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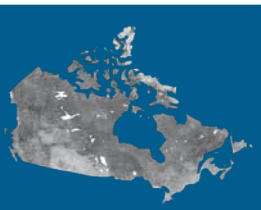
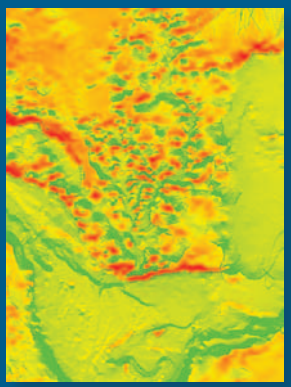
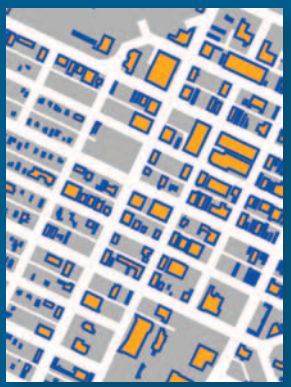


Community Energy Planning in Canada:

The Value of Energy Mapping Symposium Report





Canada

Acknowledgements

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Executive summary

On March 10, 2009, CanmetENERGY of Natural Resources Canada hosted a symposium entitled *Community energy planning in Canada: The value of energy mapping*.

Energy mapping is designed to support the characterization and prioritization of diverse energy uses and emissions reductions opportunities in neighbourhoods, communities, cities and regions. It is anticipated that it will enable cross-cutting decision support for both policy making and investment decisions. The symposium sought to assess the level of interest in potential applications for energy mapping in Canadian communities and encouraged knowledge exchange about the potential leadership of the federal government in deploying energy mapping across Canada.

With more than 40 participants, the session was attended by members of the federal and municipal government, NGOs, industry representatives and academic representatives. Attendees were invited based on their leadership, knowledge and commitment in the area of energy mapping and planning. Participants were welcomed by François Dubrous of CanmetENERGY and were given an overview of the expectations for the session by Brent Gilmour with the Canadian Urban Institute.

The morning session included presentations from federal staff, Geographic Information System (GIS) specialists and industry experts from across Canada, the United States, Austria and New Zealand. Claude LeFrançois of the Office of Energy Efficiency, Natural Resources Canada, provided an overview of the Community Energy Solutions Roadmap under development for the Council of Energy Ministers. This Roadmap for Action will present the role Canada's federal, provincial and territorial governments can play in working with communities and stakeholders to advance integrated community energy solutions to achieve energy efficiency improvements and reduce greenhouse gas emissions. Juan Carlos Molina with the Canadian Urban Institute presented a brief summary of how a GIS can be used in energy planning and provided some examples from around the world for the application of energy mapping.

Helmut Strasser of the SIR-Salzburg Institute for Regional Planning and Housing in Salzburg, Austria, presented on current European initiatives and programs in energy mapping and focused on the capacity of GIS to contribute to municipal energy planning and renewable resource assessment. This was followed by a presentation from Swing, Mayor's Office of Environmental and Energy Services, City of Boston, about the development of an online interactive solar mapping initiative. Swing identified the potential for replicating the initiative in Canada and emphasized the importance of partnering with utilities. Alexandre Pavlovski with Green Power Labs Inc. reviewed the solar energy mapping initiative for the Dalhousie University campus and discussed the importance of using an energy mapping hierarchy at the regional, local and site levels to make informed decisions.

John Warren of the Canadian Urban Institute talked about the extensive energy mapping approach that was created for the City of Calgary. He reviewed how the

study undertook to prepare a comprehensive land-use and energy tracking model that involved base-lining all energy consumed for every building in the city and working closely with municipal staff to forecast the amount of built form required to accommodate the expected growth in people and employment. The process involved developing a realistic model of what Calgary's physical form might look like in the future in terms of the number and type of buildings, as well as their size, height and location. This information was used to prepare scenarios and maps to evaluate appropriate alternative energy sources for use in the city and where they might be located.

In the afternoon, participants engaged in roundtable discussions that focused on three questions:

1. How do you see your organization moving toward better community energy characterization?
    a. What role do you see for energy mapping?
2. How would you build capacity to use energy mapping for planning and infrastructure investment practices?
3. What could the federal government do to support the use of energy mapping across Canada? Provide ideas for immediate and long-term actions.

Several key themes and suggested actions emerged from these discussions. A summary of the opportunities and constraints is provided below.

