

Council of Energy Ministers

Building Energy Benchmarking

*Recommendation and Work Outline
for a System for Canada*

Submitted by

Demand Side Management Working Group Sub-Committee
on Building and Housing Energy Labelling

Submitted to

Council of Energy Ministers September 1st, 2009



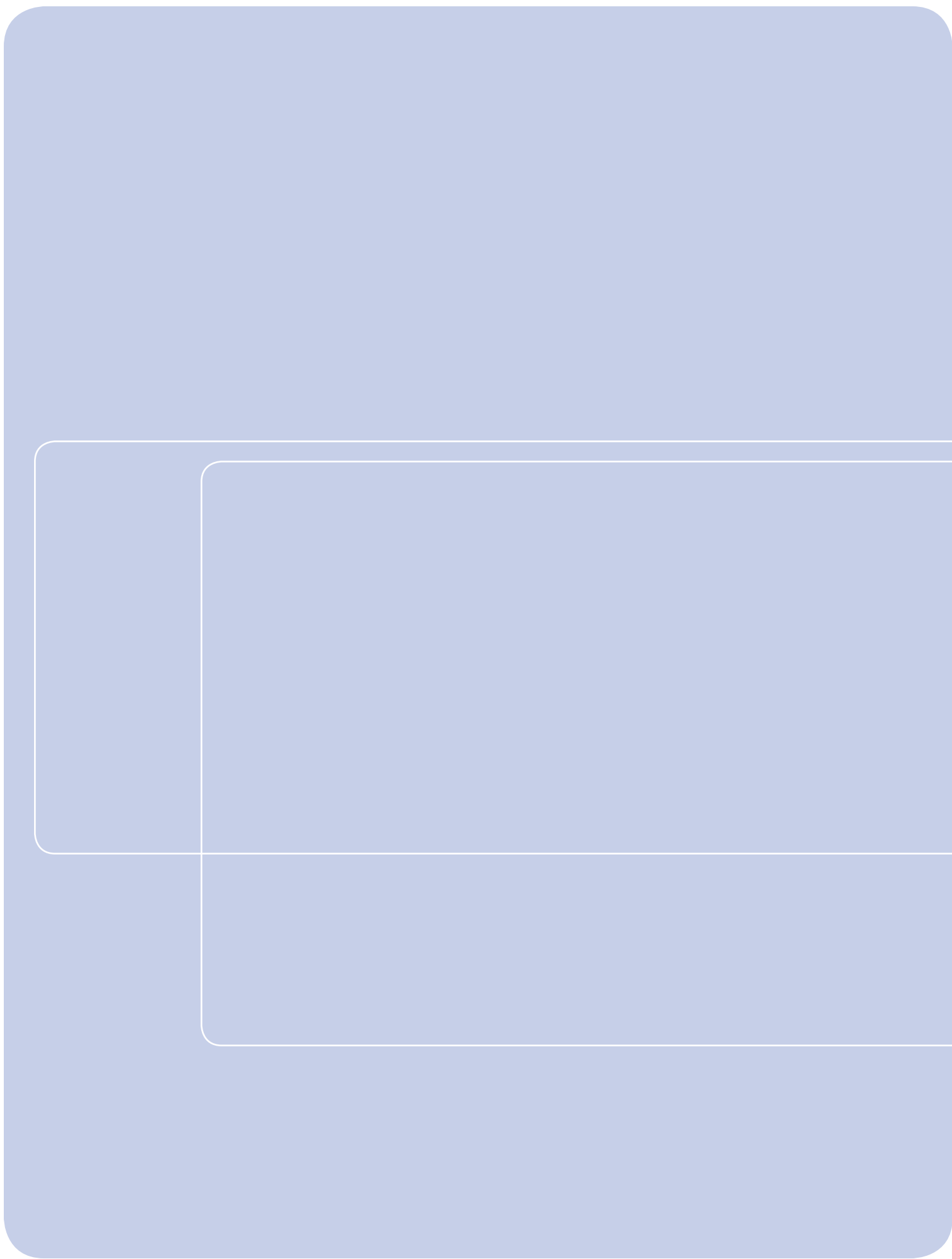
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*Aussi disponible en français sous le titre : Analyse comparative énergétique des bâtiments –
Aperçu du travail et des recommandations en vue de l'élaboration d'un système pour le Canada*

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Executive Summary

Background

In 2006, the Demand Side Management Working Group (DSMWG) of the Assistant Deputy Ministers Steering Committee on Energy Efficiency (ASCEE) established a working group, the Sub-Committee on Building and Housing Energy Labelling (the Sub-Committee), to research and propose commercial and institutional building energy labelling options for Canada. This document is the outcome of that exercise.

