The Future of Cities Workshop Summary Report

Teleconference – August 28, 2017

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Executive Summary

On August 28th, Natural Resources Canada (NRCan) officials and the Federation of Canadian Municipalities (FCM) welcomed around 15 government representatives from municipalities across Canada to a discussion on the future of energy in Canadian cities as part of Generation Energy. Opening remarks and background information were provided by NRCan Senior Director, Kaili Lévesque.

WORKSHOP OVERVIEW

The workshop focused on the following questions:

1. What will Canada's cities look like in 2050? What will your city look like?
2. What are the values that should guide us in this transition?
3. What are the pathways and guideposts to help get us to the vision?
4. How can the federal government support or enable municipalities' transition to a low-carbon future?
5. What is the role of industry and civil society?

KEY INSIGHTS

- Envisioning a future for cities and communities that includes integrated energy systems, increase of energy efficient practices in homes and buildings, opportunities for self-production of electricity, and more efficient modes of transportation
- The creation of co-benefits to improve physical and mental health, as well as the recognition of diversity between different communities will also be very important
- Key values to enable the energy transition include applying conservation as a first step, ensuring equity and affordability of energy, improving citizens well-being and quality of life, and ensuring freedom of mobility for people
- Increased implementation of climate adaptation measures and resilient energy systems are needed
- A mixture of alternative transportation solutions is needed to be part of the energy transition, including redefining vehicle ownership, mass transit, and active transport
- Addressing barriers to implementing renewables is necessary, including reducing the carbon intensity of the grid
- Federal and provincial governments need to provide leadership to enable municipalities to address energy and climate issues – e.g. through funding and leveraging private sector investment
- Sharing information proactively could be a tool for collaboration across levels of government to ensure that municipalities have the information they need
- The development of sector-based working groups or communities of practice could help to create a better relationship between government and industry

Question 1: Visioning for Cities in 2050

Higher density and integrated systems: cities as more compact and complete in terms of infrastructure
- Having integrated energy systems including for heating, cooling, and transportation
- City-wide connection to low-carbon energy
- Increased importance of climate adaptation measures and resilient infrastructure
- Higher density communities

Energy efficient practices: energy efficient homes and buildings being the standard in communities
- Improved building energy performance
- Increased use of heat pumps in homes
- Net metering as a key factor for the future, especially when combined with other technologies, such as battery storage and solar power
  - It was noted that the capital costs of net metering could be a barrier

> **When asked to describe Canada's cities in 2050 in one word, responses included:**
> - Green
> - Efficient
> - Zero (GHG emissions)
> - Resilience
> - Regenerative
> - Optimize
> - Empowered
> - Similar
> - Pollution free
> - Renewable
> - Partnership

Self-production of electricity: homeowners and businesses having the flexibility to produce electricity
- Increase of decentralization and distributed energy – opportunities for small users ('prosumers')
- Expanding use of solar for homeowners and small businesses – currently the most popular method of self-production
  - Some municipalities identified permitting as a barrier for self-production

More efficient modes of transportation: behavioural change and technology influencing changes in transportation. Key aspects include:
- Dominance of electric vehicles
- Change in ownership models - use of car sharing and car services like Uber, instead of owning a car
- Use of mass transit and active transportation networks – challenge for rural or smaller municipalities
- Decreased use of freight for transportation of goods and increased use of personalized drones and 3D printing for individual consumers

Co-benefits of energy efficiency: applying more energy efficient practices in communities that advance social equity and reduce vulnerability of certain groups. Examples include:
- Healthier indoor air quality

- Quieter, more functional spaces
- Increased sense of community and social relationships

Community diversity: recognizing diversity not only regionally across Canada, but between different communities
- The differentiation of urban and rural can be too simplistic; there is a lot of diversity between even urban and suburban areas
- The smaller or more rural a community, the larger the portion of green house gas emissions that comes from transportation

Question 2: Values to Guide the Transition

Conservation first: participants valued conservation as an important factor in the

energy transition - "the most efficient product is the one that isn't produced"

Equity and affordability: maximizing public benefit is important to the energy transition. Despite environmental factors, with any changes there is a need for a compelling economic and social driver. The transition is about high-quality jobs and addressing poverty as much as it is about addressing climate issues