Participants identified four main areas where energy mapping could contribute:

- enhancing decision-support capacity in municipal, provincial/territorial and federal governments, and a variety of other organizations, in particular utilities, across Canada
- establishing new capacities to encourage the integration of a variety of energy and environmental issues at one time through a simple framework
- identifying regulatory barriers that hinder the implementation of alternative and renewable energy sources in communities
- advancing market transformation by establishing the correct market signals for private sector developers and utilities regarding long-term investments in energy supply and building demand

Participants subsequently outlined several challenges to advancing energy mapping, such as access to needed information, the standardization of data from one community to the next, lack of general awareness and interest in energy planning, and other market challenges. Participants outlined a variety of solutions, which included

- establishing a nationally recognized approach for the collection of data and creating standards and uniform ways of measuring and reporting energy at the municipal level to allow for comparison and evaluation of municipalities

- developing a certification program to create credibility in terms of expertise and approaches for energy mapping and establishing centres of research excellence to exchange practical experiences and knowledge
- working with established institutions and organizations across Canada to champion the idea of energy mapping and to use established industry and government networks to provide support and advance the mainstreaming of energy mapping into the daily decision-making process of a community

Participants suggested that Natural Resources Canada and other federal agencies have a direct leadership role in terms of advancing energy mapping. Specifically, participants thought that Natural Resources Canada could

- identify promising practices for the collection of energy information at the municipal level and establish a consistent approach for energy mapping, as well as for the types of indicators to report energy use
- prepare best practices through the development of guidelines for undertaking an energy baseline for a community, the development of GIS data layers for energy mapping and the types of energy unit measures to be used in energy mapping
- produce high quality research and information about advancing the business case for energy mapping for the private and public sectors
- develop new market instruments to encourage the application, as well as off-set the cost, of energy mapping

Selected organizations engaged in energy mapping

CanmetENERGY, Natural Resources Canada

canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/buildings_communities/communities/map.html

Canadian Urban Institute

www.canurb.com

Quality Urban Energy Systems of Tomorrow

www.questcanada.org

Boston Solar Energy Map

gis.cityofboston.gov/solarboston

SIR-Salzburg Institute for Regional Planning and Housing

www.sir.at

www.e5-salzburg.at

Green Power Labs

www.greenpowerlabs.com

1 Energy planning in Canadian communities

Natural Resources Canada's *Community Energy Planning Guide* provides a step-by-step roadmap for communities to follow in becoming a more energy-efficient community

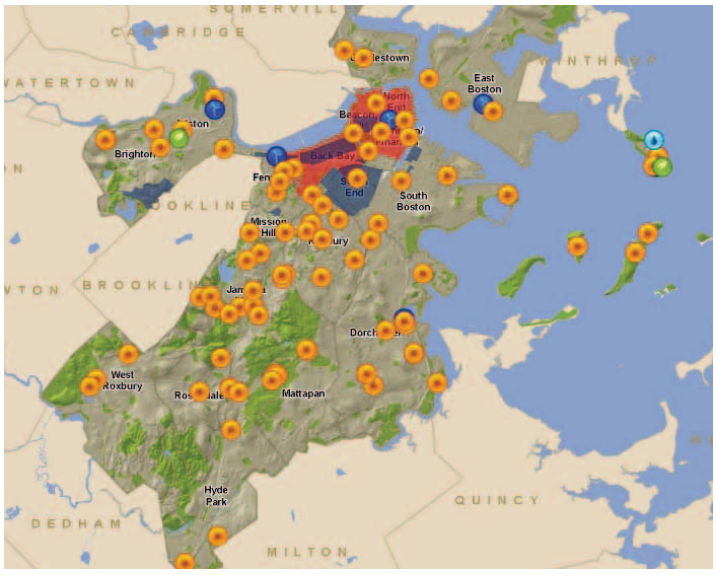
Source: Natural Resources Canada

Canadian communities have participated in sustainable energy planning in one of two ways. The first is directly through the management of energy services, including the owning and operating of various types of energy corporations, such as district energy facilities, lighting on streets and providing energy efficiency services. The second is indirectly through the development of energy policies that promote energy sustainability. These issues can include decisions on compact urban form, transit-oriented development, water distribution, waste management, building standards, infrastructure improvements, industrial processing and affordable housing.

One approach that has gained increased acceptance to help communities undertake sustainable energy planning is through the development of a community energy plan (CEP). A number of communities across Canada have undertaken a CEP or are in the process of preparing an energy plan. CEPs have enabled communities to identify local solutions to demand-side management practices, including improved building energy efficiency and integrating renewable and local energy sources as a means of reducing dependency on fossil fuels. At the same time, CEPs also work to engage communities to manage their own energy use and delivery more efficiently.