This document embodies the recommendations of the Sub-Committee for a building energy benchmarking tool for use by building owners or their designates. The database and online tool would allow the comparison of building energy use by building type across Canada, adjusted to allow for differences in local weather and fuel types.

Real-time benchmarking has been shown to serve as a powerful trigger for energy use improvement: by providing objective, reliable information on energy use and the benefits of improvements, it regularly prompts building owners and managers to action. The data in the online tool would allow real-time benchmarking for users, and the aggregated data in the system, combined with survey results, would provide Canada's commercial buildings sector with the national data for policy and planning. Accordingly, the system could serve as the first step toward government or private sector implementation of building energy labelling.

Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) would provide specialised support for the development, implementation and administration of the benchmarking system. In addition to benchmarking building energy use, the system would answer the need for better buildings sector data as identified below.

The OEE provides tools and expertise to help Canadians manage the energy use in buildings. Canada's buildings sector represents nearly \$1 trillion in real estate assets and spends nearly \$18 billion every year on energy. Each year, an additional \$40 billion is injected into the economy in new capital and building investments, with a further \$11 billion in building repairs.

The need for better buildings sector data in Canada is highlighted by *Geared for Change*, a publication from the National Round Table on the Environment and the Economy (2009):

- “Energy efficiency policy monitoring and evaluation needs to be improved in Canada. It can ensure that policies remain dynamic and up-to-date for maximum performance and relevant to current market characteristics.”
- “More transparent and higher quality data collection is required to provide a baseline for comparison and to elaborate the monitoring and evaluation procedures for policy impacts.”
- “The federal government has a role to play in providing integrated information resources for industry that simplify standards and processes for energy efficiency.”

Canada's buildings sector represents nearly \$1 trillion in real estate assets.

The buildings sector has already expressed strong support for a standardized, country-wide benchmarking system, and it is urging a fast-track implementation process for the proposal described here. The system also has significant buy-in from the Canada Green Building Council (CaGBC) and the Building Owner and Managers Association (BOMA) of Canada.

A national consultation undertaken by NRCan in February 2009 with major property owners and managers confirmed that the proposed North American benchmarking approach serves their needs by providing a consistent system of measurement for cross-border portfolios.

The proposal also supports North American initiatives for cooperative action on climate change.

Proposal

The main finding of the Sub-Committee is that the ENERGY STAR® benchmarking methodology developed by the U.S. Environmental Protection Agency (EPA) provides a suitable platform for developing a made-in-Canada benchmarking system.

This document also recommends that federal, provincial and territorial governments take the lead on benchmarking within their own jurisdictions. Governments could, for example, mandate that the buildings they own or manage use the proposed benchmarking system. Governments could then set their own compliance date for such a mandate.

The proposed Canadian benchmarking system has four main features:

- A *reference database* that provides benchmark ranges for actual energy use by a particular building type (e.g., office, school, bank, hospital). The data would be provided by a national survey that would be undertaken at the federal level through Statistics Canada. The data would be updated on a five-year cycle. Users of the online benchmarking and rating tool would compare their building with the appropriate reference building type from the survey data in this database.

- A *free-of-charge benchmarking system* — a Web-based tool called *Portfolio Manager* and series of algorithms — that uses building data submitted through the tool to compare an individual building with a statistically significant set of similar buildings nationally to develop an unverified *benchmark* and a *report*. If the results were then to be used for certification purposes, the details of the report would need to be independently verified by a qualified third party (e.g. engineer).
- A *program database* that stores the individual building data submitted to the benchmarking system, together with the results calculated by the online tool.
- An *automated data submission system* that would allow energy suppliers and users of energy management software to automatically send energy use/billing information for individual buildings directly to the national program database.

Two tasks must be completed to establish the benchmarking system:

- Developing a survey tool and a reference database
- Developing the Canadian component of the Web-based interface *Portfolio Manager* tool and program database described above

The benchmarking tool would be maintained by the federal government through the OEE.

It is proposed that the benchmarking system be developed and piloted for offices and schools and launched in 2012.

The benchmarking tool would be maintained by the federal government through the OEE.

Current Situation

In 2006, the DSMWG established a working group — the Sub-Committee on Building and Housing Energy Labelling (hereafter, the Sub-Committee) — to research and propose building energy labelling options for Canada. This document is the outcome of that exercise.

The document embodies the recommendations of the Sub-Committee for a building benchmarking tool for use by building owners or their designates. The database and online tool would allow the comparison of building energy use by building type across Canada, adjusted for differences in local weather and fuel types.

Real-time benchmarking has been shown to serve as a powerful trigger for energy use improvement: by providing objective, reliable information on energy use and the benefits of improvements, it regularly prompts building owners and managers to action. The data in the tool would allow real-time benchmarking for users, and the aggregated data in the system, combined with survey results, would provide national data for policy and planning in the sector. The system could serve as a first step towards government or private sector implementation of building energy labelling.

