August 14, 2009

QUEST – Quality Urban Energy Systems of Tomorrow
Pre-Budget Consultation Brief

Executive Summary

QUEST is calling for transformational change in how the federal government approaches community energy use and emissions.

Approximately half of Canada's energy use and related greenhouse gas emissions result from daily activities in Canadian communities, from the largest metropolitan areas to smaller communities across the country. Investing in community-level integrated energy solutions will simultaneously free up more of Canada's energy resources for export while reducing the environmental impact of the energy system, creating local jobs and reducing each community's exposure to volatile energy commodity markets.

While there is no one solution to capture the gains for all communities, the application of the six QUEST principles allows for a variety of solutions that can be adapted to the unique needs of each community across Canada. For this submission, we recommend three actions for the federal budget that will begin the called for transformation.

1. *Capacity Building* – Allocate $50M over five years for capacity building, including funding QUEST.

2. *New programs* – Allocate new long-term funding of $500M over five years for accelerating the adoption of integrated energy solutions at the community level.

3. *Coordinated programs* – As expenditure programs are refinanced and confirmed, ensure there is a cross-departmental coordination mechanism in place dedicated to the community energy space and applying the QUEST principles to better support integrated energy solutions.

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Context

QUEST is calling for transformational change in how the federal government approaches community energy use and emissions. The change is to shift from a function-specific approach, isolated in key departments, to a concept-specific approach operating across departments dedicated to supporting integrated energy solutions at the community level.

Approximately half of Canada's energy use and related greenhouse gas emissions result from daily activities in Canadian communities, from the largest metropolitan areas to smaller communities across the country. Integrated energy solutions include:

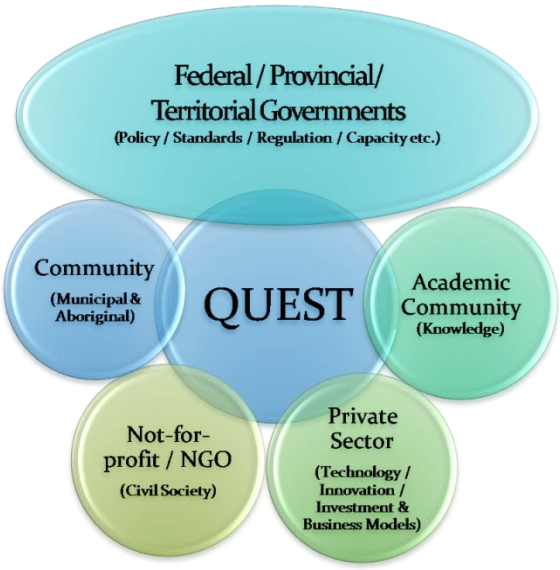
- Transportation choices - various modes and fuels;
- Energy efficient heating, cooling and other energy needs - for homes, institutions, businesses and industries;
- Local solid waste and sewer systems - often sources of wasted energy; and,
- Energy supply systems - including local renewables and traditional energy sources.

Energy choices and resulting emissions are strongly influenced by government policy choices and decisions that determine the layout of our communities and the form of infrastructure within communities. Therefore, unlike individual industrial and consumer choices for equipment, appliances and vehicles, governments play *the* decisive role in setting how efficiently and effectively community energy systems develop over time, as well as how stakeholders can engage in the design process.

Given the long-lived nature of community developments and infrastructure, the result is that we are choosing our future community energy use and emissions patterns today and those choices are inconsistent with broader goals, particularly greenhouse gas emissions reduction targets. Changing the patterns will require a transformation in how governments approach community energy use and emissions.

QUEST

QUEST is a collaboration among key players from industry, the environmental movement, governments and academia that is encouraging all levels of government, industry and citizens to support integrated approaches to providing energy solutions in Canadian communities. It has become a movement – more than just a coalition of interested parties.



QUEST is encouraged by the growing recognition policy-makers are showing for Integrated Energy Solutions (IES) and supports the strategies outlined in the Council of Energy Ministers Roadmap. The Roadmap's strategies call for cooperative policy leadership across jurisdictions, incremental transformation through community-level investments, and local capacity-building. The QUEST community has identified opportunities for action that support the Roadmap and that move Canada towards achieving the QUEST vision.

The QUEST mission is to foster a community-based integrated approach to land-use, energy, transportation, buildings, waste and water and to reduce related greenhouse gas and air pollutant emissions and waste. The mission is premised on six principles that guide sustainability in energy solutions:

- **Improve efficiency** – first, reduce the energy input required for a given level of service;
- **Optimize "exergy"** – avoid using high-quality energy in low-quality applications;
- **Manage heat** – capture all feasible thermal energy and use it, rather than exhaust it;
- **Reduce waste** – use all available resources, such as landfill gas, gas pressure drops and municipal, agricultural, industrial and forestry wastes;
- **Use renewable resources** – tap into local biomass, geothermal, hydro, solar and wind energy; and
- **Use grids strategically** –use grid energy as a resource to optimize the overall system and ensure reliability.

Applying the principles, the building blocks of IES are:

- Integration of land-use, transportation, energy, water and waste systems planning;
- An enabling platform of higher density, mixed use developments of energy efficient buildings and homes;
- A backbone of smart district energy/utility grids, allowing optimal management of available energy;
- Distributed smaller scale, local energy systems; and
- Using local renewables - solar, geothermal, hydro, wind and biomass.

The QUEST vision is that by 2050 every community in Canada is operating with an integrated energy system, and accordingly, all community development and redevelopment incorporates an integrated energy solution. The QUEST vision is designed to empower communities into action.