Well-being and quality of life: support for initiatives that improve and create healthier lifestyles, including more active and convenient transportation options and increased social life through more connected communities. Safety for people and communities is also paramount with respect to energy development

Freedom of mobility: freedom to get around is still very important to people, so if individual car ownership decreases, there is still a need for alternative transportation that is convenient

Question 3: Pathways and Guide-Posts

Participants identified insights and actions that are necessary to meet these visions for the energy future of communities. Key aspects included:
- Encouraging energy literacy, and increasing education on energy issues in communities
- Increasing consultation and communication efforts to bridge the gaps between what people understand and where the markets are
- Looking at these potential changes to the system holistically (e.g. electric vehicles as dependant on electricity system)
- Ensuring reliable, affordable energy, in combination with fair and indicative price signalling
- Considering both carbon mitigation and climate adaptation in city planning, instead of choosing one or the other
- Prioritizing long-term benefits over short-term freedoms, and simplicity over complicated technologies whenever possible

Buildings and Heating
- Buildings must be considered as part of a larger city organism - not just as a user of energy, but also as an energy producer
- Increased implementation of climate adaptation measures and resilient energy systems are needed
- Increased focus on conservation and efficiency as first step - utilizing approaches and tools such as Passive House construction
- Looking to opportunities for private sector involvement with energy efficiency programming
- New construction projects are an opportunity to put efficiency measures in place
- Increased application of retrofit codes will be essential – as well as voluntary programs to better enable this
- Fuel switching to natural gas will also be necessary to supplement efficiencies from retrofit efforts
- Energy audit performance by third party contractors could be a model to go off of
- Continuing to build off energy labelling for buildings – developing a nation-wide framework for this
- Reducing carbon footprint of building materials and in the construction sector

Transportation
- A mixture of alternative transportation options is needed to meet individual needs, including, electric vehicles, car sharing, mass transit, and active transport
- Encouraging alternative work arrangements so people can reduce transportation and work virtually
- There is a need to focus on transportation solutions, especially for small and rural communities
- A good target to measure progress in this area could be looking at lower total distance travelled by personal vehicles
- Need good public policy around automated vehicles if this becomes a big thing – cities currently planned around individual cars

Electricity
- There is a need for tools to help municipalities figure out which energy technologies would make sense for their needs, including scenario planning
- Addressing barriers to implementing renewables is necessary, including high voltage direct current issues, reducing carbon intensity of the grid, and developing east-west grid connections
- Provincial exchanges of energy, particularly electricity, should be more prevalent (electricity interties)
- The use of district energy systems is an alternative option for communities

Question 4: Role of Federal Government

- Federal and provincial governments need to provide leadership to enable municipalities to address energy and climate issues (e.g. by providing standards and codes for zero-carbon buildings). Federal government has a role in enabling, convening, and creating partnerships
- Governments should be addressing regulatory hurdles that prevent progress in the energy sector
- Most cities are not in a position to finance - the federal government can support municipalities on projects that they don't have the resources to tackle on their own. Municipalities should "play the role of facilitator, but not play the role of investor"
- There is an opportunity for the federal government to better leverage funds from the private sector with credit enhancement tools, and to create industry confidence in long-term financing options
- Multiple participants also mentioned that federal government programming with long-term staying power and predictability would be critical for communities
- A challenge for municipalities is the lack of knowledge or communication on what other levels of government are doing - moving forward, sharing information proactively could be a tool for collaboration among governments
- Governments need to address the issue of multiple and overlapping policy priorities: "if everything is a priority then nothing is a priority"
- Need for federal and provincial regulations to address the rapid uptake of plug-in electric vehicles
- Federal government can encourage heat pumps and find ways to drive down those costs
- Recognize that municipalities need capacity and time and space to update and deliver on plans
- Retrofit incentives are important; need for energy literacy through retrofit advisors or another program to share information with citizens
- Energy/carbon pricing will be one of the biggest challenges for communities. This needs to be addressed and should be part of an investment strategy as government moves forward

Question 5: Role of Industry and Civil Society

- Arms-length organizations that don't depend on constant government funding were thought to be the most sustainable to delivering energy programming for communities
- The development of sector-based working groups or communities of practice (example: transport, rooftop solar) could help to create a better relationship between government and industry
- Sharing information across industries, governments, and other organizations, including best practices, and successes and challenges, would position everyone for success in the transition