Details on the composition of the Sub-Committee are provided in **Appendix A: Members of Sub-Committee**. The work of the Sub-Committee has been supported by a Secretariat based in the Office of Energy Efficiency (OEE) at Natural Resources Canada (NRCan).

The OEE provides tools and expertise to help Canadians manage the energy use in buildings. Canada's buildings sector represents nearly \$1 trillion in real estate assets, and spends nearly \$18 billion annually on energy. Each year, an additional \$40 billion is injected into the economy in new capital and building investments, and \$11 billion in building repairs.

The buildings sector data cited above appear largely as residual data within broader economic surveys. There is little actual building-related data in the public domain that could serve to guide public policy about buildings themselves. The capture of better data will have many uses, of which the following two are chief:

- Provide the foundation for benchmarking
- Satisfy the need to better understand buildings in order to guide improved public policy related to their construction, retrofit and use

The need for better building sector data in Canada has most recently been highlighted in *Geared for Change*, a publication from the National Round Table on the Environment and the Economy (2009):

- “Energy efficiency policy monitoring and evaluation needs to be improved in Canada. It can ensure that policies remain dynamic and up-to-date for maximum performance and relevant to current market characteristics.”
- “More transparent and higher quality data collection is required to provide a baseline for comparison and to elaborate the monitoring and evaluation procedures for policy impacts.”
- “The federal government has a role to play in providing integrated information resources for industry that simplify standards and processes for energy efficiency.”

The Sub-Committee has recommended that a national benchmarking system be developed. The system could be of use to entities wishing to do labelling, and it would have many other benefits.

Proposal

The Sub-Committee proposes that a benchmarking system for commercial and institutional buildings in Canada be based on the ENERGY STAR® program methodology developed by the U.S. Environmental Protection Agency (EPA). The proposed Canadian program provides for a coordinated effort in the collection, tracking and reporting of energy use data, as well as for a process for the development of a common national baseline data set and rating system. NRCan could provide specialized support for the development, implementation and administration of the proposed system.

The proposed system would ramp up over several years in order to spread out costs and allow adequate time for comprehensive technical data analysis. The initial focus would be on Canada's dominant commercial and institutional building types, offices (41% of floor space) and K–12 schools (13% of floor space).

The research work and consultations that underlie this proposal are listed in full in **Appendix B: Sub-Committee Work Completed**. Further supporting documentation for the proposal, including an itemized budget, are currently in development.

The proposed system would ramp up over several years in order to spread out costs.

U.S. EPA ENERGY STAR Program Methodology

The Canadian program would follow the current ENERGY STAR methodology for building benchmarking. The U.S. EPA owns and manages the ENERGY STAR brand and tools. It has expressed its willingness to work with the Government of Canada to share the program methodology and to license the use of its brands.

The ENERGY STAR approach to the two functions of benchmarking is straightforward:

- 1) **Benchmarking:** A limited set of data for each building is entered into an online interface tool called *Portfolio Manager*. The tool establishes a benchmark for the building.
- 2) **Rating:** A rating is calculated by comparing its energy use with that of comparable buildings identified from survey data in the reference database set. A rating is calculated on a scale of 1–100, where 1 represents the rating of the least efficient 1% of buildings in the same class and 100 represents the rating of the most efficient 1%. The rating is available to registered users of the system at no cost. The accuracy of the data on which the rating is based is subject to verification when a request for an official ENERGY STAR label is made. The Canadian proposal does not involve the issuance of a label, but the benchmarking tool would support public and private sector entities that wish to issue a label.¹

¹ENERGY STAR also performs a certification function for buildings with an efficiency rating of 75 or greater. The plaque (referred to by ENERGY STAR as a label) is issued only at the written request of the building owner, who must provide independent third-party certification of the data. There is no administrative fee to obtain the ENERGY STAR label, although the third-party certification required for the label application is obtained at the building owner's expense. The label is valid for the year in which the data were submitted.

ENERGY STAR currently covers 14 key building types, representing more than 60% of the existing buildings in the U.S. More building types will be added over time.

The ENERGY STAR approach has produced substantial results in energy efficiency. In 2007, according to the EPA, the ENERGY STAR Commercial Buildings Program was responsible for energy savings equivalent to 78.3 billion kWh and 18.0 megatonnes (18MTCO₂e) of greenhouse gas (GHG) emissions avoided. These amounts are equivalent to 12.1 million passenger vehicles being taken off the road. Similar results were obtained in 2006, with amounts of 76.5 billion kWh and 15.2 megatonnes (15.2MTCO₂e) of GHGs.

The ENERGY STAR program is widely used within other high-profile U.S. certification initiatives — including the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ from the U.S. Green Building Council (USGBC), Building Owner and Managers Association of the USA (BOMA-USA) and the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) — and for building energy benchmarking in New York City, California and Washington, D.C.

