 - Canadian
 - International



Thoughts? Please get in touch:

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References

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