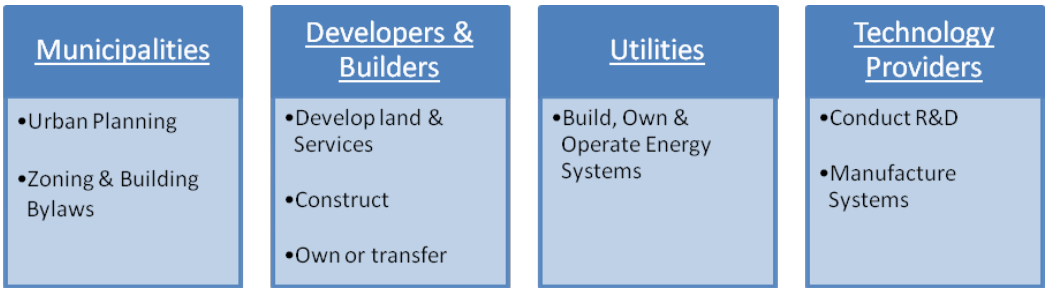
Investing in community-level integrated energy solutions will simultaneously free up more of Canada's energy resources for export while reducing the environmental impact of the energy system, creating local jobs and reducing each community's exposure to volatile energy commodity markets.

While there is no one solution to capture the gains for all communities, concentrating federal efforts on the concept of integrated energy solutions and the QUEST principles, instead of the separate functions of infrastructure, transport, energy and the environment, is an important step.

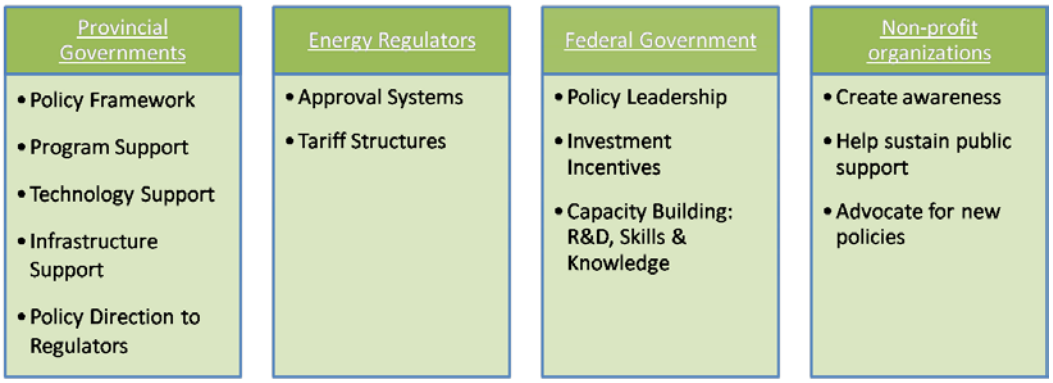
Recommendations

Success in realizing the full potential for integrated community energy systems will require action at each level of government, cross-collaboration and the efforts of non-government actors and enablers.

The Actors



The Enablers



Within this multi-stakeholder framework, QUEST sees a clear role for the federal government as confirmed in the Standing Committee on Natural Resources report on Integrated Energy Systems for Canadian Communities.

> "Federal participation entails contributions through the government's research and funding capacity, experience in establishing national visions and programs (e.g. in energy efficiency, renewable energy, carbon pricing, etc.), and the ability to bring organizations together."
>
> -- *Combining Our Energies: Integrated Energy Systems for Canadian Communities, page 6.*

QUEST is calling for transformational change in how the federal government approaches community energy use and emissions. The change is to shift from a function-specific approach, isolated in key departments, to a concept-specific approach operating across departments. For this submission, we recommend actions for the federal budget that will begin the called for transformation:

1. Capacity Building
2. New Programs
3. Coordinated Programs

Recommendation 1 – Support major capacity building for integrated energy solutions

Support the QUEST initiative and build the coordination capacity required for the planning, design and implementation of integrated energy solutions.

Benefits:

- Expertise in integrated energy solutions will increase at the community-level across Canada while also providing environmental benefits, creating local jobs and reducing a given community's exposure energy markets.

Recommended Action:

- Allocate $50M over five years for capacity building, including funding QUEST.

Recommendation 2– Implement new programs that support demonstration of integrated energy solutions

Integrated energy solutions are characterized by high upfront investments, long-term benefits and increased risks associated with implementing new technologies and/or innovative business models. Many private sector organizations have the capacity to develop integrated energy solutions projects, but they need stable sources of long-term financing to meet investment hurdle rates.

Benefits:

- Funding support for integrated energy projects will yield environmental benefits while creating local jobs and reducing the proponent community's exposure to volatile energy commodity markets.

Recommended Action:

- Allocate new long-term funding of $500M over five years for accelerating the adoption of integrated energy solutions at the community level.

Recommendation 3 - Coordinate federal expenditures to better support integrated energy solutions

Energy efficiency, renewable energy, technology, municipal infrastructure and environmental expenditure programs shape community energy systems and, therefore, the federal government plays a major role in the community energy space. The scope of such federal expenditures is in the billions, including gas tax transfers and energy programs, plus billions more leveraged from provinces, municipalities and the private sector. These expenditures are handled by multiple departments – primarily Infrastructure, Transport, Natural Resources and Environment – and better coordination is needed.

Benefits:

- Better coordination of expenditures across departments will work towards transforming the federal approach from function-specific (e.g. infrastructure, transport, energy and environment) to concept-specific (integrated energy solutions). This will lead to more effective spending and greater leveraging of provincial, municipal and private sector investments.

Recommended Action:

- As expenditure programs are refinanced and confirmed, ensure there is a cross-departmental coordination mechanism in place dedicated to the community energy space and applying the QUEST principles to better support integrated energy solutions.