Key Canadian Stakeholders

The development of a Canadian version of the ENERGY STAR benchmarking and rating program is supported by Canada’s commercial and institutional buildings sector, which is urging that the implementation process be fast-tracked. The use of such a program has also attracted wider public and private sector buy-in from other certification agencies, including:

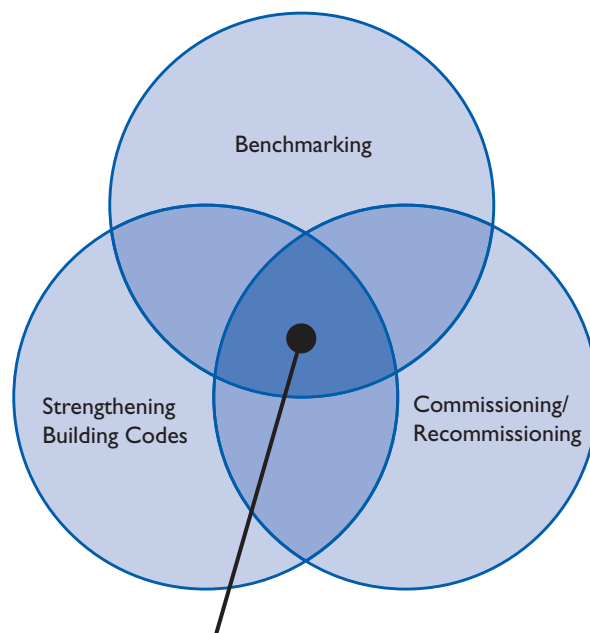
- The CaGBC, which manages the environmental certification LEED® (Leadership in Energy and Environmental Design) for new buildings and is developing LEED EB:OM (LEED for Existing Buildings: Operations & Maintenance) to help owners target energy and environmental improvements to existing buildings

- BOMA Canada, which owns and manages the environmental certifications Go Green and Go Green Plus, now integrated into BOMA BESt, and which has been applied largely in the commercial real estate office sector

Council of Energy Ministers’ Vision

The proposal also meets the goals expressed in the CEM report *Moving Forward on Energy Efficiency in Canada: A Foundation for Action*. Released in September 2007, this document lays out clear directions for activities to improve the energy efficiency of the built environment based on a strategy of market transformation. It proposes several specialized tools, technologies and approaches, including (p. 19) an initiative to *develop and implement energy performance rating and labelling for equipment, houses and buildings*.

Figure 1: Increasing Building Energy Efficiency



Combined result: Greatest increase in overall building energy efficiency

Moving Forward on Energy Efficiency in Canada also identifies (Annex I) several guiding principles, which the proposal meets in the following ways:

- **Address Market Transformation:** tracking the range of buildings from most to least energy-efficient enables the market value of an energy-efficient building to be determined
- **Maximize Efficiency and Effectiveness:** creates a voluntary system that can be adopted by both public and private sector organizations for their specific needs or assets
- **Ensure Equity:** provides equal access to all building owners and managers to benchmark buildings across Canada
- **Measure to Manage:** develops stakeholder (owner, manager, renter) awareness of energy use at the building owner, municipal, provincial/territorial and federal levels
- **Use Multiple Instruments and Develop Capacity:** promotes automated benchmarking to develop demand in the building audit, commissioning and technology subsectors; consequently, strengthens understanding among building owners and managers of energy efficiency best practice

Maximize Efficiency and Effectiveness: *creates a voluntary system that can be adopted by both public and private sector organizations for their specific needs or assets*

Other CEM guiding principles are met by the national building survey and databases that form the foundation of the proposed system:

- **Commit Long-term:** provide verifiable, up-to-date data to guide and support policy research and program development related to building sector energy use
- **Learn from Experience:** expand the knowledge base of building owners and governments with continuously growing body of data
- **Measure to Manage:** provide — at the national level — mechanisms to measure building energy performance and to accurately track building sector energy use and GHG emissions by fuel source

The proposed system also:

- **Shows leadership,** both in itself and by providing a system that enables all levels of government to lead by example in benchmarking building energy performance of the buildings they own
- **Supports continental North American initiatives** for cooperative action on climate change

Systems Investigated

The Sub-Committee investigated several systems for the development and implementation of a building energy benchmarking system. An itemized, descriptive list of the main points of comparison is provided in **Appendix C: Systems Investigated**.

Recommendations

Recommendation 1

The Sub-Committee and the DSMWG recommend that a national building reference survey and online benchmarking tool based on the ENERGY STAR methodology be developed and launched.

Recommendation 2

The Sub-Committee and the DSMWG further recommend that governments show their leadership in benchmarking by mandating that the online tools be used to benchmark buildings they own or manage. Each government would determine their own compliance deadline for such a mandate.