What is energy mapping?

Increasingly, communities involved in energy planning in Canada and abroad are examining the effect of connecting land-use decision making and transportation to energy demand impacts. One approach that is gaining support to assist communities with preparing a comprehensive energy strategy is the use of energy mapping. Energy mapping builds on the core elements of what a CEP attempts to do, including the establishment of energy and greenhouse gas targets, and can include a course of action to connect land use and built form with actionable demand-side management and to address local energy challenges.



The City of Boston's solar GIS depicts current solar installations.

Source: Boston Solar Energy Map: **gis.cityofboston.gov/solarboston**

2 Drivers for energy mapping at the community level

There are a variety of reasons for using energy mapping, including climate change mitigation, achieving energy reduction targets, transitioning the community to renewable energy sources. Energy mapping can provide decision makers in a community with important information that can be used to reduce energy costs, increase community well-being and lower environmental impacts.

Responding to climate change

The awareness around the world about climate change is helping to shift governments at all levels, utilities, developers, planners and others to explore the role for energy reduction and alternative energy use at the community level. Energy mapping offers a way to visualize and align greenhouse gas and demand-side management strategies by support policies and initiatives for meeting greenhouse gas, energy and clean air targets.

Supporting community energy planning

Community Energy Plans are emerging as a process that encourages more efficient use of local resources, both built and human, as well as smart investments in community infrastructure. The process of energy mapping can provide communities with new methods to strategically prioritize action items and evaluate progress toward growth, land-use and energy reduction targets.

Meeting energy reduction targets

The demand for energy is continuing to grow for communities because of increases, in part, from energy-intensive processes and the addition of more people and jobs. A dependable supply of energy is seen as critical for ensuring the economic attractiveness and competitiveness of cities and is leading to an increased focus on reducing energy demand at the community level through improved performance standards for buildings, reduction in automobile trips and the encouragement of local alternative, as well as renewable, sources of energy. Energy mapping offers a way for municipal governments and local utilities to evaluate existing energy use in a community and to improve energy efficiency and encourage alternative energy sources.

Transitioning to new energy sources

A dependable supply of energy is seen as critical for ensuring the economic attractiveness and competitiveness of communities. Energy mapping can provide an approach to identify the types of energy sources available to a community and assess where and how renewable energy could be used.

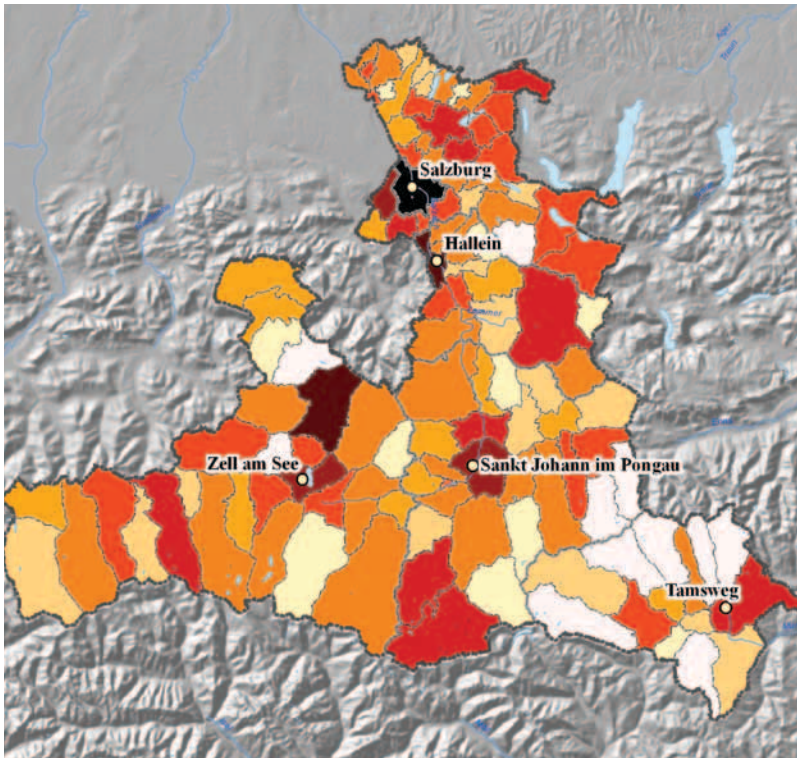
3 Energy mapping in action

Practitioner presentations explored emerging trends and challenges for energy mapping in the state of Salzburg, Austria; Boston, Massachusetts; Halifax, Nova Scotia; and Calgary, Alberta. Several approaches were identified for integrating energy mapping into energy assessments for communities, planning and deploying of alternative renewable sources and connecting with land-use planning.