Recommendation for Consideration

To reduce workload and increase data accuracy, the automated data submission function of the benchmarking tool should be promoted widely. This function enables:

- Automated utility billing data transfer
- Automated data transfer between different data collection tools (e.g., existing energy management tools)

On this recommendation, Energy/Resource Ministers could direct, as appropriate in their jurisdiction, their regulator, utilities or other parties to consult and report on establishing, on behalf of their customers, an automated bill submission system using the benchmarking tool.

What the Canadian Program Would Involve

The following are the chief features — outlined in the graphic on page 11 — of the proposed Canadian program:

- A Canadian *reference database* that provides a Canadian benchmark range for actual building energy use by building type (e.g., office, school, bank, hospital). The energy-use ranges used in the reference database will be determined by a statistical regression analysis of energy-related variables and algorithms applied to building data from a national survey. The data will be normalized for location and occupancy features that impact energy use in each building type. The Canadian reference database will be located in Canada.
- A *bilingual rating system* (Web-based tool and series of Canadian algorithms) that issues an unverified online rating and a report based on data submitted through a Web-based Canada–U.S. interface. This interface, *Portfolio Manager*, allows owners on either side of the border to input data and manage the energy information for portfolios of buildings. *Portfolio Manager* does not itself store data but provides a data input and display function for authorized users. The tool would offer input/results in both imperial and metric measurements.

NRCan and EPA would work together to modify *Portfolio Manager* to meet the needs of Canadian users. All features currently available through the Web interface to U.S. users would be made available to Canadian users. The interface would include an automated bill submission system that can allow the submission of accurate billing data monthly from third parties, with client-owner approval of the data transfer.

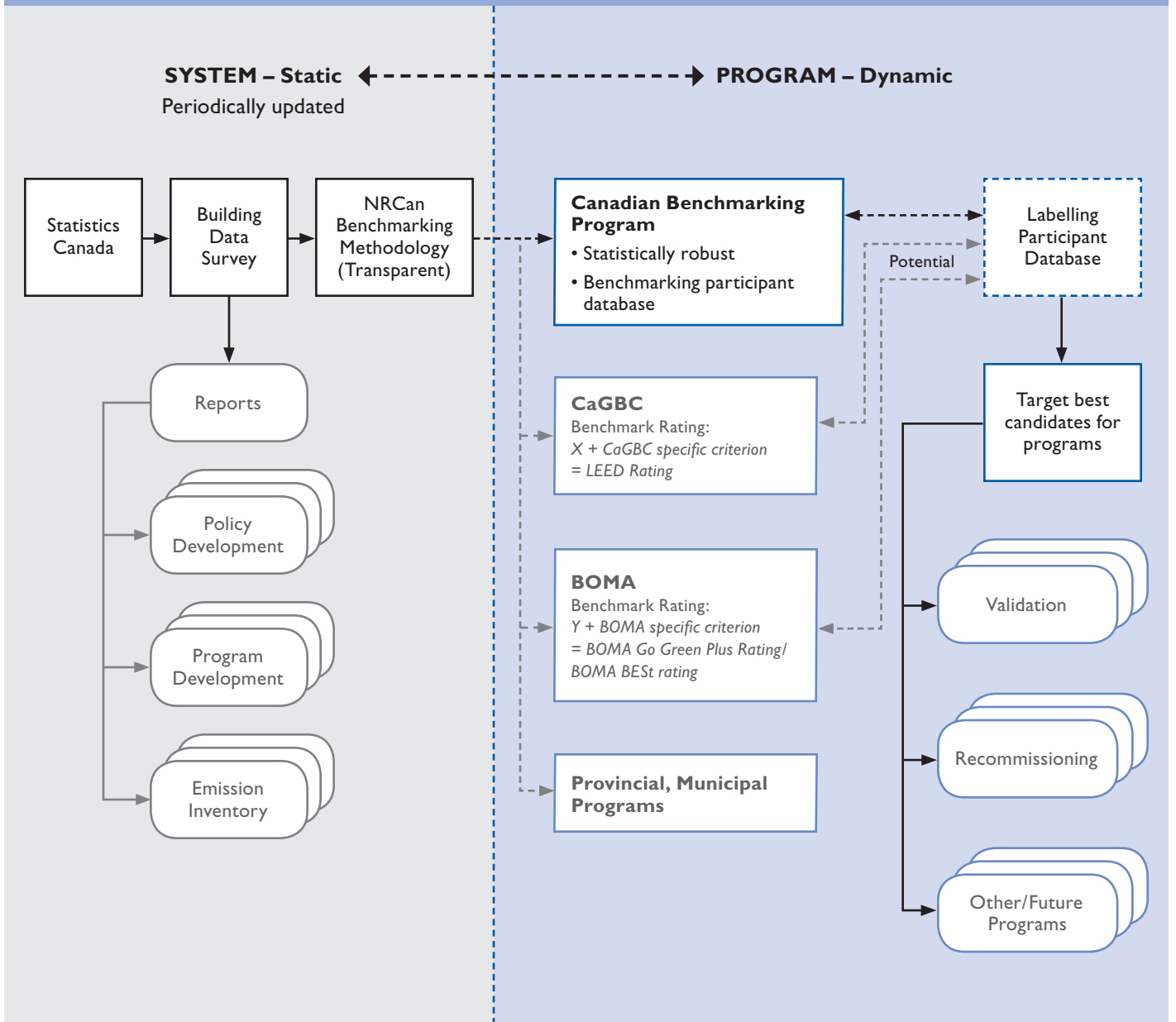
- A Canadian *program database* that stores all the data input to the rating tool and all calculation results related to the algorithm calculations on the specific data of each building. The program database for Canadian building data, like the reference database, would be located in Canada.
- An *automated data submission system* that would allow energy suppliers and users of energy management software to automatically send energy use/billing information for individual buildings directly to the national program database.