Process for success in Europe

Helmut Strasser, with the Salzburg Institute for Regional Planning and Housing (SIR), outlined the role of GIS as a central component for guiding regions and municipalities in energy planning and decision making. He discussed the e-5 program for energy-efficient communities and the European Energy Award (EEA). The e-5 program has used energy mapping to provide a continuous process for quality management in energy decision making and improving local structures and frameworks for effective energy policy, certification and benchmarking. EEA supports communities in the transition to sustainable energy policies and in the use of renewable energy.

Strasser identified how GIS has contributed to improving comprehensive energy reduction strategies for communities at two levels. The first is at the national and regional level to prepare assessments of the various types of energy resources available to a community, and the second is at the building and site level. He noted that using GIS can be highly effective for developing strategies in terms of evaluating alternative energy sources and undertaking detailed planning and scenario development to prepare comprehensive energy strategies. GIS can be an effective tool for allowing communities to track, benchmark and compare one another in terms of erergy. Strasser identified that two of the key challenges to the effective deployment of GIS for energy mapping at the local level is accessibility of information and the standardization of data.



Map illustrating heat demand of communities (MWh per year) in the state of Salzburg, Austria.

Source: e5-program and SIR-Salzburg Institute for Regional Planning and Housing:

www.e5-salzburg.at and **www.sir.at**

Meeting Boston's solar challenge through GIS

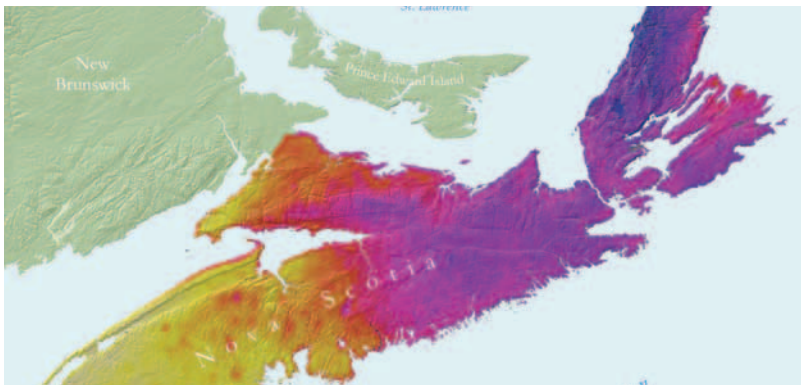
"One of the challenges to effective deployment of GIS for energy mapping is access to information and the standardization of data." – **Helmut Strasser,** SIR- Salzburg Institute for Regional Planning and Housing

Brad Swing, with the City of Boston, Massachusetts, provided an overview of the successful online solar mapping model that is engaging citizens, businesses, utilities and other organizations to address climate change and meet the established goal of 25 MW of solar energy production for the City. Swing identified how the use of GIS can be instrumental both in engaging citizens in a community and municipal staff within city departments to become aware of how they can participate in the production of local renewable energy and in overcoming the challenges of encouraging renewable energy installation on private property. Furthermore, he commented on the potential for replicating the initiative in Canada and emphasized the importance of partnering with utilities.

Swing outlined how the Solar Boston Energy Mapping Program has served as an effective management tool for guiding investment in renewable energy, as well as for monitoring and benchmarking renewable energy production in the City. He also outlined how the Green Affordable Housing initiative is an example of how solar energy mapping has been instrumental in achieving the goals of the program by requiring solar-ready designs for all affordable housing. With a new United States federal focus on renewable energy, Swing identified that the federal government is now offering block grants to cities for energy efficiency delivery services, to stimulate future growth and implementation in renewable energy. The project was funded from a $2-million Block Grant from the United States federal government.

Planning for solar suitability at Dalhousie University

Alexandre Pavlovski of Green Power Labs Inc. reviewed the process of the solar energy mapping study undertaken for the Dalhousie University campus in Halifax, Nova Scotia. Two important factors helped drive this work: an aggressive sustainability planning agenda and a campus master plan that included a campus energy mapping process. Pavloski described the three-tiered process of solar energy mapping: The first step was providing solar resource monitoring and mapping resources at a national level. He noted that the federal government is best placed to disseminate information on the availability of solar resources across Canada. The next step was determining the solar generation potential with different technologies and solar suitability mapping. This can allow communities to better understand the potential for every facility in a defined area that could benefit from



This solar resource map for the province of Nova Scotia, Canada, shows solar energy incident on a horizontal surface (kWh/m^2/day) for the 2007 calendar year.