Preliminary Steps

Three broad tasks would need to be completed in order to establish the benchmarking and rating system:

- Development of a survey tool:
 - The survey component of the benchmarking system would need to be updated every five years.
- Development of a Canadian reference database:
 - Long-term funding would be required to maintain the reference database.
- One-time funding for the development of a Web-based interface tool and program database to capture building data and methodology:
 - The interface tool would have to be developed and tested under initial, one-time funding.
 - Long-term funding would be required to maintain and update the program database and the interface tool.

Figure 2: Proposal Data Flow



Proposed Timeframe

Task 1: Statistics Canada Survey and Data Analysis December 2009 to September 2011

- Conduct Statistics Canada national survey
- Perform regression analysis and develop algorithms

Task 2: Develop Online Tool and Program Database December 2009 to December 2011

- Develop Cooperative Research and Development Agreement (CRADA) with U.S. EPA for cooperative project
- Develop a Canadian interface for the online tool
- Beta-test installed Canadian algorithms

Task 3: Develop Funding Sources and Administrative Protocols/Address Capacity September 2009 to March 2012

- Develop TB Submission for funding for activities beyond March 2011
- Develop and deliver program documentation and communications/marketing/training materials; automated benchmarking system; automated database functions

Task 4: Launch Program for Office and K–12 School building types Between April and September 2012

Issues, Risks and Benefits

Potential issues, risks and benefits identified by the Labelling Sub-Committee are attached as **Appendix D: Issues, Risks and Benefits**.

Resources Required

It is recommended that provinces and territories would not be impacted either for costs to establish the benchmarking system or for costs for the ongoing survey of a national sample of statistically significant buildings that is used to develop the benchmark.

Where jurisdictions elect to adopt the system within their regulations (such as the consideration being given by British Columbia to rate and label a building at time of sale), provinces/territories would be responsible to develop the infrastructure for staffing and administrative functions of the labelling process. It is anticipated that such costs would be low since the benchmarking and rating activity will already be in existence and partially automated.

A preliminary estimate of overall funding of \$8–10 million is anticipated in order to establish and enhance the program infrastructure between FY2011 and 2015.

Appendix A: Members of the Sub-Committee

Composition

The Sub-Committee is composed of representatives from provincial and territorial energy departments designated by the DSMWG member, and from NRCan. It includes a limited number of invited individuals, and participation is voluntary. Non-participants may choose to be corresponding members and receive minutes of meetings and shared documents.

Active members – February 2009

Alison Bailie, Sustainable Communities Group, Pembina Institute
 Kristina Edwards, Office of Energy Efficiency, Natural Resources Canada
 Michel Gauvin, Office of Energy Efficiency, Natural Resources Canada
 Graham Henderson, BC Hydro
 Philip Jago, Office of Energy Efficiency, Natural Resources Canada
 Ken Klassen, Manitoba Science, Technology, Energy and Mines
 Michel Lamanque, Office of Energy Efficiency, Natural Resources Canada
 Tom MacDermott, Efficiency New Brunswick
 Colin McDowell, Yukon Department of Energy Mines and Resources
 Josh McLean, Conserve Nova Scotia, Government of Nova Scotia
 Grant McVicar, Office of Energy Conservation, Saskatchewan Research Council
 George Meggison, Office of Energy Efficiency, Government of Prince Edward Island
 Steve Mooney, Conservation and Sector Development, Ontario Power Authority
 Andrei R. D. Nikiforuk, Policy Integration, Alberta Department of Energy
 Mathieu Payeur, Agence de l'efficacité énergétique du Québec
 Louise Tanguay, Office of Energy Efficiency, Natural Resources Canada
 Martin Whicher, Energy Conservation Branch, Ontario Ministry of Energy