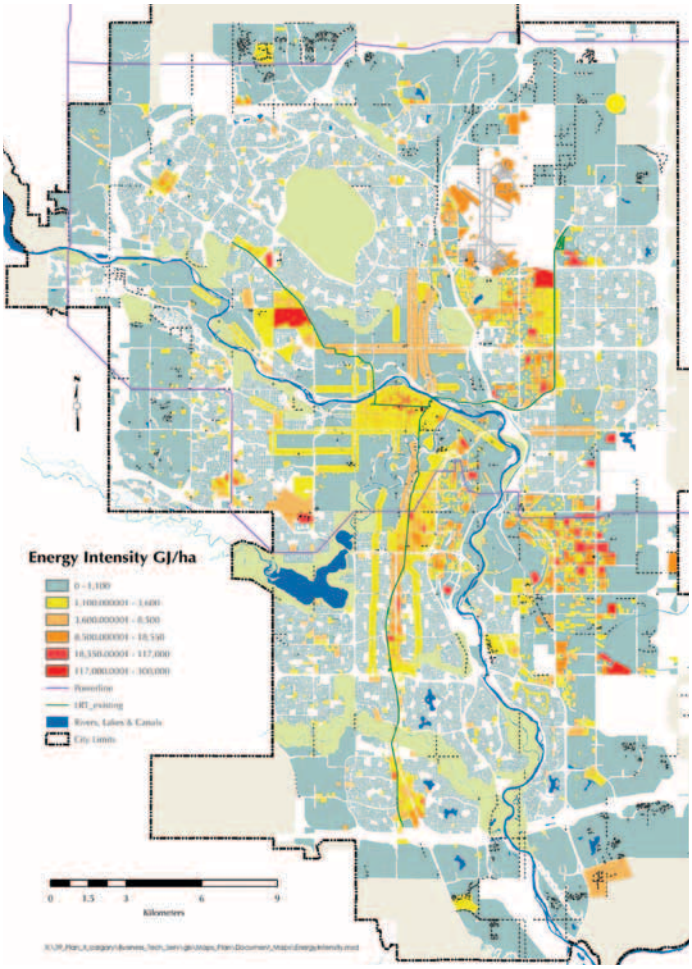
Source: Green Power Labs: **www.greenpowerlabs.com**

solar energy planning. The last step was examining the facilities in an area that might benefit from solar systems. Pavloski suggested that a community could also engage in a site suitability assessment of potential solar sites and buildings.

Recently, Green Power Labs created a solar online rating program to provide a flexible learning tool for the public about the efficient use of solar energy and how it can be applied in a community.

Energy land-use planning

John Warren with the Canadian Urban Institute reviewed the energy mapping study that was prepared for the City of Calgary, Alberta, and summarized the modelling process. The study prepared a comprehensive land-use and energy tracking model for Calgary. The first stage involved baselining energy consumed for every building in the city. Data for total energy consumed and relative energy cost within the boundaries of Calgary were provided by local utilities and used to create energy intensity factors for seven building types. The next step involved sorting all building types in Calgary into seven categories and assigning an energy intensity factor to prepare an energy profile of the city. John indicated that the process required working closely with municipal staff to forecast the amount of built form necessary to accommodate the expected growth in people and employment for the city.



The ultra-high energy and land-use efficiency map created for the City of Calgary.

Source: City of Calgary, **www.calgary.ca**

The final step involved developing a realistic model of what Calgary's physical form might look like in the future in terms of the number and type of buildings, as well as their size, height and location. This information was used to prepare scenarios and maps to evaluate appropriate alternative energy sources for use in Calgary and where they might be located. Warren outlined that the Calgary study followed a three-stage energy decision assessment. The first stage was to use energy efficiency improvements to serve as a catalyst to curb energy demand and reduce environmental risks. The second stage was to maximize alternative energy systems across Calgary. The third stage was to link the decisions about the built environment, land-use designations and alternative energy sources to establish a long-range plan that connects planning decision making and energy inputs.

4 Opportunities and constraints for energy mapping

In the second half of the symposium, participants were asked to review and assess three questions:

- How do you see your organization moving toward better community energy characterization? What role do you perceive for energy mapping?
- How would you build capacity to use energy mapping for community planning and infrastructure investment practices?
- What could the federal government do to support the use of energy mapping across Canada? Provide ideas for immediate and long-term actions.

Major themes and a summary of the discussions relating to the questions are provided in the following three sections.

Identifying a role for energy mapping

Decision support tool

Participants commented that the various applications of energy mapping were wide-ranging and could greatly enhance the decision-making capacity for municipal, provincial/territorial and federal governments and other organizations such as utilities. For instance, energy mapping could be used as a strategic process to identify energy-constrained areas and the information used to develop strategies for locating renewable and alternative energy sources. At the same time, participants commented that the application of energy mapping is relatively new and that the "value add" of energy mapping needs to be demonstrated. Participants suggested that the development of a clear business case would help explain to municipalities why they should be engaged in energy mapping.

> "Energy mapping provides the basis and rationale for good urban design, diversity, compact form and transit support. If you can start to get that right, you can start to get a lot of other things right." — **Dan Leeming**, Planning Partnership

Capacity building

Participants noted that keeping up-to-date on the applications and concepts of energy mapping would be a challenge. Community planners, engineers, architects, builders, developers and government officials interested in the idea of energy mapping are not likely to be familiar with the concept, application and approaches. Participants also noted that there are limited opportunities to share experiences and challenges with implementing energy mapping and discuss technical solutions for advancing the concept. One possible approach raised was to train and educate students by using universities as living laboratories. Universities and colleges could use campuses as research and development incubators and learning centres for implementing energy mapping.

Policy and regulation

Participants felt energy mapping could help identify several regulatory barriers that hinder the implementation of alternative and renewable energy sources in communities. Participants also noted that it was important to consider how energy mapping applications could be used to better assess the contribution of a range of greenhouse gas and demand-side management actions to achieve provincial/territorial and municipal energy and clean air targets.

Market stimulation

Participants commented that energy mapping could contribute to market transformation by establishing the correct market signals for private sector developers and utilities concerning long-term investments in energy supply and building demand.

The following discussion points were mentioned on the potential applications of energy mapping:

- An approach to encourage "energy literacy" by contributing to the development of an integrated and holistic community energy plan.
- A method used to contribute to defining future physical form (redevelopment or creation of new land uses and densities) and provide the foundation for an economic model for energy infrastructure investment.
- A model for the preparation of studies such as the expansion of urban growth boundaries, official plans and secondary plans. Energy mapping should be part of the fundamentals of any growth study undertaken by a municipality. The process can influence other components of planning studies such as transportation systems, sewage systems and environmental systems. Energy mapping provides the basis and rationale for good urban design, diversity, compact form and transit support.
- An approach for testing various land-use development scenarios to determine the most energy-efficient land use configuration and built form for a community.
- A cost-effective assessment tool to identify the opportunities for energy sharing and for obtaining the highest and best use from a given primary-energy input.
- A dissemination process to better communicate how energy information is presented to the general public, politicians and planners.
- A method for creating predictable and timely investments in renewable and alternative energy sources.

"A primary challenge for advancing energy mapping is accessing the data and reporting results in a consistent manner. This is where the federal government can really help to facilitate the process." — **John Warren,** Canadian Urban Institute

Capacity building for energy mapping

Several opportunities were identified about how to advance capacity building for energy mapping.

Develop best practices for data collection

One of the primary challenges to advancing energy mapping is accessing the required information to undertake various energy and land-use assessments. Participants noted that there is minimal standardization of data from one community to the next. Participants felt that establishing a framework for the collection of data and creating a standard and uniform way of measuring and reporting energy at the municipal level would improve the ability to compare, rank and encourage positive competition among municipalities for energy efficiency.

Develop strategic partnerships

Participants noted that energy mapping can require several technical and expert decisions that involve many stakeholders and can involve crossing over several areas of government jurisdiction and responsibility. Participants suggested that forming partnerships with utilities or between federal departments to make data such as information derived from the ecoENERGY Retrofit Audit Records available could quickly enhance the uptake of energy mapping. Participants also suggested that working with relevant municipal associations, the Canadian Institute of Planners, Quality Urban Energy Solutions of Tomorrow (QUEST) and the Federation of Canadian Municipalities (FCM) to advance multistakeholder decision making would be beneficial.