Corresponding members

David Bazeley, Department of Natural Resources, Government of Newfoundland and Labrador
 Jamie Flaherty, Qulliq Energy Corporation, Nunavut
 Dave Nightingale, Department of Industry, Tourism and Investment, Government of the Northwest Territories

Invited Members – 2008

Preshant Bhalja – City of Guelph – Labelling Pilot
 Mark Hartman – City of Vancouver – Labelling Pilot
 Kirk Johnson – City of Toronto – Labelling Pilot
 Angela Yeung – Regional Municipality of Peel – Labelling Pilot
 Jean Lacroix – AQME (Quebec) – Labelling Pilot

Appendix B: Sub-Committee Work Completed

Research and Design

Aug. 2006	Research paper: “Building energy labels – The meaning and relevancy of ‘points-based’ scoring methodologies”
Sep. 2006	Research paper: “An overview of the psychological forces influencing pro-environmental behaviour, with a focus on their relevance to energy label program design”
Mar. 2007	Research paper: “Building energy rating/labelling programs research and analysis”
Aug.–Sep. 2007	Survey: Survey of the concept of labelling and a draft label. Survey of 10 000 sector representatives (14% response rate)
Oct. 2007	RFP for NRCan-funded pilot projects: Goals to understand barriers to data gathering and solicit recommendations for label and labelling communications format
Nov. 2007	Report: Labelling survey
Dec. 2007	RFP for pilot projects: Review and pilot selection
Apr. 2008	Pilot projects begin (400 buildings to label by 2011; five partners to date)
Dec. 2008	Research study: “Comparing ENERGY STAR methodology with Canadian environmental labelling systems”
Jun. 2008	Options for Voluntary Building Labelling in Canada (INTERNAL DOC)

Consultations

Mar. 2006	Sector consultation: Value and uses of a rating and labelling system for Canada
Dec. 2006	Sector consultation: Labelling Forum – Building market input on the introduction of voluntary energy-specific labels
Feb. 2007	Stakeholder consultation: Building owner views on voluntary labelling
Oct. 2007	Stakeholder consultation: Available data and databases
Feb. 2008	Consultations with CaGBC and BOMA begin
Aug.–Nov. 2008	Consultations with ENERGY STAR (EPA) in the U.S.
Nov.–Dec. 2008	Consultations with provinces active in the labelling committee (N.B., N.S., P.E.I., Que., Ont., Man., Sask., Alta., B.C.)
Feb. 2009	National consultation with building owners in office, school, LTC and MURB subsectors on ENERGY STAR application in a Canadian system

Appendix C: Key Systems Investigated

The initial goals of the benchmarking system were defined as “to create a credible national voluntary system for benchmarking actual energy use in buildings in a manner that could support voluntary building labelling.” On the basis of that definition, it was determined that the system needed to:

- Focus on energy
- Be a voluntary system that minimized the time and cost to the client to collect data
- Be simple to do – owners should be able to do it
- Be flexible – there should be different ways to access the service
- Give a clear message – associated with an effective marketing campaign
- Have a low fee (preferably under \$1,000) and be seen to give value to the user
- Be sufficiently rigorous and transparent in methodology and calculations to gain broad acceptance in the marketplace
- Be capable of including a cost-recovery fee, if necessary, to process a label
- Be capable of updating data at given time intervals
- Be capable of being applied, in time, to most buildings, not just the best in class
- Be capable of being widened in scope to include other functions if the market so demands
- Be capable of being implemented gradually
- Incorporate stakeholder needs in the development of the activity

THEME	EU System	CaGBC	BOMA	ENERGY STAR
Focus on energy alone	Yes	Environmental certification – Energy is 18% of total core points	Environmental certification – Energy is 29% (consumption (80) management (80) energy efficiency = total of 290 points building energy)	Yes
Simple to do (owner could do it)	Complex	Simple – limited data collection	Complex – substantial data collection (close to an audit)	Simple
Different ways of accessing and using the service	Process defined in the mandatory program – not for all (e.g., small) buildings	Part of certification – online database allows automated benchmarking	Part of certification – online database for data input	Automated benchmarking, online reference database
Clear message	Energy is the focus. Water and GHG are also addressed. Rating scale A-G	Environment is the message. Success in LEED EBOM is based on scoring a minimum of 71 on U.S. ENERGY STAR scoring system's 1–100 (where a rating is available).	Environment is the key message. Four rating levels U.S. Green Globes is now working with EPA ENERGY STAR.	Energy is the key message. Rating scale 1–100
Cost to use system, membership fee	Mandatory	Membership fee \$300–\$7,500 (from CaGBC, not posted on Web site)	Membership fee \$1,275– \$7,000	No fees to use system or for existing top performer certification
Cost for label	\$1,000–\$50,000			
Professional costs to gather/certify data prior to submission	Professional costs for engineer	Professional costs for engineer	Professional costs for engineer	Professional costs for engineer
Rigorous and transparent in methodology	Yes	Self-referencing database is a concern – program ratings change depending on contents of program database.	Scale ranges from Canadian office building average used in climate tables of 1996 to C2000 at the top end Measured in ekWh	Reference and program databases are separate, allowing for stable references over several years
Capable of being financially self-supporting	Funded by government	Funded by industry/users	Funded by industry/users	Funded by government
Designed to update data easily	Yes	Yes	Yes	Yes
Apply to all (or most) buildings	Yes – by size initially; smaller buildings exempt	Offices and schools, with more on the way	Offices, with shopping centres and industrial retail strip plazas on the way	Financial institutions, courthouses, hospitals, hotels and motels, K–12 schools, medical offices, offices, residence halls, retail stores, supermarkets, warehouses, wastewater
Capable of being scaled up	Yes	Yes	Yes	Yes
Incorporates stakeholder needs	Policy driven, stakeholder consultation process	Sector/Association driven	Sector/Association driven	Update mechanism and consultation process