Identify barriers to energy project implementation

One of the common challenges mentioned by participants was that there might be a lack of public awareness and shortage of local experience and expertise about how energy mapping can be used to meet the energy sustainable development objectives of a community. While a community might be interested in reducing reliance on centralized energy, encouraging alternative and renewable electricity generation and lowering greenhouse gas emissions, other critical issues related to growth management, building the tax base and additional community priorities might deter municipalities from implementing actions in the short term. In particular, community energy planning initiatives can become hampered due to uncoordinated and sometimes conflicting policies and regulations.

The following are discussion points mentioned on capacity building opportunities for energy mapping:

- Municipal, provincial and federal governments could encourage developing constructive partnerships with utilities for the exchange of information to support energy mapping.

- There is a need for greater collaboration, including identifying and supporting local leaders to overcome departmental and jurisdictional boundaries and actively champion energy mapping.
- Establish a collection of regional centres of excellence to provide technical services to smaller municipalities that do not have the capacity to undertake energy mapping.
- Create a simplified Web-based GIS tool that would be an analogy to the screening tool that was created for the original federal Commercial Building Incentive Program (CBIP) or RETScreen® International. The tool would allow non-GIS practitioners to visualize some energy information and become familiar with the applications for energy mapping.
- Consider European models, such as the e-5 program, to encourage competition among municipalities.
- Establish a standardized methodology (best approach) for measuring energy at the community level.
- Develop a process that would allow data for energy use and building data from different municipalities to be available for comparison, ranking and assessment.
- Document the competitive advantage created from avoided energy costs, new jobs and long-term capital and operation costs that can be captured through energy mapping.
- Encourage energy mapping to be incorporated into the planning process in a similar fashion as urban design guidelines and other supportive reports for the practice of urban planning.

Participants suggested a conceptual model for building capacity for energy mapping. The model presented was developed in response to the question, "How do you get the human capacity for energy mapping?" The suggested approach put forward was that once demand was generated, this would contribute to sustaining capacity for energy mapping.

Model for capacity building

Demand generated by	Supply for energy mapping
Political will	Supporting implementation
Responding to energy price increases	Regulation of energy mapping as part of the official planning process
Creating guidelines and methodology for industry	Certifying the process of and expertise for energy mapping

Stakeholder priorities

Participants identified several actions the federal government and other stakeholders could undertake immediately and over a longer period to support energy mapping.

Collect, research and publish timely information

> "How do you get the human capacity for energy mapping? The answer involves looking at supply and demand. The capacity will be sustained once you have consistent demand." — **Julia McNally,** Ontario Power Authority

Participants acknowledged the importance of producing high quality information that could advance knowledge about energy mapping, as well as support the business case to a range of stakeholders. Among the areas identified for research by participants were assessing mechanisms to encourage the involvement of the financial community in establishing products for energy improvements (underwriting liability, long-term guarantees, etc.), evaluating the competitive advantage and cost savings of developing local energy systems versus centralized systems, and working with the provinces to assess the cost/benefit opportunity of adopting higher building standards for all building types. One example provided was the implementation of building permit fee rebates in existing buildings.

Develop case studies and best practices

A challenge identified by participants was the limited number of examples of completed energy mapping initiatives in Canada that address the integration of all land uses and urban form, building types, transportation, industry and energy supply, as well as distribution options. Lack of completed projects hinders the opportunity for knowledge exchange and inhibits the advancement of technical expertise, as well as limits the ability of municipal, provincial/territorial and federal governments to identify the types of services (financial, technical, etc.) required to advance the application of energy mapping. Participants identified the importance of having an energy mapping study that incorporates transportation. Suggestions were also put forward for the development of best practice guidelines and request for proposal templates that are similar to the Natural Resources Canada materials developed for CEPs.

Establish best practices and facilitate standards development

An issue consistently raised by participants was the importance of securing accessible information that can be easily validated and quantified for use in an energy model and GIS applications for energy planning and mapping purposes. All participants identified that Natural Resources Canada, through its mandate to both investigate the reliable measurement of energy in communities, and build the Canadian Geospatial Data Infrastructure, would be the appropriate federal agency to facilitate, in collaboration with the appropriate stakeholders including provincial and territorial governments, municipalities and industry, the development of agreed-upon best practices and possibly standards for the consistent reporting of energy use at

the municipal level. Participants also identified Natural Resources Canada as the appropriate department to establish a consistent approach for energy mapping and to determine the best indicators to report energy use in a consistent manner to measure energy use at the community level.

Participants outlined three areas that need to be addressed:

- energy data layers – Support is necessary to establish agreement on the input layers used to create a CEP. For instance, is "residential energy use" applied the same across all municipalities?
- accessing and sharing geospatial information – The standards of geospatial data discovery, access, sharing and online mapping should be promoted, as well as the principles of closest-to-source data access. These standards and principles are currently part of the Canadian Geospatial Data Infrastructure and could be widely disseminated as part of the process followed for energy mapping.
- energy reporting and energy sources – A general agreement must be established about the units of measure that can be used in CEPs for use in conjunction with energy mapping to improve evaluating, monitoring and verification among communities.

Encourage market transformation

Participants identified the importance of expanding existing government market instruments to encourage the application, as well as to off-set the costs of undertaking energy mapping. Participants suggested that the establishment of government market instruments, similar to the federal gas tax program, could be used to move the energy mapping process into the mainstream for municipal planning and energy assessment.

The federal government support roles for energy mapping are summarized below:

- Identify federal agencies (Natural Resources Canada, Statistics Canada) and other organizations with energy database information and establish a formal process to share information.
- Work with stakeholders to facilitate the development of energy mapping best practices.
- Develop training and certification program(s) for agencies, consultants and energy specialists interested in energy mapping and work with federal departments to support courses and training at colleges, union centres, industry and trade centres across Canada.
- Conduct research to identify the cost savings from transmission and generation capital and operating costs due to implementation of local alternative energy supply systems.
- Prepare an assessment of the GIS capacity of major municipalities across Canada to deliver geospatial applications related to energy mapping.

- Make GIS available to smaller municipalities and provide support on how the tools can be effectively applied.
- Create a Web portal or centres of excellence where all federal departments, provinces, territories and municipalities engaged in energy mapping activities can share resources and identify any cross-fertilization opportunities or possible gaps.
- Establish a strategy for mitigating privacy issues for data collection and use. Offering information at the building level or street level will require developing relationships and synergies with utility companies and agencies regulating property data.
- Work with organizations such as the Federation of Canadian Municipalities, the Canadian Institute of Planners and others to promote energy mapping and other support services.
- Advance market transformation by offering fiscal support to municipalities for undertaking energy planning. The approach could be similar to the United States block grants or Canada's current ecoENERGY programs for improving energy performance of buildings.

Appendix A – Program

Community energy planning in Canada: The value of energy mapping symposium

Tuesday, March 10, 2009

8:00	**Registration and light breakfast**
8:35	**Welcome and introduction** François Dubrous, CanmetENERGY, Natural Resources Canada **Session expectations and agenda overview** Brent Gilmour, Moderator
8:45	**Community energy solutions road map** Claude Lefrançois, Office of Energy Efficiency, Natural Resources Canada **Decision making with GIS** Juan Carlos Molina, Canadian Urban Institute
9:00	**Questions for clarification**
9:15	**Energy mapping In action: An international perspective** *International guests outline the role of energy mapping in their own countries and how communities can repeat the success*. **Energy mapping in Europe: A process for success** Helmut Strasser, Salzburg Institute for Regional Planning and Housing, Salzburg, Austria **Meeting the solar challenge through GIS** Brad Swing, City of Boston
10:00	**Questions for clarification**
10:15	**Break**

10:30	**Energy mapping In Canada: Select case studies** *How is energy mapping being used in Canada today? What are the advantages of considering energy mapping within land-use and energy planning?* **Dalhousie University – Planning for solar suitability** Dr. Alexandre Pavlovski, Green Power Labs Inc. **City of Calgary – Energy land use planning** John Warren, Canadian Urban Institute
11:20	**Community energy planning response and discussion** *What has community energy planning achieved to-date? How can energy mapping contribute?*
12:00	**Lunch – Supported by the Federation of Canadian Municipalities**
1:15	**Applying energy mapping: Opportunities and constraints** *Participants will explore in small working groups the opportunities and constraints for the use of energy mapping to support community decision making.*
1:45	**Report back from roundtables and interactive discussion**
2:45	**Break**
3:00	**Deploying energy mapping: A role for the federal government** *Interactive panel discussion with François Dubrous, Michel Gélinas, Tony Turner and Julia McNally*
3:30	**Wrap-up and adjournment**

Appendix B – Delegates

Ms. Elise Bingeman
Canadian Standards Association

Ms. Marni Cappe
Canadian Institute of Planners

Ms. Christine Carr
Canadian Urban Institute

Mr. Devin Causley
Federation of Canadian Municipalities

Mr. Paul Cobb
Pembina Institute

Mr. Andrew Cowan
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