Appendix D: Issues, Risks and Benefits

Issues

Complementarity

The system must be complementary with existing rating schemes in the market:

- NRCan will continue to work with CaGBC, BOMA and ASHRAE to ensure that the Canadian benchmarking system could add value in their certification processes.

Confidence in the long-term program

The program must be designed and resourced for long-term operation. In order to support the proposal, potential partners must be reassured that:

- The regular survey research would be undertaken by the federal government for the foreseeable future.
- The reference database and program tools would be supported by the federal government for the foreseeable future.
- The program database and all program activities would be designed to be capable of being managed by government or another third party, depending on circumstances.

Usefulness of data provided

The materials (rating and report) provided to the participants must be sufficiently detailed and accurate to provide them and other parties — such as renters, utilities, financial institutions and Canadian sustainable building programs — with recognized value.

Costs to building owner to participate

There should be no cost to enter data in the online tool to benchmark a building.

Transparency and universality

The methodology and rating process must be seen to be transparent, fair and accessible to all. The EPA addresses this requirement by posting its methodology online and offering free online use of its tool. Similarly, the Canadian system can ensure transparency through the recommended creation of an oversight committee and by posting all relevant information on a Web site.

Privacy and reporting

Information collected through the benchmarking system would be protected to the levels prescribed by existing Canadian privacy laws:

- All data would be stored on servers based within Canada.
- Canada should publish only aggregated data, not individual file data.
- There is the potential to develop data submission and data sharing partnerships with utilities, provinces, territories and other partners. Client data owners would be required to approve the sharing of their data with other parties.

Scalability

The system must be capable of being expanded over time to include:

- The rating of new construction
- Increasing the number of rateable building types
- Additional data on matters (e.g., water usage) beyond the scope of the present project but nevertheless valuable and appropriate for collection under a building sustainability program

Risks

Risks associated with undertaking the proposed activity include:

- Failure to obtain forecasted participation (low risk)
- Other programs electing not to adopt the system (low risk)
- The activity failing to elicit actual energy improvements (low risk)

Risks associated with not undertaking the proposed activity include:

- The market will continue to be relatively uninformed about the energy consumption of buildings and unmotivated to make improvements (present state).
- Several different, uncoordinated systems could emerge, resulting in customer confusion (present state).
- Customers could be driven to American systems, with Canada losing the intellectual data and Canadian data fitting poorly with American algorithms (present state but low risk. The U.S. EPA tool can rate Canadian buildings but against U.S. data, which is a poor fit.).

Benefits

Energy savings and GHG emission reductions:

- Creates owner/manager awareness of energy use
- Provides critical base knowledge for governments to measure energy savings and GHG emissions from C/I buildings
- Provides a mechanism for evaluating continuous improvement
- Provides a common platform for multiple market transformation tools (codes, programs, policies)

Ease of adoption/use:

- Standardized national data system
 - Will not compete with existing systems
 - Provides a common energy score for application in other building-related activities, such as BOMA BESt, CaGBC EB:OM and ASHRAE's Building EQ label
 - Will be in both official languages and use both metric and imperial units
- Simple, easy-to-understand tool
- Builds on the existing ENERGY STAR system and brand

Customer benefits:

- The online tool provides a mechanism to track and rate buildings' energy and the power to better manage operations and identify poorly performing buildings for targeted investment, ultimately reducing operating costs.
- The program provides a basis for seeking assistance from industry colleagues and adopting best practices.
- The benchmarking system could provide a mechanism for demonstrating a building owner's environmental commitment.

Economic benefits

- The benchmarking system could enable verifiable assertions about the increased market value of energy-efficient green buildings.

Notes

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